2010 -2015 Multi-Jurisdiction Hazard Mitigation Plan

Table of Contents

Introduction
- McPherson County Hazard Mitigation Planning Committee 4
- Overview 6
- Prerequisites 7

Chapter 1 – Planning Process
- Leading Plan Development and External Contributors 8
- Hazard Mitigation Planning Committee (HMPC) Role 9
- Jurisdiction Participation 9
- Public Participation 10
- Neighboring County Participation 10
- Hazard Mitigation Planning Meetings
  - Schedule of McPherson County HMPC Meetings 10
  - HMPC Meeting Participants 11
  - Hazard Mitigation Planning Meeting Summaries 12
    - Meeting #1 Summary 12
    - Meeting #2 Summary 13
    - Meeting #3 Summary 14
- Review and incorporation of Existing Plans, Data Reports, and Studies 14
- Obstacles Encountered During the Planning Process 15

Chapter 2 – Risk Assessment
- Hazard Identification Analysis 16
- Defining the Hazards 17
- Methodology 18
- McPherson County Hazard Identification Process 18
  - McPherson County Hazard Vulnerability Assessment 20
- Disaster Declaration and Damage Assessment Process 21
  - Presidential Disaster Declarations involving McPherson County 21
  - Emergency Declarations involving McPherson County 22
  - Secretarial Disaster Designations Involving McPherson County 22
- Hazard Profiles
  - Agricultural Infestation 25
  - Dam and Levee Failure 31
  - Drought 36
  - Earthquake 40
  - Expansive Soils 44
  - Extreme Temperatures 47
  - Flood 51
  - Fog 63
  - Hailstorm 65
  - Hazardous Materials 69
  - Land Subsidence 74
  - Landslide 77
  - Lightning 80
  - Major Disease Outbreak 83
  - Radiological 87
  - Soil Erosion and Dust 90
  - Terrorism/Agri-Terrorism/Civil Disorder 93
  - Tornado 97

Utility/Infrastructure Failure 102
Wildfire 105
Windstorm 109
Winter Storm 113

Chapter 3 – Jurisdiction Profiles
McPherson County 119
City of Canton 153
City of Galva 178
City of Inman 194
City of Lindsborg 221
City of Marquette 254
City of McPherson 276
City of Moundridge 317
City of Windom 337
Smoky Valley Unified School District 400 355
McPherson Unified School District 418 361
Canton-Galva Unified School District 419 370
Moundridge Unified School District 423 376
Little River Unified School District 444 381
Inman Unified School District 448 387
McPherson College 393
Hutchinson Community College 399
Central Christian College 404
DS&O Electric Cooperative, Inc. 414
Flint Hills Rural Electric Cooperative 416
Ark Valley Electric Cooperative, Inc. 419

Chapter 4 – Mitigation Strategy & Plan Maintenance
Implementation of National Flood Insurance Program 427
Community NFIP Participation 428
Local Hazard Mitigation Goals and Objectives 428
Identification and Analysis of Mitigation Actions 429
Implementation of Mitigation Actions 431
Multi-Jurisdictional Mitigation Actions 432
McPherson County 2010 Mitigation Actions 432
Plan Maintenance Process 434
Monitoring, Evaluating, and Updating the Plan 434
McPherson County Maintenance Schedule 435
Incorporation into Existing Planning Mechanisms 437
Continued Public Involvement 438

Appendices
Appendix 1 – Hazard Mitigation Meeting Invitation List 440
Appendix 2 – Kick-Off Meeting Invitation 443
Appendix 3 – 2nd Meeting Invitation 445
Appendix 4 – 3rd Meeting Invitation 446
Appendix 5 – Neighboring Counties and State Agencies Invitation 448
Appendix 6 – Kick-Off Meeting Sign-In Sheets 449
Appendix 7 – 2nd Meeting Sign-In Sheets 457
Appendix 8 – 3rd Meeting Sign-In Sheets 461
Appendix 9 – Kick-Off Meeting Minutes 464
Appendix 10 – 2nd Meeting Minutes 475

Appendix 11 – 3rd Meeting Minutes 488
Appendix 12 – Public Meeting Newspaper Press Release 507
Appendix 13 – Newspaper Press release for Public Input on Plan Draft 508
Appendix 14 – Adoption Resolutions 509

References *531*

McPherson County Hazard Mitigation Planning Committee

McPherson County Emergency Management
Coordinator – Dillard Webster
Administrative Assistant – Julie McClure
McPherson County
LEPC – Randy Easter, Ken Amburst, Darren Frazier, Michael Tarry, James Jumonville
McPherson County Unincorporated & Townships – Dillard Webster, Kenneth Cook, Kevin Beakey, Harris Terry
Cities
City of Canton – Diann Hrabe, Brad Smiley, John Betzer
City of Galva – Staci Curl
City of Inman – Keith Miller, Danny Parr
City of Lindsborg – Tim Berggren, Gary Shogren, Tim Dunn, Delwin Koons
City of Marquette – Allan Lindfors
City of McPherson – Tom Brown, Nick Gregory
City of Moundridge – Ron Huxman
City of Windom- Janis Bernd, Gail Lauderdale
Unified School Districts
Smoky Valley USD 400 – Glen Suppes
McPherson USD 418 – Sheldon Anderson
Canton USD 419 – Bill Seidl
Moundridge USD 423 – Chad Higgins
Windom USD 444 – Matt Dougherty
Inman USD 448 – Kevin Case
Colleges
McPherson College – Shane Netherton, Tim Bruton, Brad Stucky
Central Christian College – David Ferrell, Rich Edwards, Chris Smith
Hutchinson Community College – Kristi Bohling-DaMetz
Bethany College – Randy Jirak
Rural Electric Cooperatives
DS&O Rural Electric Cooperative, Inc – Don Hellwig, Derrick Rutherford
Flint Hills Electric Cooperative – Charles Garckel
Ark Valley Electric Cooperative - Bob Hall
Fire Districts
Canton Fire Department (RFD #1) – Josh McMannis, Dave Schmidt, Dave McMannis

Marquette Fire Department (RFD #2) – Kerry Linder
Windom Fire Department (RFD #3) – Randall Kaufman, Troy Smyres, Janis Bernd, Mike Smyres
McPherson County RFD #4 – Sean Wilson
Inman Fire Department (RFD #5) – Roger Boesker, Rusty Johnson
Galva Fire Department (RFD #9) – Wayne Williams
McPherson Fire Department – Dennis Throne, Chris Biehler
Moundridge Fire Department – Mike Strouse, Dale Vickrey, Tim Blaylock
Special Districts
McPherson County Health Department – Lorraine Emler, Steve Johnson
The Cedars – Judith Wineland, Mike Harold, Bob Baldwin
Bethany Home –Delwin Koons, Dale Hoosier
Memorial Hospital – Gary Brown
Lindsborg Community Hospital – Larry Vanderwege
Hospira – James Jumonville
McPherson Council on Aging – Linda Skiles-Hadduck
Marquette EMS – Max Boffington
McPherson EMS – Randy Easter
Moundridge EMS – Angie Vickrey
Lindsborg Senior Center – Carolyn Gibson
McPherson Airport Authority – Tom Chandler
NCRA Refinery – Dennis Friesen, Rusty Johnson
McPherson Board of Public Utilities – Alan Weinbrenner
McPherson County Conservation Department – Brenda Peters
Mid-Kansas Co-op – Steve Peterson
Galva Police Department – Staci Curl
Inman Police Department – Bobby Herron
Lindsborg Police Department – Tim Berggren
Marquette Police Department – Darrell Elvin
McPherson Police Department – Dennis Shaw
Moundridge Police Department – Jay Kessler
911 Communications – Julie McClure
McPherson Amateur Radio – Stan Stephenson, Jerry Stiggins
Lindsborg News Record – Dan Carr
McPherson Sentinel – Lauren DeMott

Other agencies involved in the McPherson County Multi-Jurisdiction planning process include:
Kansas Division of Emergency Management
Kansas Department of Agriculture – Division of Water Resources
United States Department Agriculture – Natural Resources Conservation Services
Kansas Department of Transportation
State & Local Emergency Management Consultants

Overview

According to the Federal Emergency Management Agency (FEMA), "hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards." Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended by the Disaster Mitigation Act of 2000 (DMA 2K) requires States, Tribes, and local governments to embark on a risk-based approach to reducing risks to natural hazards through mitigation planning. In Section 201.2 of 44 CFR defines Local Government as:

> *Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State Law), regional or interstate government entity, or agency or instrumentality of a local government.*

FEMA requires a State Mitigation Plan as a condition of pre- and post-disaster assistance. Local governments must have a FEMA-approved Local Hazard Mitigation Plan in order to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

In accordance with FEMA requirements, McPherson County developed this Multi-Jurisdictional Hazard Mitigation Plan for the purpose of reducing or eliminating long-term risks to citizens and property from hazard events before they occur.

The most successful mitigation plans have a wide range of stakeholders who play a key role in identifying and implementing mitigation actions. Therefore, in order to ensure jurisdictions played an active role in the planning process, the Hazard Mitigation Planning Committee (HMPC) decided during the first planning meeting that jurisdictions must:

a) must assign a representative,
b) attend at least one HMPC meeting,
c) complete data collection worksheets,
d) assist in the risk assessment process,
e) develop and/or adopt at least one mitigation action item,
f) review and comment on the draft plan,
g) promote public awareness about the planning process, and
h) formally adopt the plan.

A complete list of participating jurisdictions is in Chapter 1 – Planning Process: Participating Jurisdictions. All of the jurisdictions listed are considered to be official participants and have met all of these requirements. Please see Appendices 6-8 for documentation of plan representation at the hazard mitigation planning meetings.

The McPherson County Multi-Jurisdiction Hazard Mitigation Plan is divided into four chapters following this Introduction:

- Chapter 1 – Planning Process
- Chapter 2 – Risk Assessment
- Chapter 3 – Jurisdiction Profiles
- Chapter 4 – Mitigation Strategy and Plan Maintenance

Prerequisites

FEMA requires local hazard mitigation plans to include documentation that the plan has been formally adopted by the governing body that is requesting approval of the plan. Multi-jurisdictional plans must document that each jurisdiction requesting approval of the plan has formally adopted it. Adoption by the local government illustrates the jurisdiction's commitment to implementing the mitigation goals and objectives. The adoption legitimizes the plan and authorizes responsible agencies to carry out their responsibilities.

Each jurisdiction that participated in the plan must have its governing body adopt the plan prior to FEMA approval. The following entities have been involved in the development process and have formally adopted this multi-jurisdictional hazard mitigation plan. Adoption Resolutions are attached in Appendix 15.

Note: After this plan has been reviewed and approved pending adoption by FEMA Region VII, the adoption resolutions will be signed by the following participating entities and attached in Appendix 14.

McPherson County Adoption Resolutions

Plan Adoptions Include	
McPherson County	Canton USD 419
City of Canton	Moundridge USD 423
City of Galva	Windom USD 444
City of Inman	Inman USD 448
City of Lindsborg	McPherson College
City of Marquette	Hutchinson Community College
City of McPherson	Central Christian College of Kansas
City of Moundridge	DS&O Rural Electric Cooperative, Inc.
City of Windom	Flint Hills Electric Cooperative
Smoky Valley USD 400	Ark Valley Electric Cooperative
McPherson USD 418	

44 CFR §201.6(d)(3) states that hazard mitigation plans must be reviewed, revised, and resubmitted for approval within five years in order to continue to be eligible for grant project funding . The plan approval date begins the five-year approval period and sets the expiration date for the plan. The official approval date is identified on the signed FEMA approval letter, along with the expiration date of the plan.

In the event the plan is not adopted by a participating jurisdiction, that jurisdiction would not be eligible for project grants under the hazard mitigation assistance programs previously mentioned.

Chapter 1 – Planning Process

This hazard mitigation plan is a multi-jurisdictional plan that identifies hazards that threaten the planning area. The planning area in this plan refers to all areas within McPherson County's geographical boundaries. The primary purpose of the plan is to identify hazards that pose a risk to McPherson County, assess the impact of those hazards, and to adopt mitigation actions to reduce their impact.

The *Local Multi-Hazard Mitigation Planning Guidance (2008)* was used to establish the structure of McPherson County's planning process. The guidance states that the description of the planning process shall:

- Indicate how the public was given the opportunity to comment on the plan during the drafting stage and prior to plan approval;
- Include a discussion of the opportunity provided to neighboring communities, governmental agencies, businesses, academia, and other relevant private and non-profit interests to be involved in the hazard mitigation planning process; and
- Describe the review of any existing plans, studies, reports, and technical information, and how these are incorporated into the plan.

This chapter provides a description of the planning process utilized to develop the hazard mitigation plan. It is separated into the following sections:

- Leading the Project and Contractual Support
- Public Participation
- Neighboring County Participation
- Participating Jurisdiction
- Hazard Mitigation Planning Meetings
    - Schedule of McPherson County HMPC Meetings
    - Meeting Participants
- Hazard Mitigation Planning Meeting Summaries
    - Meeting #1 Summary
    - Meeting #2 Summary
    - Meeting #3 Summary
- Review and incorporation of existing plans, data reports, and studies
- Obstacles encountered during the planning process

The objective of pre-disaster mitigation planning is to reduce post-disaster costs by protecting critical facilities, reduce exposure, and decrease the overall impact hazards have on the community. The planning area has been affected by a variety of hazards in the past and the community leaders are committed to reducing the impact of future events. This plan will serve as guide for future mitigation activities.

Leading Plan Development and External Contributors

The McPherson County Emergency Management led the development of this hazard mitigation plan. Plan development began in October 2009 when the Emergency Management department and County Commissioners hired the consulting firm, State and Local Emergency Management Consultants, LLC (SLEMC). The role of the contractor was to:

- Facilitate hazard mitigation meetings.
- Provide data collection and analysis.
- Conduct a HAZUS Level 1 analysis for a 100-year flood event for the planning area.
- Produce a draft and final plan.
- Coordinate the Kansas Division of Emergency Management and FEMA Region VII plan reviews.

McPherson County Emergency Management invited various entities to the hazard mitigation planning meetings. Among those invited were municipalities, townships, school districts, police departments, rural electric cooperatives, colleges, healthcare agencies, fire districts, rural water districts, watershed districts, various county departments and the emergency managers from the surrounding counties. In addition Federal, State and regional agencies were invited. A complete list of those agencies invited is attached in Appendix 1. Documentation of each entity invited to the meetings is provided in Appendices 2-4.

Hazard Mitigation Planning Committee (HMPC) Role

The role of the HMPC was to provide guidance and direction in the planning effort to ensure the resulting document would be supported both politically and by the voting public within the planning area. The HMPC provided leadership and guidance, oversaw the planning process, and acted as the point of contact for each participating jurisdiction and the various interest groups in the planning area. The makeup of this committee was selected to provide a cross section of views to enhance the planning effort and to help build support for hazard mitigation. The HMPC decided that the McPherson County Emergency Management's Office would remain the lead agency in coordinating the time and place of future planning meetings.

Jurisdiction Participation

In order to create a successful hazard mitigation plan a wide range of stakeholders need to participate in identifying and assessing hazards, in addition to implementing mitigation actions to reduce the impact of those disasters. In order to guarantee jurisdictions actively participated in the planning process, the HMPC outlined the criteria needed to be a plan participant. The following are the steps the jurisdictions had to undertake to be a eligible applicant for this plan:

1. Assign a representative to attend at least one planning meeting;
2. Complete and return data collection worksheets distributed by SLEMC;
3. Support and assist in the risk assessment process;
4. Develop and adopt at least one mitigation specific to jurisdiction;
5. Review and comment on the initial draft of the hazard mitigation plan;
6. Promote public awareness about the planning process, and
7. Formally adopt the Final Hazard Mitigation upon FEMA approval.

According to Federal regulations a multi-jurisdictional plan is appropriate as a Local Hazard Mitigation Plan providing all the jurisdictions have participated in the development process. The following jurisdictions are considered to be official participants and have met all of the participation requirements previously discussed. Documentation of participation is provided in Appendices 6-8 through representative signatures on the planning meeting sign in sheets.

1. McPherson County (unincorporated areas and townships)
2. City of Canton
3. City of Galva
4. City of Inman
5. City of Lindsborg
6. City of Marquette
7. City of McPherson
8. City of Moundridge
9. City of Windom
10. Smoky Valley USD 400
11. McPherson US 418
12. Canton USD 419
13. Moundridge USD 423
14. Windom USD 444
15. Inman USD 448

16. McPherson College
17. Hutchinson Community College
18. Central Christian College of Kansas
19. DS&O Electric Cooperative, Inc.
20. Flint Hills Rural Electric Cooperative Association
21. Ark Valley Electric Cooperative

Public Participation

Under the Robert T. Stafford Act public involvement is required during the hazard mitigation planning process. According to federal regulations, the plan must provide at least two opportunities for public input: one during the drafting stage and the second prior to plan approval by the Federal Emergency Management Agency (FEMA).

The first opportunity for public input was provided on Thursday, February 4th when the Coordinator for the McPherson County Emergency invited the public to attend the hazard mitigation kick-off meeting. An announcement was published in the local newspaper, *The McPherson Sentinel,* inviting the public to attend the hazard mitigation planning meeting. The announcement also appeared on the McPherson Sentinel website at http://www.mcphersonsentinel.com on February 3, 2010. A copy of the press release is included in Appendix 12.

The second opportunity for public input was provided when the final hazard mitigation plan was placed on the county's website for review and comment on December 4, 2010. The website address is: http://www.mcphersoncountyks.us/. Once more, there was a news release published in the local newspaper announcing that the final hazard mitigation plan was available for review and provided instructions for submitting comments. The newspaper announcement for public input on the final plan is attached in Appendix 13.

Neighboring County Participation

According to the *Local Multi-Hazard Mitigation Planning Guidance (2008),* Part of the open public involvement process is to include an opportunity for neighboring communities to be involved in the planning process.

Emergency Managers from surrounding counties were invited to attend the hazard mitigation planning meetings and/or provide comments on the plan draft. The neighboring counties include: Ellsworth, Saline, Dickinson, Marion, Harvey, Reno, and Rice. Invitations were sent via electronic mail. A copy of the e-mail invitation is attached in Appendix 5.

Hazard Mitigation Planning Meetings

McPherson County conducted three hazard mitigation planning meetings. Table 1.1 is the meeting schedule.

Table 1. 1 - Schedule of McPherson County HMPC Meetings

Meeting	Date
McPherson County HMPC Kick-Off Meeting	February 18, 2010
McPherson County HMPC Meeting #2	April 15, 2010
McPherson County HMPC Meeting #3	June 4, 2010

Table 1.2 identifies the agencies that attended each of the planning meetings, provided data used to conduct the risk assessment, and participated in the development of mitigation action items.

Table 1. 2 – HMPC Meeting Participants

Organizations Represented	Meeting 1	Meeting 2	Meeting 3	Provided Data	Participated in the Development of Mitigation Actions
McPherson Co (unincorporated areas & townships)	X	X	X	X	X
City of Canton	--	X	X	X	X
City of Galva	--	X	--	X	X
City of Inman	X	X	X	X	X
City of Lindsborg	X	X	X	X	X
City of McPherson	X	X	X	X	X
City of Moundridge	X	--	--	X	**
City of Marquette	--	X	--	X	X
City of Windom	X	X	--	X	X
Smoky Valley USD 400	--	--	X	X	**
McPherson USD 418	X	--	--	X	X
Canton USD 419	--	--	X	X	**
Moundridge USD 423	--	--	X	X	X
Windom USD 444	--	X	--	X	X
Inman USD 448	--	--	X	X	**
McPherson College	--	X	X	X	X
Hutchinson Community College	--	--	X	X	X
Ark Valley Electric Cooperative	--	X	--	X	X
DS&O Rural Electric Coop	X	--	--	X	X
Flint Hills Rural Electric Coop	X	--	--	X	**
The county or city can function as a sub-applicant or sub-grantee on behalf of the following entities to apply for or administer hazard mitigation grants as long as the proposed mitigation actions or projects are consistent with the plan's goals and objectives. These entities do not have individual profiles, risk assessments, or action items in the mitigation plan; however, they did participate in the Hazard Mitigation Planning Meetings.					
Central Christian College	X	X	X	X	X
Bethany College	X	X	X	X	X
Canton Fire Department – RFD #1	X	X	X	X	X
Galva Fire Department - RFD #9	X	X	--	X	X
Inman Fire Department – RFD #5	X	X	--	X	X
Marquette Fire Department - RFD #2	X	--	--	X	--
McPherson Fire Department	X	X	X	X	X
McPherson County RFD #4	--	--	--	X	--
Moundridge Fire Department	X	--	--	--	--
Windom Fire Department - RFD #3	X	X	--	X	X
LEPC	X	X	--	--	X
Emergency Management	X	X	--	--	X
Floodplain Manager	X	--	X	--	--
McPherson County Health Department	X	X	X	--	X
The Cedars	X	--	--	--	--
Bethany Home	X	--	X	--	--
Lindsborg Senior Center	--	--	X	--	--
Memorial Hospital	--	X	X	X	X
Lindsborg Community Hospital	--	--	X	--	--

Organizations Represented	Meeting 1	Meeting 2	Meeting 3	Provided Data	Participated in the Development of Mitigation Actions
Hospira	X	X	--	--	X
McPherson Council on Aging	X	X	--	--	X
McPherson Airport Authority	X	--	--	--	--
NCRA Refinery	X	X	--	--	X
McPherson Board of Public Utilities (BPU)	X	X	--	--	X
McPherson County Conservation Department	X	--	--	--	--
Marquette EMS	X	--	--	--	--
McPherson EMS	--	X	--	--	X
Moundridge EMS	X	--	--	--	--
Galva Police Department	--	X	--	--	X
Inman Police Department	X	X	X	--	X
Lindsborg Police Department	--	X	--	--	--
Marquette Police Department	--	X	--	--	--
McPherson Police Department	X	X	--	--	X
Moundridge Police Department	X	--	--	--	--
911 Communication	X	X	--	--	X
Lindsborg News Record	--	--	X	--	--
Mid Kansas Co-op	--	--	X	--	--
Other Organizations Represented at Meetings					
McPherson Amateur Radio	X	--	--	--	--
The McPherson Sentinel	X	--	--	--	--
Kansas Division of Emergency Management	X	--	--	--	N/A
Kansas Department of Homeland Security	--	--	--	--	N/A
Kansas Department of Agriculture – DWR	--	X	--	X	N/A
United States Department of Agriculture – Natural Resources Conservation Service	X	--	--	--	N/A
Kansas Department of Transportation	X	--	X	--	N/A
State & Local Emergency Management Consultants	X	X	--	--	N/A

**Entity was not present at the second meeting when the mitigation actions were developed, but an individual meeting was conducted to assist them with the development of mitigation actions and inform them of the mitigation actions developed by the HMPC.

Hazard Mitigation Planning Meeting Summaries

Meeting #1 Summary

McPherson County Hazard Mitigation Kick-off meeting got the planning process underway. It was held in the McPherson Community Building at 122 East Marlin in McPherson, Kansas. The meeting was initially scheduled on February 4, 2010, but due to accident involving a gasoline tanker truck the meeting had to be postponed until Thursday, February 18, 2010. More information on the accident is included in Chapter 2 – Risk Assessment: Hazardous Materials.

It was determined the kick-off meeting should be a public meeting because McPherson County wants the public to be involved in the planning process from the initial phase. The McPherson County Emergency Management sent a press release to the local newspapers inviting the public to attend the meeting and be a part of planning process. The newspaper press release is attached in Appendix 12.

The first action of the meeting was to establish the McPherson County HMPC and discuss their role in the planning process. The HMPC discussed the need to invite all entities that may be eligible as potential applicants for FEMA's HMGP funds and others that are stakeholders of this process.

The Disaster Mitigation Act of 2000 (DMA 2K) was reviewed, along with a discussion of the grant programs and funds available after the plan has been approved.

It was determined that all stakeholders do not have authority to levy taxes, therefore are not considered eligible applicants. The stakeholders that do not have taxing authority must rely on participating municipalities to submit mitigation projects on their behalf, and are not required to adopt the plan, but are encouraged to be part of the planning process. This ensures their needs and priorities are considered when the HMPC defines mitigation strategies, goals, objectives and activities.

The HMPC developed several possible methods for promoting public participation. The HMPC decided to publish a notice in the local newspapers informing residents of upcoming meetings and how to get in touch with emergency management to provide their input on the hazard mitigation plan. The location, date and time of the meeting will be included in the public notice, which will be submitted to the local news paper, *The McPherson Sentinel*.

Following the public participation discussion, State and Local Emergency Management Consultants presented the hazards from the 2007 Kansas Hazard Mitigation Plan that were identified as a threat to the entire state of Kansas. It was determined that all the hazards that were identified in the State of Kansas Hazard Mitigation Plan, also have the potential to have a negative impact on the McPherson County planning area. Each hazard is profiled in Chapter 2 - Risk Assessment.

The HMPC adopted the risk assessment methodology required by the State of Kansas. The process includes evaluating each hazard identified as a threat to the planning area and assigning the hazard weighted factors, using the Calculated Priority Risk Index (CPRI). HMPC members agreed that hazards will be assigned a Calculated Priority Risk Index. This Hazard Ranking method uses a formula based on numeric assignments 1-4 for the following hazard elements:

- Probability
- Magnitude
- Warning Time
- Duration

(Probability x .45) + (Magnitude/Severity x .30) + (Warning Time x .15) + (Duration x .10) = CPRI

The methodology was then applied to each hazard and past events for each hazard were discussed. For the outcome of the hazard ranking, please refer to the meeting minutes in Appendix 9. During the hazard ranking process, an in depth discussion occurred about each of the hazards and the impact they have had on the planning area in the past.

Meeting #2 Summary

McPherson County Meeting #2 was held at the McPherson Community Building at 122 East Marlin in McPherson, Kansas. The meeting began with a review of the kick-off meeting minutes.

The HMPC discussed the need for goals and objectives. SLEMC explained to the HMPC that an important phase in the mitigation planning process was to develop goals and objectives. The HMPC must identify the goals they would like to achieve in order to reduce potential risks. The 2007 Kansas Hazard Mitigation Plan, the 2004-2014 McPherson County Comprehensive Plan, and the 2005 McPherson County Strategic Plan were reviewed in order to ensure the goals and objectives were consistent with those set forth in other plans for the area.

After careful review of the goals and objectives in the previously mentioned plans, the 2010 McPherson County Goals and Objectives were developed. Several of the State of Kansas mitigation goals and objectives are consistent with the ones in McPherson County. As a result, they were used as a basis for the goals developed here, with some modification. The goals and objectives are identified in Chapter 4: Mitigation Strategy and Plan Maintenance and in the meeting minutes attached in Appendix 10.

SLEMC distributed a worksheet with possible mitigation actions prior to the meeting. Following the development of the goals and objectives the HMPC was asked to complete the mitigation action worksheet. They were asked determine the relevance of each action item, based on if the action should be implement, in the process of being implemented, or has been completed. The worksheets were completed during the meeting and collected at the end. After the meeting the worksheets were then analyzed. The worksheet that was distributed, as well as the outcome is also in the meeting minutes attached in Appendix 10.

The final item on the meeting agenda was the mitigation strategy and maintenance schedule. SLEMC explained that FEMA regulations for local governments require local hazard mitigation plans be updated and resubmitted to FEMA for approval every five (5) years. A hazard mitigation plan maintenance schedule was proposed to the HMPC. The HMPC accepted the maintenance schedule and agreed to follow it. The maintenance schedule is detailed in Chapter 4: Mitigation Strategy and Plan Maintenance and in the meeting minutes attached in Appendix 10.

Meeting #3 Summary

The final planning meeting for McPherson County was held at the Law Enforcement Center in the training room in the basement located at 1177 West Woodside Street, McPherson, Kansas. During the final hazard mitigation planning meeting, the HMPC prioritized action items, including actions from the worksheets distributed in the 2nc meeting and also those developed by the individual jurisdictions. The complete list of action items that were considered is attached in the meeting minutes in Appendix 11.

The STAPLEE form was used to prioritize the actions. The STAPLEE is a form created by FEMA to evaluate and prioritize mitigation initiatives. The STAPLEE form that was completed during the meeting is also attached in the meeting minutes. For more information on the use of the STAPLEE form please refer to Chapter 4 – Mitigation Strategy.

Review and Incorporation of Existing Plans, Data Reports, and Studies

In order to coordinate with the other organizations whose objectives interrelate with hazard mitigation, the HMPC gathered and assessed existing plans, data reports, and studies. Multiple governmental agencies in McPherson County participated in the planning process to ensure the policies adopted coincide with those described in other policies and regulations. Coordination with these other organizations is crucial to the success of this plan.

Some of the plans, policies, and reports that were utilized during the development of this plan include:

- *Local Multi-Hazard Mitigation Planning Guidance (2008)*
- National Flood Insurance Program's Community Information System reports
- National Flood Insurance Program Insurance reports
- Emergency Preparedness Guidebook
- 2007 Kansas Hazard Mitigation Plan
- USDA, Kansas Field Office Crop Progress and Condition Report
- Kansas Climate Summary and Drought Report – Current Conditions, Drought Impacts and Outlook (January 2010)
- Kansas Department of Commerce 2008 Annual Report
- Kansas Water Plan
- Kansas Association of Conservation Districts Five Year Strategic Plan 2009-2013
- 2009 Managing the Risk Report by the Kansas Commission on Emergency Planning and Response

- 2009 Kansas Severe Weather Awareness Week Information Packet
- 2008 Kansas Department of Transportation Quick Facts Report
- McPherson County Regulations and Ordinances
- McPherson County Hydrology Study
- McPherson County Comprehensive Plan: 2004-2014
- 2005 McPherson County Strategic Plan
- McPherson County Commissioners Meeting Minutes
- Zoning Regulations of McPherson County, Kansas
- Subdivision Regulations of McPherson County, Kansas
- Soil Survey of McPherson County, Kansas

The policies, goals, objectives and actions adopted in this plan are intended to be integrated into future development and updates of existing emergency plans, economic development plans, code development and enforcement. It should also be incorporated into plans for evaluating and implementing capital expenditures of each of the participating entities, as appropriate. Such integration will facilitate risk prevention practices, and support the achievement of the goals, objectives and initiatives outlined in this plan.

Obstacles Encountered During the Planning Process

The obstacles that were encountered during the planning process of this hazard mitigation plan include data collection. It was difficult to coordinate with the school districts to get the data collection sheets completed and returned due to scheduling conflicts. Individual correspondence had to occur in order to obtain the needed information.

Public input was also a challenge during the development of this plan. Although various attempts were made to obtain public input, McPherson County did not receive any public comment. It is recommended that during the update process the County should try to find other ways of acquiring public input. One suggestion would be the use of local access television.

Chapter 2 - Risk Assessment

Hazard Identification Analysis

This risk assessment was developed by the McPherson County Hazard Mitigation Planning Committee (HMPC), along with technical assistance from State and Local Emergency Management Consultants, LLC. It was developed in order to identify and prioritize appropriate mitigation actions to reduce or eliminate hazard vulnerability.

The HMPC discussed each hazard considered to pose a threat to McPherson County. The hazards were discussed extensively. The discussion focused on hazard events that occurred in the past and the extent of damage inflicted on the planning area as a result of each one. This information was then used as a basis for determining the probability, magnitude, duration and warning time for future events. After conducting the hazard analysis, an action plan for each hazard was developed. The mitigation actions that were identified were then prioritized to determine the actions to be adopted as a result of this hazard mitigation plan.

In order to complete the risk assessment data had to be gathered from various sources in addition to the HMPC. Other sources included, but not limited to, McPherson County Health Department, McPherson County Emergency Management, McPherson County Fire Districts, McPherson County Council on Aging, McPherson Planning and Zoning Department Kansas Forest Service, Kansas Geological Survey, Kansas Department of Agriculture - Division of Water Resources, Kansas Center for Community Economic Development, National Weather Service, National Climatic Data Center, U.S. Department of Agriculture, and the Kansas Department of Health and Environment.

This plan is considered a living document. It will continue to be updated and expanded in the future to ensure it identifies changing conditions in the participating jurisdiction. It will also reflect the planning area's experiences with disasters as they occur, as well as any changes in the characteristics of the hazards that threaten the involved communities. This updating process and future editions of the mitigation plan issued will also be used to continue to inform and involve the general public and other interested groups to fully participate in making the community more resistant to the impacts of future disasters.

This chapter is broken down by each hazard in alphabetical order. Information included under each hazard is:

- **Hazard Identification** – this section identifies and defines the hazards likely to affect the planning area.
- **Past Hazard Events** – this section includes the date the event occurred, scope of the event, the duration, and cost of damages that occurred.
- **Probability and Magnitude of Hazard** – in this section the magnitude or magnitude is discussed. The probability for future occurrence is also discussed in this portion of the risk assessment.
- **Hazard Risk Summary** – this section gives an overview of the HMPC ranking of probability, magnitude/magnitude, duration, and warning time. It also provides a comparison with the State's ranking for each hazard.
- **Hazard Vulnerability** - this section addresses the vulnerability and potential loss to key facilities and infrastructure from the more significant hazards. This section also outlines the area likely to be affected. For individual jurisdictional vulnerability, i.e. location of critical facility and the value of the buildings/infrastructure please refer to "Chapter 3 – Municipal Profiles."

Defining the Hazards

Federal Hazard List

The following table is a list of possible hazards and emergencies according to FEMA classifications. These hazards and emergencies have the potential to affect the nation. They are divided into three categories: natural hazards, technological hazards, and terrorism.

Table 2. 1- FEMA Classifications of Hazards and Emergencies

Natural Hazards	
Avalanche	Landslides and Debris Flow
Coastal Erosion	Thunderstorms and Lightning
Coastal Storm	Tornadoes
Earthquakes	Tsunamis
Extreme Heat	Volcanoes
Fires	Wildfires
Floods	Winter Storms and Extreme Cold
Hurricanes	
Terrorism	**Technological Hazards**
Explosions	Hazardous Materials Incidents
Biological Threats	Nuclear Power Plants
Chemical Threats	
Nuclear Blasts	
Radiological Dispersion Device (RDD)	

State of Kansas Hazard List

The Kansas Hazard Mitigation Team has identified the following hazards with the potential to affect the state of Kansas. These hazards are profiled in the 2007 Kansas Hazard Mitigation Plan. Federal planning standards require that these hazards be considered by every municipality in Kansas, when developing their own plan. Below is a list of the State Identified Hazards. They are divided into two categories: natural and manmade or technological.

Table 2. 2 – State of Kansas Identified Hazards

Natural Hazards			
Agricultural Infestation	Extreme Temperatures	Landslide	Windstorm
Dam and Levee Failure	Flood	Lightning	Winter storm
Drought	Fog	Soil Erosion and Dust	
Earthquake	Hailstorm	Tornado	
Expansive Soils	Land Subsidence	Wildfire	
Manmade/Technological Hazards			
Major Disease Outbreak			
Hazardous Materials			
Radiological			
Terrorism/Agro -Terrorism/Civil Disorder			

Utility/Infrastructure Failure

Methodology

The McPherson County Hazard Mitigation plan is based on an analysis of potential risk. The risk analysis was completed by:

- defining the planning area,
- identifying the hazards most and least common in the planning area, and
- rating the vulnerability for people, buildings, and infrastructure in the planning area.

There are two state requirements specific to mitigation risk assessment. One is the pre-defined list of hazards that impact Kansas, which is the basis for evaluating the threats to the planning area. The second is the implementation of the MitigationPlan.com methodology for risk assessment. That process is the Calculated Priority Risk Index (CPRI). The CPRI includes the rating of hazards based on four hazard-specific features, which are probability, magnitude, duration, and warning time. An independent numerical value is assigned to each of these features, and the multiplication of the rating times the value yields the measure for each of the four characteristics of each hazard.

In order to incorporate the MitigationPlan.com methodology into this plan, the risk assessment was based on historic hazard events that have occurred and the probability that hazard events will occur in the future. The information on prior occurrences was collected and evaluated to determine the frequency and magnitude of events. Some of the historical information in the plan was based on the information obtained from the McPherson County Hazard Analysis Plan, the McPherson County Emergency Operations Plan, and National Climatic Data Center (NCDC).

The frequency of past occurrences and the magnitude of those events were then analyzed to predict the probability of a future hazard event. This analysis was also used to predict the magnitude or magnitude of a possible hazard event. The methodology was applied to each of the 22 hazards profiled.

The HAZUS-MH MR4 tool was also used to evaluate the potential risk to the planning area due to dam/levee breaches and floods. HAZUS is a multi-hazard loss estimation model developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The principal purpose of HAZUS is to provide a methodology and software application to provide multi-hazard losses at a regional level. The loss estimates are primarily used by local, state and regional officials in planning efforts to reduce risks from various hazards and to prepare for emergency response and recovery.

A Level 1 assessment using the default parcel data provided by HAZUS. The use of this software provides data more specific to each jurisdiction in the planning area. Chapter 3 – Participant Profiles provides more detailed information on critical infrastructure and vulnerabilities for each jurisdiction.

McPherson County Hazard Identification Process

The primary focus of the mitigation planning effort was placed on natural hazards because of the funding stream attached to existing mitigation programs. However, some manmade/technological hazards are recognized as posing a significant threat to McPherson County, and therefore profiled in this risk assessment.

The McPherson County HMPC agreed that all hazards identified by Kansas Hazard Mitigation Team in the State Hazard Mitigation Plan of 2007 pose a risk for the planning area. Using Calculated Priority Risk Index (CPRI) described in Table 2.3, the HMPC ranked each hazard.

Table 2. 3 - Calculated Priority Risk Index (CPRI) Element Definitions

Probability (Probability x .45)	
4 - Highly Likely	Event is probable within one calendar year
	Event has up to 1 in 1 year chance in occurring (1/1 = 100%)
	History of events is greater than 33% likely per year
	Event is "Highly Likely" to occur
3 - Likely	Event is probable within the next three years
	Event has up to 1 in 3 years chance in occurring (1/3 = 33%)
	History of event is greater than 20% but less than or equal to 33% likely per year
	Event is "Likely" to occur
2 - Possible	Event is probable within the next five years
	Event has up to 1 in 5 years chance of occurring (1/5 = 20%)
	History of events is greater than 10% but less than or equal to 20% likely per year
	Event could "Possibly" occur
1 - Unlikely	Event is possible within the next 10 years
	Event has up to 1 in 10 years chance of occurring (1/10 = 10%)
	History of events is less than or equal to 10% likely per year
	Event is "Unlikely" but is possible of occurring
Magnitude/Severity ** **(Magnitude/Severity x .30)**	
4 - Catastrophic	Multiple deaths
	Complete shutdown of critical facilities for 30 or more days
	More than 50% of property is severely damaged
3 - Critical	Injuries and/or illnesses result in permanent disability
	Complete shutdown of critical facilities for at least 2 weeks
	25-50% of property is severely damaged
2 - Limited	Injuries and/or illnesses do not result in permanent disability
	Complete shutdown of critical facilities for more than 1 week
	10-25% of property is severely damaged
1 - Negligible	Injuries and/or illnesses are treatable with first aid
	Minor quality of life lost
	Shutdown of critical facilities and services for 24 hours or less
	Less than 10% of property is severely damaged
Warning Time (Warning Time x .15)	
4	Less than 6 Hours
3	6-12 Hours
2	12-24 Hours
1	24+ Hours
Duration (Duration x .10)	
4	More than 1 Week
3	Less than 1 Week
2	Less than 1 Day
1	Less than 6 Hours

**According to the severity associated with past events or the probable worst case scenario possible in the state

The formula used to determine each hazard's CPRI is as follows:
(Probability x .45) + (Magnitude x .30) + (Warning Time x.15) + (Duration x .10) = CPRI

Based on the CPRI the hazards were separated into three categories of planning significance. The categories are: High (3.0-4.0), Moderate (2.0-2.9), and Low (1.0-1.9).

The hazard ranking was based on the CPRI for the county as a whole. This hazard ranking does not necessarily apply to each jurisdiction. Therefore, individual jurisdictions may have ranked the hazards differently based on

specific hazard events that have occurred in that community. Please refer to Chapter 3 for the hazard rankings and planning significance for specific jurisdictions.

Table 2.4 is the hazard ranking and planning significance for the whole planning area in comparison to the State of Kansas hazard ranking from the 2007 State Hazard Mitigation Plan. The two columns in yellow are the hazard ranking and planning significance for McPherson County. The last two columns are the hazard ranking and planning significance for the State of Kansas.

Table 2. 4 - 2010 McPherson County Hazard Vulnerability Assessment

Hazard Priority	Hazard	Probability	CPRI Outcome	Magnitude	CPRI Outcome	Warning Time	CPRI Outcome	Duration	CPRI Outcome	McPherson County CPRI Hazard Ranking	McPherson County Planning Significance	State of Kansas CPRI Hazard Ranking	State of Kansas Planning Significance
1	Tornado	4	1.80	4	1.20	4	0.60	2	0.20	3.80	High	3.4	High
2	Windstorm	4	1.80	3	0.90	4	0.60	3	0.30	3.60	High	3.2	High
3	Flood	4	1.80	3	0.90	4	0.60	3	0.30	3.60	High	3.3	High
4	Winter Storm	4	1.80	3	0.90	3	0.45	3	0.30	3.45	High	3.3	High
5	Utility/Infrastructure Failure	4	1.80	2	0.60	4	0.60	2	0.20	3.20	High	2.85	Moderate
6	Wildfire	4	1.80	2	0.60	4	0.60	2	0.20	3.20	High	3.2	High
7	Hailstorm	4	1.80	2	0.60	4	0.60	1	0.10	3.10	High	2.8	Moderate
8	Major Disease Outbreak	4	1.80	2	0.60	1	0.15	4	0.40	2.95	Moderate	2.65	Moderate
9	Soil Erosion and Dust	4	1.80	2	0.60	1	0.15	4	0.40	2.95	Moderate	2.2	Moderate
10	Hazardous Materials	3	1.35	2	0.60	4	0.60	3	0.30	2.85	Moderate	2.9	Moderate
11	Lightning	4	1.80	1	0.30	4	0.60	1	0.10	2.80	Moderate	2.5	Moderate
12	Expansive Soils	3	1.35	1	0.30	4	0.60	4	0.40	2.65	Moderate	2.2	Moderate
13	Agricultural Infestation	3	1.35	2	0.60	1	0.15	4	0.40	2.50	Moderate	2.5	Moderate
14	Land Subsidence - Sinkholes	3	1.35	2	0.60	1	0.15	4	0.40	2.50	Moderate	2.65	Moderate
15	Extreme Temperatures	3	1.35	2	0.60	1	0.15	3	0.30	2.40	Moderate	2.4	Moderate
16	Fog	4	1.80	1	0.30	1	0.15	1	0.10	2.35	Moderate	1.6	Low
17	Terrorism/Agri-Terrorism/Civil Disorder	2	0.90	3	0.90	1	0.15	4	0.40	2.35	Moderate	2.65	Moderate
18	Drought	2	0.90	2	0.60	1	0.15	4	0.40	2.05	Moderate	2.8	Moderate
19	Earthquake	1	0.45	1	0.30	4	0.60	1	0.10	1.45	Low	1.75	Low
20	Landslide	1	0.45	1	0.30	1	0.15	4	0.40	1.30	Low	2.2	Moderate
21	Radiological	1	0.45	1	0.30	1	0.15	4	0.40	1.30	Low	1.95	Low
22	Dam and Levee Failure	1	0.45	2	0.60	1	0.15	1	0.10	1.30	Low	2.35	Moderate

Note the table above are the hazards ranked by the McPherson County HMPC for the entire planning area. Each participating jurisdiction also had an opportunity to rank the hazards based on the impact each hazard has had on their specific community. The participating jurisdiction rankings are in Chapter 3 – Jurisdiction Profiles.

Disaster Declaration and Damage Assessment Processes

Federal Disaster Declarations and Hazard Mitigation

A federal disaster declaration can be issued by the President for an impending or actual disaster. There are magnitude guidelines that indicate to state and federal officials if the impact is likely to call for a presidential declaration.

Presidential Declaration – The Federal Robert T. Stafford Act, otherwise known as the Stafford Act requires that all requests for a declaration by the President be made by the Governor of the affected state (Federal Emergency Management Agency). The Governor's disaster declaration request is made through FEMA Region VII office in Kansas City, Missouri.

The Governor's makes disaster declarations and requests for federal assistance based on State damage assessment reports. The Governor must take appropriate action under state law in order to execute the State's Emergency Response Plan. The declaration request must be documented with the nature of the disaster, the amount of state and local funds that will be dedicated to the disaster, and a cost estimate of the damage. The request must also state the magnitude of the impact on the public and private sectors and estimate of the amount and type of assistance needed under the Stafford Act. The Governor will also need to attest that state and local government obligations and expenditures will comply with all applicable cost-sharing requirements.

Based on the Governor's request, the President may declare that a major disaster or emergency exists. Once the President has declared a major disaster or emergency has occurred, a number of Federal programs would be activated to assist in the response and recovery effort. The Kansas Division of Emergency Management customarily requests the implementation of the Federal Hazard Mitigation Grant Program in all Presidential disasters declared for Kansas. Table 2.5 is the presidential disaster declarations for McPherson County, Kansas (Public Entity Risk Institute (PERI)). The costs shown are statewide for each incident in year 2009 dollar, not for McPherson County specifically.

Table 2. 5 – Presidential Disaster Declarations Involving McPherson County

Designation Number	Description	Date	Total Cost of Disaster (2009 $)	President the Declared Disaster
201	Flooding	6/23/1965	$6,914,039	Johnson
267	Tornadoes, Severe Storms & Flooding	7/15/1969	$4,160,314	Nixon
378	Severe Storms & Flooding	5/2/19763	$9,293,894	Nixon
403	Severe Storms, Tornadoes & Flooding	9/28/1973	$19,843,454	Nixon
1000	Severe Storms & Flooding	7/22/1993	$144,818,186	Clinton
1699	Severe Storms, Tornadoes, and Flooding	5/6/2007	$216,999,005	GW Bush
1741	Severe Winter Storms	2/1/2008	$296,528,846	GW Bush
1848	Severe Winter Storms and Record and Near Record Snow	6/24/2009	$5,423,592	Obama

A state of emergency is a governmental declaration that may suspend certain normal functions of government, alert citizens to alter their normal behaviors, or order government agencies to implement emergency preparedness plans. Such declarations usually come during a time of natural disaster or during periods of civil disorder. Table 2.6 is the presidential emergency declarations declared that have involved McPherson County

(Public Entity Risk Institute (PERI)). The costs shown are the statewide costs associated with the declarations in year 2009 dollar, not for McPherson County specifically.

Table 2. 6 – Emergency Declarations Involving McPherson County

Declaration Number	Description	Date	Total Cost of Disaster (2009 $)	President the Declared Disaster
3236	Hurricane Katrina Evacuation	9/10/2005	$174,569	GW Bush
3282	Severe Winter Storms	12/12/2007	$1,953,793	GW Bush

Agriculture Disaster Delarations

Disasters related to agriculture are fairly common. One half to two-thirds of the counties in the United States have been designated as a disaster in the past several years. There are four types of disaster designations made. They are:

- Presidential Major Disaster Declaration – previously discussed
- USDA Secretarial Disaster Designation – designations must be requested of the Secretary of Agriculture by a governor or the governor's authorized representative, or by an Indian Tribal Council leader. The Secretarial disaster designation is the most widely used and its process is the most complicated of the four.
- Farm Service Agency (FSA) Administrator's Physical Loss Notification (APLN) – this is for physical losses only, such as a building destroyed by a tornado. Livestock related losses are considered physical losses. An APLN is requested of FSA's Administrator by an FSA State Executive Director (SED).
- Quarantine Designation - designation is requested of the FSA Deputy Administrator for Farm Programs by an FSA SED. A quarantine designation authorizes EM loans for production and physical losses resulting from quarantine.

Table 2.7 is the Secretarial Disaster Designations for McPherson County, Kansas (Department of Homeland Security).

Table 2. 7 – Secretarial Disaster Designations Involving McPherson County

Designation Number	Description	Start Date	End Date	Termination Date
S2924	High Winds, Hail	7/17/2009	9/3/2009	7/6/2010

State Disaster Declaration Process

A state disaster declaration is issued by the Governor when the circumstances are considered to exceed local (city and county) resources. Such declarations, pursuant K.S.A. 48-924 activates the disaster response and recovery portion of the Kansas Response Plan and any local and inter-jurisdictional disaster plans applicable to the affected area. The County Emergency Managers will submit damage reports to the Kansas Division of Emergency Management to help determine the affected areas to be included in the state disaster declaration.

State disaster declarations do not activate emergency funds or programs to aid with the response and recovery. The only emergency funds available are limited to reimbursing state agencies for disaster related losses. There are no hazard mitigation provisions implemented by the state disaster declaration. The hazard mitigation funds are for pre-disaster work. State disaster declarations must be filed quickly with the Kansas Division of Emergency Management, the Office of the Secretary of State, and each city or county clerk in the affected area.

Local Disaster Declaration Process

The local government, meaning counties and cities, are designated under Kansas law with the authority to issue disaster declarations, under Kansas Statutes Annotate (K.S.A.) 48-932. When such declarations are made, it activates the local emergency response plan. The local emergency response plan addresses response and recovery plans for the area, including emergency assistance.

Damage information is collected by the County Emergency Managers from local officials, local response agencies, extension agents, voluntary organizations, local media, business owners and residents. The damage information is utilized to determine the level of response required. Emergency Managers report to the Board of County Commissioners on the emergency status. They request the issuance of a local disaster declaration if deemed necessary. Local disaster declarations must be filed promptly with the county or city clerk. The county or city clerk keeps a record of all local disasters declarations. The record of local disaster declarations is critical for documenting repetitive losses. The repetitive loss information is used when municipalities and special districts submit requests for hazard mitigation funds to the local government and FEMA. Damage levels do not need to reach state or federal disaster status to count toward repetitive loss consideration.

Hazard Profiles

Agricultural Infestation

In the photo above Stu Duncan, a crop and soil specialist from Kansas State University discussed the wheat varieties planted on a wheat test plot north of the City of Galva (Lauren DeMott). The photograph is courtesy of the McPherson Sentinel.

Hazard Definition

The term "Agricultural Infestation" as defined in the 2007 Kansas State Hazard Mitigation Plan refers to naturally occurring threats to agricultural production including the infestation by insects or diseases to crops and livestock. Potentially diminishing or eliminating their marketability and/or value. Certain levels of plant and animal diseases are common in the planning area, the problem occurs when the infestation becomes an epidemic. An epidemic refers to the outbreak and rapid spread of a disease that affects a large number of plants or animals in a relatively short period of time.

The rich fertile prime soils of McPherson County may be its most important natural resource. The U.S. Department of Agriculture defines prime farmland as land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be used as cultivated cropland, pasture or grazing land, woodland, or other agricultural primary land use. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil to economically produce a sustained high yield of crops. Farming prime farmland produces the highest yields with minimal inputs of energy and economic resources, and the farming of it results in the least damage to the environment (McPherson County).

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or natural irrigation. Soils temperatures and growing seasons must be favorable. Levels of acidity and alkalinity must be acceptable. The soil has few or no rocks and it must be permeable to both water and air. It is not excessively erodible and is not saturated by water or frequently flooded. Prime farmland soils generally range from zero to 6 percent slope. Approximately 474,000 acres, or 83%, of the total county acreage is prime farmland.

Livestock Infestation

Livestock is one of the primary agricultural commodities in McPherson County. A potential epidemic could be caused by an exotic disease from imported animals. A foreign animal disease outbreak in the cattle livestock in the State of Kansas could be detrimental to the meat production for the entire country. Kansas produces approximately 80% of the nation's meat. Currently, there is approximately seven days worth of meat on the market at a time.

It would be devastating to production and the economy if a major agricultural infestation in livestock such as, foot-and-mouth disease were to occur. It would spread throughout the country very rapidly, resulting in a "Stop Movement" order to be put in place. The stop movement order can occur just along the state borders and/or within the state. The Kansas Department of Animal Health and the Kansas Livestock Commission conducted a mock drill for Foot-and- Mouth disease on October 22, 2009.

Foot-and-mouth disease (FMD) is a highly contagious viral illness that is believed to be the world's most economically devastating livestock disease (US Government). The disease is also known as hoof-and-mouth disease, because it affects all cloven-hoofed animals such as, cattle, pigs, sheep, goats, water buffalo, deer, and even elephants. The cattle show symptoms of the disease quickly after onset. The symptoms are characterized by fever, pain, and small blisters filled with liquid containing the virus. Eruptions of the blisters most frequently appear in the mouth, nostrils, muzzle, feet, or teats.

The disease is an airborne virus and is spread via infected or contaminated sources, such as infected animals. The airborne virus can travel as far as 37 miles over land and 124 miles over sea. The factors that are favorable for the transmission of the airborne virus are low to moderate wind speeds, high humidity (FMD thrives above 60 percent relative humidity), stable atmosphere, temperature inversion, absence of heavy precipitation, and high density of susceptible animals (i.e. feedlots). There are currently five feedlots in McPherson County making them vulnerable to a foot-and-mouth disease outbreak.

FMD is so highly contagious; euthanizing infected and exposed animals is the best approach to control the spread of the virus. In most cases the carcasses are disposed of by burial. Large scale carcass disposal can be an enormous and difficult task because there are no methods to effectively dispose of millions of carcasses rapidly.

In addition to euthanizing animals, all premises that are epidemiologically connected to FMD are quarantined and become subject to strict controls. Animals that are within a two to ten mile radius of an infected premises or susceptible animals that were traced back to an FMD infected premises, animal movement would be restricted. The premises would then be disinfected. Animal fluids and feces should be cleaned off any material that may carry the disease.

The domestic animal losses from abortions, deaths, and lost productivity due to a foot-and-mouth disease outbreak in Kansas would have a substantial economic affect on the entire United States. The economic repercussions can range from hundreds of millions to billions of dollars.

Crop Infestation

Crop infestation is also a huge concern for farmers in McPherson County because wheat is an important economic resource. There are many different types of infestations that can occur in wheat. They include fungal, bacterial and viral diseases, insect pests, nematodes, physiologic and genetic disorders, as well as mineral and environmental stresses.

McPherson County conducted the annual McPherson County Wheat Variety Plot Tour in May, 2010. The tour was conducted in five locations in the county: Galva, Groveland, Moundridge, and two near the City of Marquette. Several individuals specializing in wheat crops explained each variety of wheat and updated the group on the progress of wheat crops in Central Kansas. The professionals discussed the diseases that are a growing concern for the wheat producers, including leaf rust and stripe rust (Lauren DeMott).

Stripe rust, also known as yellow rust, is a foliar fungal disease in wheat. Infection in the spike (head) it causes extensive quality and grain yield loss. The disease is caused by the fungus Puccinia striiformis f. sp. Tritici. The fungus can only survive and reproduce on wheat. It survives from one season to the next on volunteer plants. Mild winters and cooler wet weather in the spring and early summer favor the development of stripe rust. Host plant resistance is the most effective means to control the disease. However, different races of fungus can occur from one year to the next and might overcome the resistance.

A plant pathologist from Kansas State University indicated that stripe rust is beginning to show up in disease-resistant wheat varieties like Jagger. Stripe rust has been found at low levels in the McPherson County plots, as

well as other areas of Kansas. The major concern is that most of the varieties planted in Central Kansas are Jagger varieties.

Other diseases that are of concern include powdery mildew and barley yellow dwarf. Powdery mildew is widely distributed throughout the world, particularly in humid regions. It is caused by Blumeria graminis f. sp. tritici. It is most damaging in years with relatively mild temperatures and high relative humidity during April and May. The disease results in reduced kernel size and test weight, and ultimately a lower yield. The earlier in the spring mildew begins to develop on the plant the greater the yield loss.

Barley yellow dwarf occurs in most small grain growing regions of the United States. It is caused by a virus that is spread by aphids. The severity depends on the plants response to infection, the time of infection in the development of the plant, the variety of crop, and the conditions under which the crop is grown. Plants infected in the seedling stage yield much less than plants infected at a later stage of development. Infected plants grown on poor soil or without fertilizer are damaged most severely. Grain growers often fail to associate early aphid infestations with the incidence of BYD because symptoms usually do not appear until after aphids are gone. Symptoms from early fall infections may be suppressed until spring or, in the spring; symptoms may develop two or three weeks after aphid feeding.

Kansas State University is encouraging all wheat producers to be on the lookout for disease signs. Dale Ladd, McPherson County Extension Agent, reported that the 2010 wheat crop is expected to below normal. Kansas Agriculture Statistics forecasted the Kansas wheat crop to produce 344.4 million bushels, down seven percent from last year (Lauren DeMott). Two percent of the wheat conditions were rated as very poor, 6 percent poor, 28 percent fair, 53 percent good, and 11 percent excellent. The disease infestation continues to increase with 15 percent reported to have light infestation and 3 percent with moderate infestation.

History of Agricultural Infestations

Past Livestock Infestations

In 1929 foot-and-mouth disease was completely eradicated in the United States and has not returned. However, up until the year 1929 there were numerous outbreaks of the disease. The first case was in 1870, with recurrences in 1880, 1884, 1902, 1908, 1914, and two in 1924. Over 320,000 animals had to be slaughtered during the epidemics and cost $150 million (US Government).

March – May, 1997	Taiwan had a FMD outbreak. The virus that occurred in Taiwan was the O/TAW/97 foot-and-mouth disease and was unique because it only attacked swine. The cattle were resistant to this strain of the virus. The disease spread across the island rapidly. As a result, more than 65,000 jobs were lost and initially cost $10 billion. It is believed that the virus was introduced to Taiwan from China through one of several routes: an environmental migration of a “naturally” mutating virus; spread of an attenuated Chinese FMD virus strain used as an aerosol vaccine for cattle and buffalo; through inadvertent release of a non-inactivated live virus vaccine; as a result of poor veterinary monitoring at ports or other border locations; or by illegal importation of pigs or pork product from China (US Government).
2000	Previous outbreaks of FMD dating as far back as 1908 and 1934 occurred in Japan and the Republic of Korea, they recurred in 2000. Saudi Arabia, Russia, and Greece also suffered from outbreaks that year (US Government).
February, 2001	An epidemic occurred in the United Kingdom. There were more than 2,030 outbreaks throughout the nation and resulted in the slaughter and incineration of nearly four million livestock including 3,219,000 sheep, 597,000 cattle, 142,000 pigs, 2,000 goats, 1,000 deer, and 1,000 other FMD susceptible animals. The cost of the massive cleanup, sanitation efforts, and the economic impact to the nation’s overall economy from trade and travel restrictions exceeded $12 billion (US Government).

November 10, 2004 USDA's Animal and Plant Health Inspection Service (APHIS) announced the first confirmation of Asian soybean rust in the continental United States (Louisiana), followed by finds in 8 additional southern states (Purdue University Extension).

Past Crop Infestations

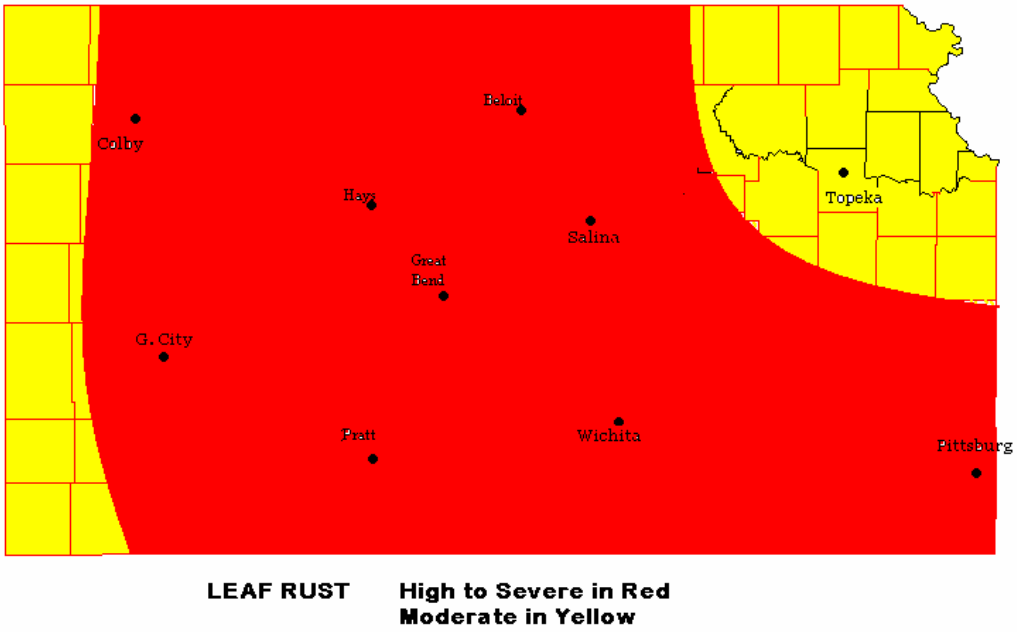
A series of severe stem rust outbreaks occurred in North America between 1900 and the 1950s, affecting grain production in the Great Plains, many Midwestern states, and Canada. More localized outbreaks of the disease occurred in the southern Great Plains as recently as 1985-1986. In all of these cases, the increased frequency and intensity of the stem rust epidemics was associated with the emergence of new races of the fungus that were able to overcome the genetic resistance of many popular varieties.

March 2010 Several cases of severe leaf rust and stripe rust in wheat were found in multiple locations around College Station, Texas during March, even in some varieties thought to be resistant to the disease. Cool temperatures and frequent rainfall in the region making the wheat more susceptible to fungal diseases. Outbreaks of severe leaf and stripe rust in Texas and Oklahoma often indicate a high risk of diseases in Kansas (Kansas State University Extension).

May 2010 Stripe rust is beginning to show up in disease-resistant wheat varieties like Jagger. Stripe rust has been found at low levels in the McPherson County plots, as well as other areas of Kansas. The major concern is that most of the varieties planted in Central Kansas are Jagger varieties (Lauren DeMott).

The following figure is from the 2007 Kansas State Hazard Mitigation Plan, it shows the areas of the state with rust disease pressure in 2007 (Kansas Hazard Mitigation Team). McPherson County was included in the region with high to severe leaf rust disease pressure.

Figure 2. 1 - 2007 Leaf Rust Disease Pressure



Probability and Magnitude of Agricultural Infestation

Currently McPherson County, as well as other areas of Kansas, is experiencing problems with rust infestations in some of the rust resistant wheat crops. For this reason, the HMPC ranked the probability of a major agricultural infestation as "likely" to occur.

Although the HMPC determined it is likely for agricultural infestation to occur, they determined the magnitude for such an occurrence is "limited". The magnitude is limited because 10 to 25 percent of the agricultural property would be affected. An extremely severe outbreak could potentially have enormous economical ramifications, but most likely a minor outbreak would result in a lower yield to the wheat production.

Agricultural Infestation Risk Summary

Table 2.8 is a risk summary for agricultural infestation in McPherson County. These are the overall vulnerabilities for all jurisdictions in the planning area. For individual jurisdictions rankings, please refer to Chapter 3 – Jurisdiction Profiles: 2010 Hazards Vulnerability Ranking.

Table 2. 8 – Agricultural Infestation CPRI Rankings

Agricultural Infestation	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	3	3
Magnitude	2	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.50	2.50
Ranking	13 out of 22	13 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Agricultural Infestation Vulnerability

Agriculture infestation does not target any specific geographical section of the county. It does not affect structures specifically; however the entire county is still vulnerable to agriculture related outbreaks because of the effect it would have on the local economy.

A major agricultural infestation could potentially have a devastating effect on the economy in McPherson County Certain climatic factors, such as heavy rains or extended periods of drought, can also be conducive to the spread of disease or infestations. Other natural disasters, such as windstorms and tornadoes, have the potential to disperse disease and pests into areas not previously affected. With the favorable weather conditions the probability of a major outbreak could rise.

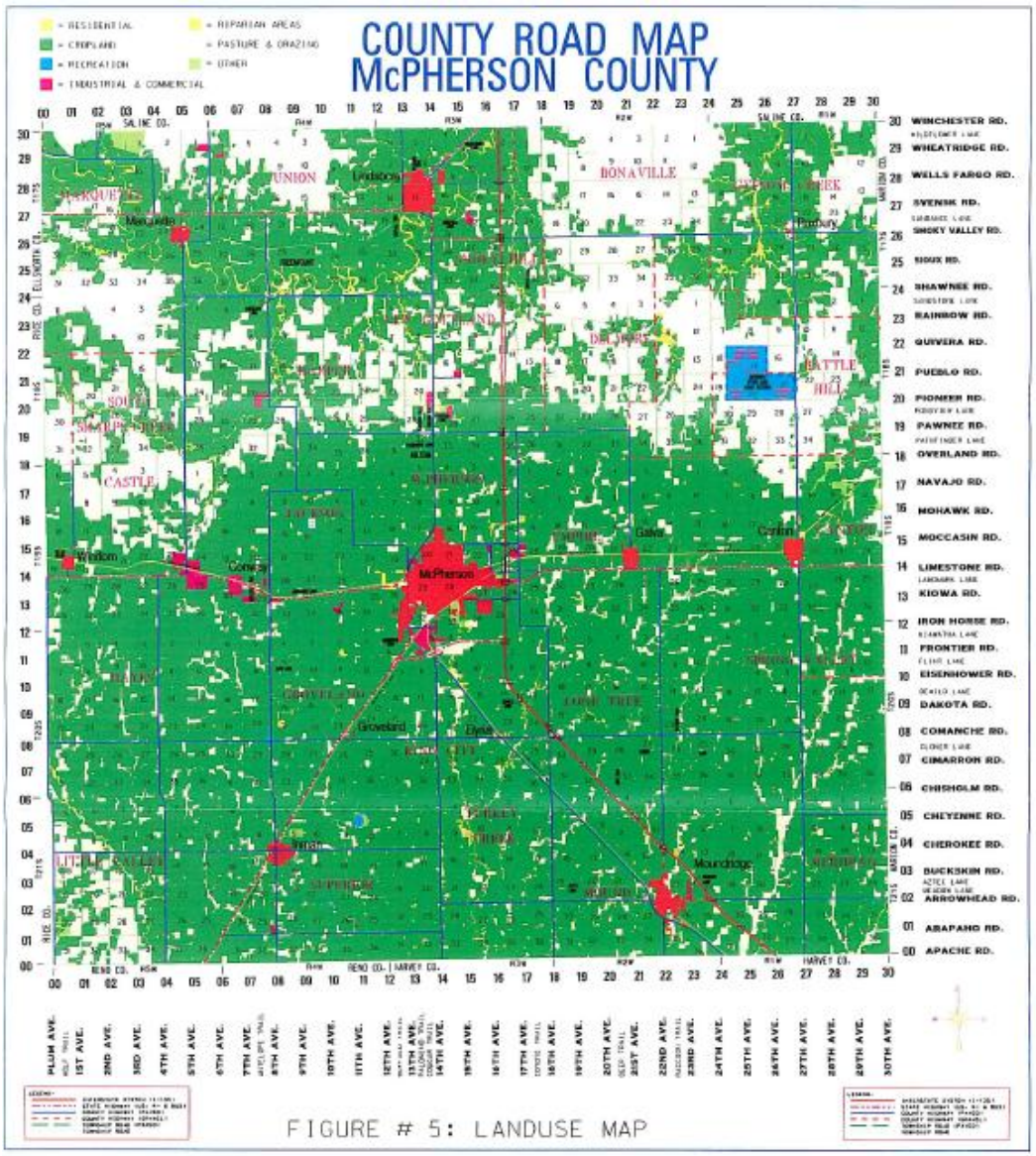
Agricultural infestations are a concern for McPherson County because in 2007 there were 566,309 acres of land used for agricultural production in McPherson County. The agricultural sales from those farms have an annual market value of $119,750,000. Sales of crops account for 48 percent of the total and livestock, mainly beef cattle, provides 52 percent (USDA).

The major crop in the county is hard red winter wheat with over 220,000 acres planted annually. Winter wheat has been the best adapted crop for the County and provides wheat for export and the milling industry located in McPherson. McPherson County has the second highest acreage in the state and is usually first or second in average yield per acre. Grain sorghum is the number two crop in the county, followed by corn and soybeans. Over 17,000 acres of corn is grown as an irrigated crop. The major forage crops are alfalfa and grass hay (McPherson County).

The largest percentage of the total county land area is used for agricultural purposes. In 1999, the principal land use in rural areas of McPherson County was cultivated crop land. The second principal land use was native and planted, grazing and pasture land, approximately 150,000 acres.

In addition to agricultural infestation, oil and natural gas extraction can possibly have a negative impact on agricultural land uses. Oil and gas production frequently involves on-site storage. On-site storage is generally made up of tank batteries. The tank batteries have caught fire in the past and posed a fire hazard to nearby residences, farm structures, and even farm crops. Oil wells may also contaminate the groundwater by acting as a way for salt and oil residue to migrate to the groundwater. Figure 2.2 is a land use map for McPherson County. The areas in green represent cropland, red represents industrial and commercial use, yellow is residential use, and white is used for pasture and grazing.

Figure 2. 2 - McPherson County Agricultural Land Cover Map



Dam and Levee Failure

Hazard Definition

A dam is an artificial barrier usually constructed across a stream channel to impound water. A dike or levee is any artificial barrier together with appurtenant works that will divert or restrain the flow of a stream or other body of water for the purpose of protecting an area from inundation by floodwaters.

Dams

By the Association of State Dam Safety Officials definition, a state-regulated dam is "any artificial barrier including appurtenant works with the ability to impound water, wastewater, or other liquids that has a height of 25 feet or more; or has a height of six feet or greater and also has the capacity to impound 50 or more acre feet."

According to FEMA, there are three hazard classifications for dams, low, significant, and high. These classifications are risk-based and do not reflect the physical condition of dams. They are listed in order of increasing adverse consequences.

The hazard potential classification should be used with the understanding that the failure of any dam or water-retaining structure, no matter how small, could represent a danger to downstream life and property. The classification system categorizes dams based on the probable loss of human life and the impacts on the economy, environment, and lifeline interests.

Low Hazard Potential —dam failure results in no likely loss of human life and the potential economic and/or environmental losses are low.

Significant Hazard Potential – dam failure results in no probable loss of human life but can cause economic loss, environmental damage, or disruption of lifeline facilities. Significant hazard potential classification dams are often located in primarily rural or agricultural areas but could be located in areas with population and significant infrastructure.

High Hazard Potential - dam failure results in will probably cause loss of human life.

Since 1983, any dam classified as high hazard is required to have a breach inundation map prepared to identify the extent of downstream flooding that would occur if the dam were breached during a catastrophic event. These maps are available to be used by local governments to limit development of houses or other structures in these inundation zones.

According to the National Inventory of Dams and Kansas Department of Agriculture - Water Structures Program, Division of Water Resources there are 72 dams in McPherson County; none of them are high or significant hazard dams, 42 are low hazard, and 31 have not been classified. The dams that have not been issued a hazard classification were permitted prior to hazard classification definitions in the regulations. Table 2.9 identifies all of the dams in McPherson County. Storage is measured in acre-feet, which is defined as the total storage space in a reservoir below the normal retention level, including dead and inactive storage and excluding any flood control or surcharge storage.

Table 2. 9 – McPherson County Dams

Dam Name	Site Name	NID ID	State ID	Stream Name	Year Completed	Storage	Owner Type	Hazard Classification
MCPHERSON COUNTY STATE LAKE DAM	MAXWELL GAME REFUGE	KS00882	DMP-0038	BATTLE CREEK	1954	980	STATE	LOW
KSNONAME 1369	N/A	KS01369	DMP-0025	SMOKY HILL RIVER-TR	1951	50	PRIVATE	LOW
KSNONAME 1370	N/A	KS01370	DMP-0028	GYPSUM CREEK-TR	1955	1000	PRIVATE	LOW

Dam Name	Site Name	NID ID	State ID	Stream Name	Year Completed	Storage	Owner Type	Hazard Classification
KSNONAME 1371	N/A	KS01371	DMP-0039	MIDDLE DRY CREEK-TR	1965	160	PRIVATE	LOW
KSNONAME 1372	N/A	KS01372	DMP-0040	SHARP-CREEK-TR	1956	95	PRIVATE	LOW
KSNONAME 1373	N/A	KS01373	DMP-0041	INDIAN CREEK-TR	1969	72	UNKNOWN	LOW
KSNONAME 2982	N/A	KS02982	DMP-0043	PEWEE CREEK-TR	1935	100	PRIVATE	LOW
KSNONAME 4594	N/A	KS04594	DMP-0044	EAST KENTUCKY CREEK-TR	1976	116	PRIVATE	LOW
KSNONAME 4595	N/A	KS04595	DMP-0045	INDIAN CREEK-TR	1976	98	PRIVATE	LOW
KSNONAME 4596	N/A	KS04596	DMP-0046	PAINT CREEK-TR	1976	234	PRIVATE	LOW
KSNONAME 4597	SCHMIDT DAM	KS04597	DMP-0047	INDIAN CREEK-TR	1977	131	PRIVATE	LOW
KSNONAME 4598	N/A	KS04598	DMP-0048	INDIAN CREEK-TR	1978	96.19	PRIVATE	LOW
KSNONAME 4599	N/A	KS04599	DMP-0049	BATTLE CREEK-TR	1978	68	STATE	LOW
KSNONAME 4600	N/A	KS04600	DMP-0050	LONE TREE CREEK-TR	1977	80	PRIVATE	LOW
KSNONAME 4818	N/A	KS04818	DMP-0051	WEST DRY CREEK-TR	1975	50	PRIVATE	LOW
KSNONAME 4819	N/A	KS04819	DMP-0052	SMOKEY HILL RIVER-TR	1964	55	PRIVATE	LOW
KSNONAME 4820	N/A	KS04820	DMP-0053	INDIAN CREEK-TR	1966	102	PRIVATE	LOW
KSNONAME 4821	N/A	KS04821	DMP-0054	GYPSUM CREEK-TR	1960	60	PRIVATE	LOW
KSNONAME 4822	N/A	KS04822	DMP-0055	INDIAN CREEK-TR	1975	60	PRIVATE	LOW
KSNONAME 4823	N/A	KS04823	DMP-0056	BATTLE CREEK-TR	1965	60	PRIVATE	LOW
N/A	N/A	KS07392	DMP-0032	SHARPS CREEK-TR	1979	59	PRIVATE	LOW
N/A	Detention Dam No. 1	KS07393	DMP-0034	LITTLE ARKANSAS RIVER-TR		1193.11	PRIVATE	LOW
N/A	N/A	KS07394	DMP-0035	PUNT CREEK-TR	1985	42	LOCAL GOVERNMENT	LOW
N/A	N/A	KS07395	DMP-0036	PAINT CREEK-TR	1985	56	PRIVATE	LOW
N/A	POLLUTION CONTROL STRUCTURE	KS07396	DMP-0037	N/A	N/A	197.4	PRIVATE	LOW
N/A	Detention Dam No. 4A	KS07397	DMP-0057	LITTLE ARKANSAS RIVER		1411	LOCAL GOVERNMENT	LOW
N/A	FARLAND LAKE UNIT 13 AND UNIT 14	KS09298	DMP-0084	BLAZE FORK-TR	2007	302.5	STATE	LOW
N/A	BIG BASIN-STORAGE PONDS 1 & 2	KS09301	DMP-0087	BLAZE FORK-TR	2007	251.8	STATE	LOW
N/A	BIG BASIN-STORAGE PONDS 3 &4	KS09302	DMP-0088	BLAZE FORK-TR	2007	128.6	STATE	LOW
N/A	FRD 2	KS09324	DMP-0086	LONE TREE CREEK	2009	2928	LOCAL GOVERNMENT	LOW
N/A	UNIT 1	N/A	DMP-0063L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 2	N/A	DMP-0064L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 3	N/A	DMP-0065L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 4	N/A	DMP-0066L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 5	N/A	DMP-0067L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 6A	N/A	DMP-0068L	BLAZE FORK-TR	N/A	N/A	STATE	LOW

Dam Name	Site Name	NID ID	State ID	Stream Name	Year Completed	Storage	Owner Type	Hazard Classification
N/A	UNIT 6B	N/A	DMP-0069L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 7	N/A	DMP-0070L	BLAZE FORK-TR	2007	N/A	STATE	LOW
N/A	UNIT 8	N/A	DMP-0071L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 9	N/A	DMP-0072L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 11	N/A	DMP-0073L	BLAZE FORK-TR	N/A	N/A	STATE	LOW
N/A	UNIT 2 & 3	N/A	DMP-0077L	BLAZE FORK-TR	2004	N/A	STATE	LOW
N/A	N/A	N/A	DMP-0001	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0002	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0003	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0004	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0005	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0006	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0007	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0008	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0009	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0010	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0011	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0012	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0013	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0014	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0015	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0016	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0017	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0018	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0019	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0020	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0021	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0022	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0023	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0024	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0026	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0027	N/A	N/A	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0030S	SMOKY HILL RIVER	1997	N/A	PRIVATE	Not Classified
N/A	N/A	N/A	DMP-0031	N/A	N/A	N/A	PRIVATE	Not Classified

Dam Name	Site Name	NID ID	State ID	Stream Name	Year Completed	Storage	Owner Type	Hazard Classification
N/A	UNIT 4	N/A	DMP-0078L	BLAZE FORK-TR	2004	N/A	STATE	Not Classified
N/A	BIG BASIN UNIT NO 13	N/A	DMP-0083	BLAZE FORK-TR	2007	N/A	STATE	Not Classified

There is one dam located in Ellsworth County that has the potential to inundate McPherson County if a dam breach were to occur. It is The Kanopolis Dam is located on the Smoky Hill River.

Kanopolis Dam

Construction on the dam began February 17, 1948 by the U.S. Army Corps of Engineers and cost $12,327,735. It is located on the Smoky Hill River, at river mile 208, approximately 31 miles southwest of Salina, Kansas in Ellsworth County. It is one of the oldest lakes in Kansas. The lake was constructed to provide flood protection, recreation opportunities, and fish and wildlife benefits, and maintain minimum stream flow on the Smoky Hill River.

The Smoky Hill River is the major source of water flowing into Kanopolis Lake. The Smoky Hill River basin runs generally from west to east. Kanopolis Lake has a flood control pool of 13,958 surface acres and a multipurpose pool of 3,406 surface acres. Kanopolis Lake has 41 miles of shoreline at the top of the multipurpose pool elevation. At flood control pool elevation, the lake has 135 miles of shoreline and extends generally westward in Ellsworth County.

In 2002, the State of Kansas acquired storage in Kanopolis Lake to be used for municipal and industrial water supply purposes through the State of Kansas Water Marketing Program. As of November 2007, Post Rock Rural Water District has a contract for a maximum quantity of 400 million gallons per year (mgy) or 1,227.555 acre feet (af) from Kanopolis Lake. There are also irrigation and domestic use demands in the alluvial system downstream from the lake.

The main embankment is approximately 15,360 feet long, including a 4,070 foot long left abutment and a 2,550 foot long right abutment dike sections. The maximum height above the stream bed is 131 feet. The top of dam is at elevation 1537, which includes a freeboard allowance of 5.2 feet above the maximum spillway design flood. The rolled fill dam embankment consists of impervious, pervious, random, berm fill and blanket fill zones. The upstream face of the dam is protected by an 18 inch thick layer of riprap overlying a 6 inch layer of spalls overlying a 9 inch layer of sand and gravel. The slope protection materials were placed in 1948. The downstream face of the dam is protected with native grass cover. There is an Emergency Action Plan in place in case of a dam breach.

Levees

According to the Kansas Department of Agriculture, Division of Water Resources, the definition for levee is “any floodplain fill with an average height of more than one foot above the surrounding terrain constructed generally

parallel to a water course and whose purpose is to repel floodwaters." There are not any levee protection systems in McPherson County.

History of Dam Failure

McPherson County has not experienced any dam breaches in the past .

Probability and Magnitude of Dam Failure

Based on the fact that McPherson County has never experienced dam failure in the past and there is only one major dam has the potential of affecting the planning area, the HMPC determined the probability of a dam failure occurring is "unlikely".

Although the Kanopolis Dam could potentially affect the Cities of Marquette and Lindsborg, the HMPC ranked the magnitude for dam failure as "limited" for the overall planning area. The Cities of Marquette and Lindsborg determined the vulnerability level for their particular communities was higher. For more information please refer to their community profiles in Chapter 3.

Dam Failure Risk Summary

Table 2.10 is a risk summary for dam failure in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 10 – Dam and Levee Failure CPRI Ranking

	McPherson County Rankings	**State of Kansas Rankings** (Kansas Hazard Mitigation Team)
Probability	1	1
Magnitude	2	NA*
Warning Time	1	NA*
Duration	1	NA*
Planning Significance	Low	Moderate
Risk Index	1.30	2.35
Ranking	22 out of 22	16 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

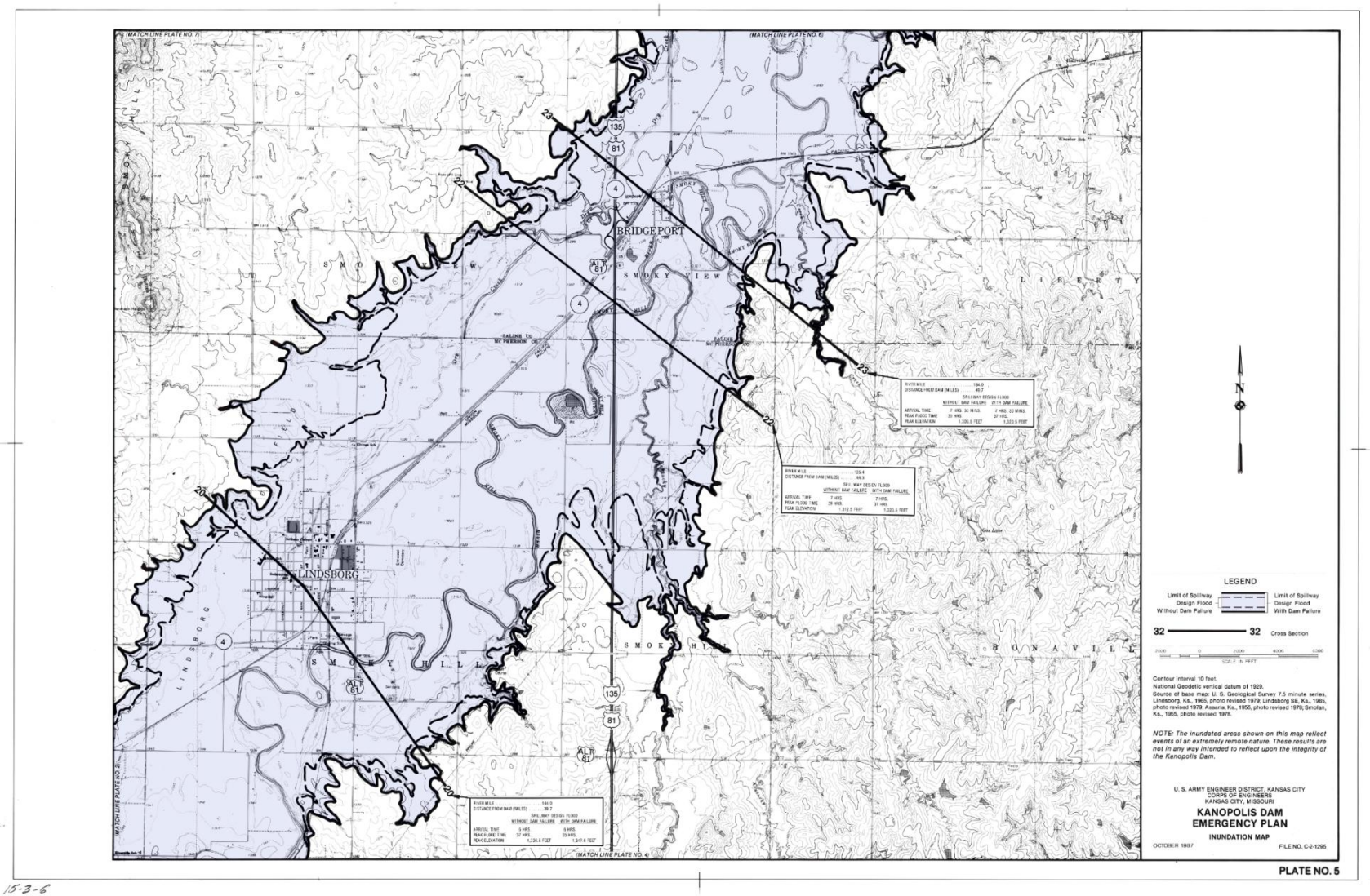
Dam Failure Vulnerability

The Smoky Hill River upstream of McPherson County has a drainage area of approximately 7860 square miles. The Kanopolis Dam located in Ellsworth is located upstream from the county. According to the McPherson County Hydrology Report, the 100-year regression flows at similar drainage area locations along the Smoky Hill River are 20,605 and 31,493 cubic feet per second for Marquette and Lindsborg sites, respectively. The drainage areas for the calculated flows were based on an unregulated drainage area below the Kanopolis Dam.

The dam breach inundation map was not available for the City of Marquette. However using the calculations from the hydrology report it is estimated that Marquette would be inundated within 2.5 hours of a dam breach. The entire town would experience at least minor inundation.

According to the Kanopolis Dam breach inundation map in Figure 2.3 a breach of the dam would inundate the entire City of Lindsborg, which is 39.7 miles away from the dam, within six hours of a dam breach. The peak flood time would occur within 35 hours after the breach, with a peak elevation of 1,347 feet.

Figure 2. 3 – Kanopolis Dam (Smoky Hill River) Dam Breach Inundation Map



15-3-6

Drought

Hazard Definition

According to the National Drought Mitigation Center, drought is defined as a deficiency of precipitation over an extended period of time, resulting in a water shortage. Drought is different from other hazards because the onset is gradual rather than resulting from a particular incident. Drought conditions may also vary over a short distance, even within a single county. Keeping track of regional conditions can help alert the community to the possible development of drought in the area. The U.S. Drought Monitor is vital in this regard.

The U.S. Drought Monitor provides an overview of conditions across the nation. Five categories of drought ranging from abnormally dry to exceptional drought are depicted on a map that is updated each Thursday. Dominant regional drought impacts such as agricultural and hydrological are also shown. The general trend in conditions for your area may be determined by comparing the latest map with those for several previous weeks.

The Kansas Water Office is responsible by law (K.S.A. 74-2608) for monitoring drought conditions within the state and notifying the Governor when such conditions exist. Assembly of the Governor's Drought Response Team is also recommended at the onset of drought and at other times as necessary. This interagency group coordinates a phased approach to state drought response keyed to three county drought stages as declared by the Governor: Drought Watch, Drought Warning and Drought Emergency.

These drought stages provide an additional warning to local officials regarding conditions in their area. Figure 2.4 is the Drought Monitor Report. According to the report, as of November 2, 2010 McPherson County was not experiencing drought conditions.

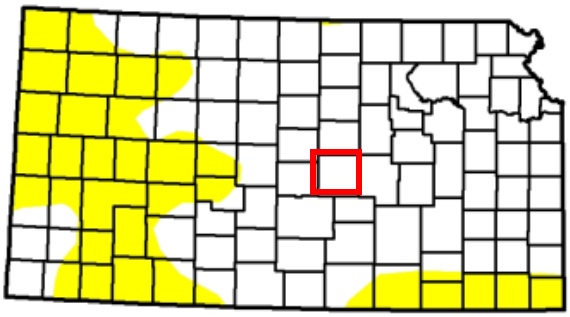
Figure 2. 4 – U.S. Drought Monitor Report

U.S. Drought Monitor
Kansas

November 2, 2010
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.4	31.6	0.0	0.0	0.0	0.0
Last Week (10/26/2010 map)	73.3	26.7	0.0	0.0	0.0	0.0
3 Months Ago (08/10/2010 map)	98.4	1.6	0.0	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Water Year (10/05/2010 map)	83.2	16.8	0.0	0.0	0.0	0.0
One Year Ago (11/03/2009 map)	100.0	0.0	0.0	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

Released Thursday, November 4, 2010
Author: Mark Svoboda, National Drought Mitigation Center

A description of impacts at each drought stage follows. These stages are provided by the Governor's Drought Response Team and are roughly comparable to the to the drought categories shown in the U.S. Drought Monitor (e.g. Drought Watch = Moderate Drought).

- Drought Watch: U.S. Drought Monitor stage "Moderate Drought". Some crop and pasture damage. High rangeland fire danger. Likelihood of serious public water supply shortages is growing.
- Drought Warning: U.S. Drought Monitor stage "Severe Drought". Crop or pasture losses likely. Some stock water shortages. Very high rangeland fire danger. Public water supply shortages present. Some streamflow targets not being met.
- Drought Emergency: U.S. Drought Monitor stage "Extreme or Exceptional Drought". Widespread major crop and pasture losses. Extreme rangeland fire danger. Widespread stock water shortages. Widespread, severe public water supply shortages. Many streamflow targets not being met.

History of Drought Events

According to the HMPC, drought conditions are experienced nearly every year. McPherson County has experienced a lot of crop and grass damage as a result of drought.

The United States Geological Survey (USGS) identified five droughts for the State of Kansas that has either directly or indirectly impacted McPherson County.

1929–41 - There was a regional drought for numerous Midwestern and Western States. The recurrence interval for drought was greater than 25 years throughout Kansas. The stream flow data was insufficient. Many farms were abandoned due to agricultural losses.

1952-57 -The drought was regional with a recurrence interval greater than 25 years for the entire state. Except for the Big Blue River Basin, the recurrence interval there was 10-25 years. This drought is used as a base period for studies of reservoir yields in Kansas because of the magnitude and extent.

1962-72 - The recurrence interval for the drought generally was greater than 25 years. However, the drought duration varied considerably across the State. In parts of the northwestern, northeastern, southern, and southeastern areas of the State, the recurrence intervals were 10-25 years. Many of the streamflow records indicate less-than-average and greater-than-average flows, whereas others indicated a steady deficit throughout the entire period.

1974-82 - The drought appeared to be a series of relatively short-duration droughts at several gauging stations but continuous or long-term droughts at others. The recurrence interval of this drought was greater than 25 years in the north-central and southeastern parts but was between 10 and 25 years across the remaining eastern two-thirds of the State. The magnitude of the 1974-82 droughts could not be determined in the western one-third of the State because of inadequate streamflow information for comparison.

1988 - The magnitude of this drought varied across the State. The drought was most severe in the southwestern, central, and northeastern parts of Kansas but minimal in the northwestern and southeastern parts. Reservoir storage was near or above average at the onset of the drought. Therefore, surface-water supplies were sufficient to meet demands for water. The rainfall during the period was less than 50 percent of the long-term average. Quantities of rainfall were insufficient to maintain soil moisture or contribute to ground-water supplies. Decreased soil moisture resulted in considerable damage to growing grain crops, reduced growth of forage grasses, and threatened the germination of winter wheat crops. Losses for the 1988 crops were estimated at $1 billion (Wichita Eagle and Beacon, June 7, 1989). Shallow aquifer levels decreased rapidly. The result was many domestic water wells went dry. The drought of 1988 continued into the 1990's, but decreased in magnitude. In the fall of 1989 precipitation returned to near normal, and the spring of 1990 was somewhat wet. By the fall of 1990 the moisture subsided again and continued to be dry until July 1992.

Probability and Magnitude for Drought

The HMPC determined the probability for a drought to occur is "possible."

Approximately 10 to 25 percent of the property in McPherson County would be severely damaged in a severe drought. Therefore, the HMPC determined the magnitude is limited.

Drought Risk Summary

Table 2.11 is a risk summary for drought in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 11 – Drought CPRI Ranking

	McPherson County Rankings	**State of Kansas Rankings** (Kansas Hazard Mitigation Team)
Probability	2	3
Magnitude	2	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.05	2.80
Ranking	18 out of 22	8 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability for Drought

Although structures are not directly affected by drought conditions, the entire planning area is vulnerable to this hazard. Drought conditions adversely affect surface or subsurface water supplies (reservoirs or aquifers) and stream levels or streamflow.

McPherson County is in the Cimarron Basin. The major river in this basin is the Cimarron River. There are not any Federal reservoirs and the principal tributaries of the Cimarron River in Kansas are the North Fork Cimarron, Crooked Creek, Bluff Creek and, on occasions of high runoff, Bear Creek. The High Plains aquifer is the primary source of water in western Kansas. The aquifer is made up of several hydraulically connected aquifer units. Nearly all of the water used in the Cimarron Basin is from ground water. The majority (97 percent) of the water in the Cimarron Basin was reportedly used for irrigation. In 2007 there were 1,200 acres of crops that were irrigated in the planning area in 2007 (USDA).

A severe drought would not only impact the water supply but it also causes damage to crop quality, which can lead to income loss for farmers to reduced crop yields, plant diseases, and insect infestation. In 2007, there were 278 farms in McPherson County that could potentially be impacted by a severe drought. There was $15,466,000 in crop sales and $108,081,000 in livestock sales in that same year (USDA).

Earthquake

Hazard Definition

An earthquake is the shaking of the Earth's surface caused when energy stored within the Earth's crust, usually in the form of strain in rocks, suddenly releases. This energy is transmitted to the surface of the Earth by seismic waves. The destruction an earthquake causes depends on its magnitude and duration, or the amount of shaking that occurs. Earthquakes vary from small, hardly noticeable shaking to large shocks felt over thousands of kilometers. Earthquakes can deform the ground; make buildings and other structures collapse, and cause soil liquefaction.

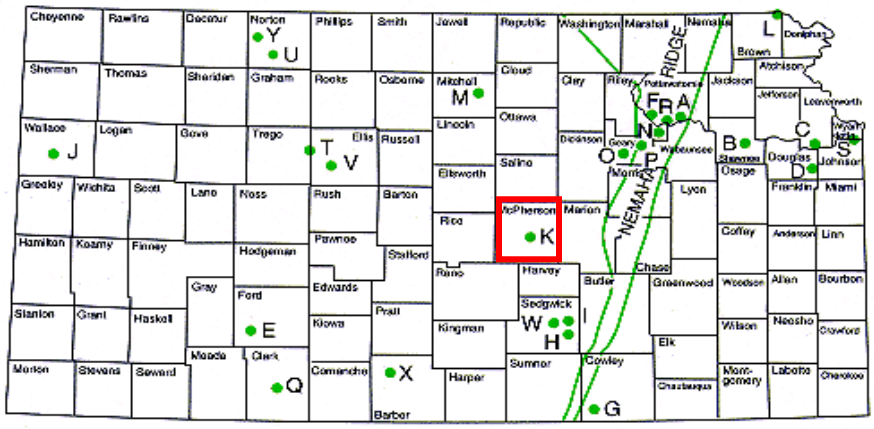
Some Kansas earthquakes are associated with the Nemaha Ridge, a buried granite "mountain range" that extends from roughly Omaha, Nebraska, to Oklahoma City. This subsurface range was formed about 300 million years ago with peak to valley elevations ranging from 2,300 to 3,300 feet near Manhattan. The Nemaha is broken by cross faults, apparent shears of northwest trend, and evidence of reverse faulting. Faults that bound it are still slightly active today, especially the Humboldt fault zone that forms the eastern boundary of the Nemaha Ridge, passing near Wamego, east of Manhattan, and near El Dorado, east of Wichita. The map below is a depiction of the Nemaha Ridge.

History of Earthquakes in McPherson County

Between 1867 and 1976, at least 25 earthquakes shook the state of Kansas (Kansas Geological Survey, Public Outreach). Most of them were micro earthquakes, an earthquake that is too small to be felt. The largest earthquake recorded in Kansas was centered in Manhattan on April 24, 1867 at a Richter scale magnitude of 5.5 and a 1931 Modified Mercalli Intensity (MMI) scale of VII. The affected area reportedly covered 500,000 square kilometers east of the epicenter. Moderate earthquakes near Topeka, Kansas, in 1867 and 1906, caused MMI scales of VIII and VII, in the epicenter area and Intensities VI and IV, respectively, in both Kansas City and St. Joseph, Missouri.

Figure 2.5 shows the areas in Kansas that have experienced earthquakes prior to 1977. McPherson County experienced one earthquake in 1927, identified by the letter "K" on the map. It had an intensity of V on the MMI sale.

Figure 2. 5 - Historical Earthquakes in Kansas Prior to 1977

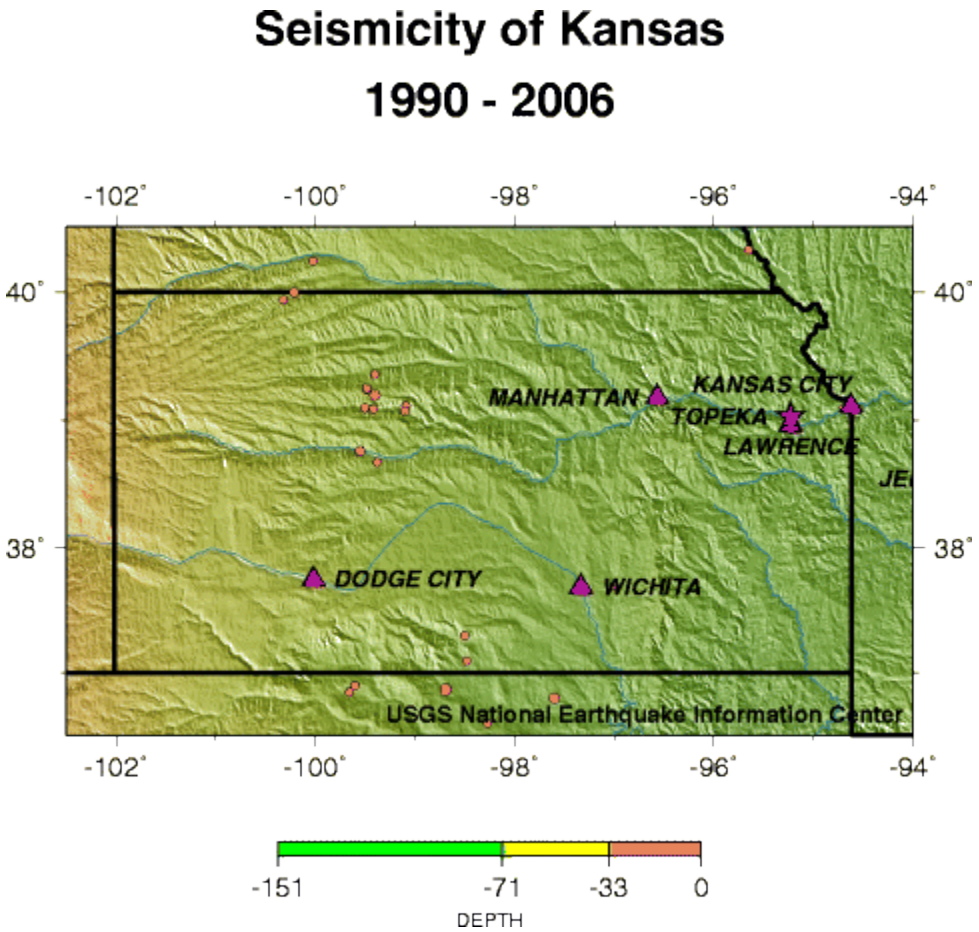


Between August 1977 and August 1989 the Kansas Geological Survey recorded more than 100 earthquakes in Kansas. Most of them were micro earthquakes.

Only one significant earthquake has been recorded in McPherson County during the period that records of such events have been kept, about 130 years. The earthquake occurred about 3:30 a.m. on January 7, 1927 near the city of McPherson. It was rated at an intensity of IV on the Modified Mercalli scale (not to be confused with the Richter scale used today to measure earthquake events). This was a rather small earthquake. It awoke light sleepers and rattled a few dishes. It was reported that a keystone fell out of the arch of a window in one bank building. The approximate epicenter of the quake event coincides with a deeply buried fault, which may have been the source of the earthquake. (From a letter by Frank W. Wilson, Chief of Environmental Geology, Kansas Geological Survey, dated August 2, 1977.)

Figure 2.6 shows the seismicity of Kansas between 1990 and 2006. The circles on the map indicate the location of past earthquakes and the color of the circles represent the depth range, measured in kilometers. The purple triangles represent the cities and the purple star is the Capital City (U.S. Department of the Interior, U.S. Geological Survey).

Figure 2. 6 – Seismicity Map of Kansas, 1990 – 2006



The following earthquakes were obtained from the USGS historic earthquakes database.

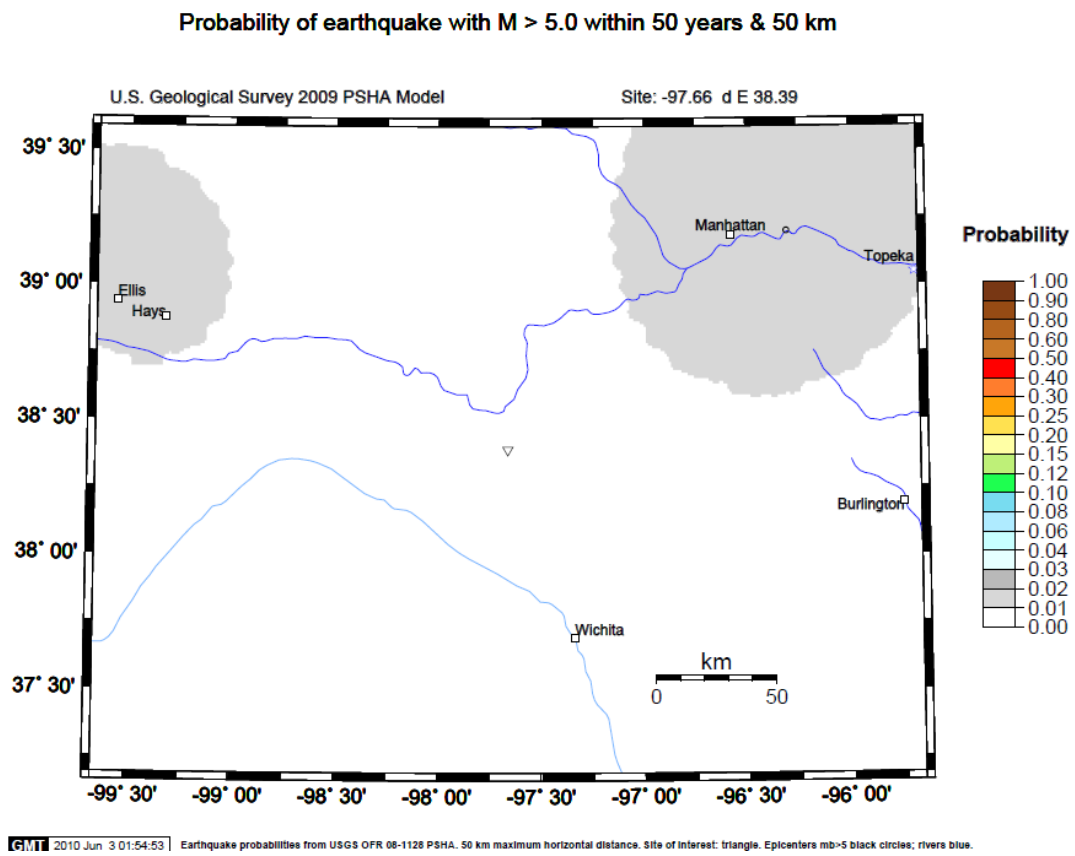
May 13, 1999	A magnitude 3.0 earthquake located in Kansas City, Kansas, caused damage to two medical buildings.
July 24, 2001	An earthquake measuring 3.0 on the Richter scale was reported in Butler County near the City of Augusta. It was located west of the Humboldt fault zone in the Nemaha Ridge.

January 1, 2008	An earthquake measuring 2.7 was felt in Kansas. The shock could be felt 15 miles west of Arkansas City, KS, 25 miles northwest of Ponca City, OK, 45 miles south of Wichita, KS and 165 miles southwest of Topeka, KS.
April 15, 2010	A 3.2 earthquake was reported in Oklahoma. The shock could be felt 15 miles east of Ada, OK, 35 miles west south west of McAlester, OK, 80 miles south east of Oklahoma City, OK, and 140 miles north of Dallas, TX.
April 21, 2010	An earthquake measuring 2.5 on the Richer scale was reported in Oklahoma. The earthquake was felt in the Choctaw area.

Probability and Magnitude of Earthquakes

The HMPC determined the probability of having an earthquake of significant magnitude is "unlikely" because the probability of occurrence is one every 25 years or less. Figure 2.7 maps the probability of an earthquake larger than a magnitude of 5.0 on the Richter scale to occur within 50 years (US Geological Survey). Earthquake probability maps use the most recent earthquake rate and probability models. These models are derived from earthquake rate, location, and magnitude data from the USGS National Seismic Hazard Mapping Project.

Figure 2. 7 – Earthquake Probability Map



The HMPC ranked the magnitude as "negligible" because less than 10 percent of the area would be impacted by an earthquake. There would be minor injuries, few property damages, minor damage to the environment, and low direct or indirect costs as the result of a significant earthquake.

Risk Summary for Earthquakes

Table 2.12 is a risk summary for earthquakes in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 12 – Earthquake CPRI Ranking

Earthquake	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	1	1
Magnitude	1	NA*
Warning Time	4	NA*
Duration	1	NA*
Planning Significance	Low	Low
Risk Index	1.45	1.75
Ranking	19 out of 22	21 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability for Earthquakes

All of the structures in McPherson County are exposed to potential damage from an earthquake. The extent of damage would depend greatly on the epicenter of the earthquake. It is difficult to measure the extent of damage that would occur due to the nature of the hazard.

If the epicenter of an earthquake with a magnitude of 5.0 or greater were to occur near the Kanopolis dam, dam or breach could occur as a result, causing significant flooding to occur in Marquette and Lindsborg. Transportation and utility disruptions would be primarily affected by an event of this magnitude. Significant damage would also be done to unreinforced masonry buildings, bridges, and other roads in McPherson County. The most vulnerable area in the County would be the City of McPherson because of the population density and large number of structures.

Table 2.13 is a hazard vulnerability summary for earthquake. The value of the structures and number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to earthquakes. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on the epicenter of the earthquake.

Table 2. 13 – McPherson County Earthquake Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Expansive soils

Hazard Definition

The Kansas State Hazard Mitigation Plan characterizes "expansive soils" as a relatively widespread geological hazard for Kansas. Expansive soils are soils that increase in volume as they get wet and shrink as they dry out. Soils that expand have a high proportion of water-absorbing clay particles. Expansive soils are one of the state's most prevalent causes of damage to buildings and construction. It causes damage to building foundations, roadways, water and sewer lines, gas pipelines, drive-ways and sidewalk. Construction in the Midwest is a problem due to the variety of clay soils present.

Soil is a vital component in the construction and stability of structures. Structural damage can occur if soil expands, contracts, or slides. There are three types of soil: sand, silt, and clay. Clay is usually classified as expansive. Clay dirt swells when particles in the clay begin to absorb water from rain, underground springs or lawn watering. Clay soil can expand 10 percent when exposed to moisture.

History of Expansive Soil Events

Damage from expansive soils to foundations, parking areas and public sidewalks throughout the planning area is attributed largely to the composition of the soils, in conjunction with prolonged and common periods of drought. The following events are the more notable events in Kansas.

1950s Minor damage to scores of homes and buildings in the Kansas City metropolitan area experienced. The estimated cost of damage was $30-$40 million.

1985 Several areas in Kansas City experienced damage due to expansive shale. The buildings damaged were the Kansas City Public Library Country Club Plaza Branch, St. Teresa's Academy, 7th Church of Christ, and the University of Missouri.

1995 A home house in Overland Park, Kansas was damaged by a center lift. A center lift is when soils along the foundation shrink, lowering outer walls while the soils in the center stay wet.

Probability and Magnitude of Expansive Soils

Although McPherson County has experienced some possible damage as the result of expansive soils, the HMPC has determined the probability of expansive soil is "likely" because it is hard to quantify the damage from expansive soils because damage occurs over a longer period of time. For that same reason the HMPC determined the magnitude of expansive soils is "negligible".

Expansive soils shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements, and structures on shallow foundations. Most property owners/managers in McPherson County are familiar with the risks posed by expansive soils because of its impact on foundations, public roads and sidewalks.

Expansive Soil Risk Summary

Table 2.14 is a risk summary for expansive soils in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 14 – Expansive Soil CPRI Ranking

Expansive Soils	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	3	3
Magnitude	1	NA*
Warning Time	4	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.65	2.20
Ranking	12 out of 22	18 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Expansive Soil Vulnerability

All of the structures in McPherson County are exposed to potential damage from expansive soils. The extent of damage is difficult to measure because soil expansion is not a rapid occurring hazard. Nevertheless the potential to cause damage over time can be significant if not sufficiently mitigated. Expansive soils do not create large areas of destruction; but do have the potential to disrupt critical infrastructure (i.e. roads, power lines, railways, and bridges) as well as damage to buildings.

Expansive soils are a moderate risk that is uniform across the county. The entire planning area is vulnerable to, soil expansion and contraction. More information on the physical soil properties in McPherson County is located later in this chapter under Vulnerability to Soil Erosion and Dust.

Table 2.15 is a hazard vulnerability summary for expansive soils. The value of the structures and number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to expansive soils. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on the locations of the expansive soils and the types of structures built in those areas.

Table 2. 15 – Expansive Soils Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Many homes in Kansas are built on expansive soil. There would be some structural damage as a result of shrinking and expanding soils. Utility lines such as water and sewer pipes may be at risk there is no specific data to support damages and costs associated with this hazard at this time. Roads and structures with unreinforced concrete would be affected the most by expansive soils. However, due to data limitations the estimated value for damages incurred as a direct result of expansive soils are not available at this time.

Figure 2.8 map is a soil map of Kansas (U.S. Gelogical Survey). It shows the abundance of clay and the swelling potential of the soil. A portion of McPherson County is in an area that has abundant amounts of clay with high swelling potential. The rest of the county generally has less than 50 percent clay and has slight to moderate swelling potential. The county is identified by the square on the map. McPherson County is identified by the white box.

Figure 2. 8 - Soil Map of Kansas

MAP LEGEND

- Unit contains abundant clay having high swelling potential
- Part of unit (generally less than 50%) consists of clay having high swelling potential
- Unit contains abundant clay having slight to moderate swelling potential
- Part of unit (generally less than 50%) consists of clay having slight to moderate swelling potential
- Unit contains little or no swelling clay

Extreme Temperatures

Hazard Definition

Extreme temperature refers to both, hot and cold temperatures. Unusually high and low temperatures have a significant effect on human health, agriculture, the environment, infrastructure, and the economy. Extreme temperatures are generally coupled with other hazards. For instance, extreme temperatures that are high are often associated with a drought, while extreme temperatures that are cold are sometimes coupled with a severe winter storm.

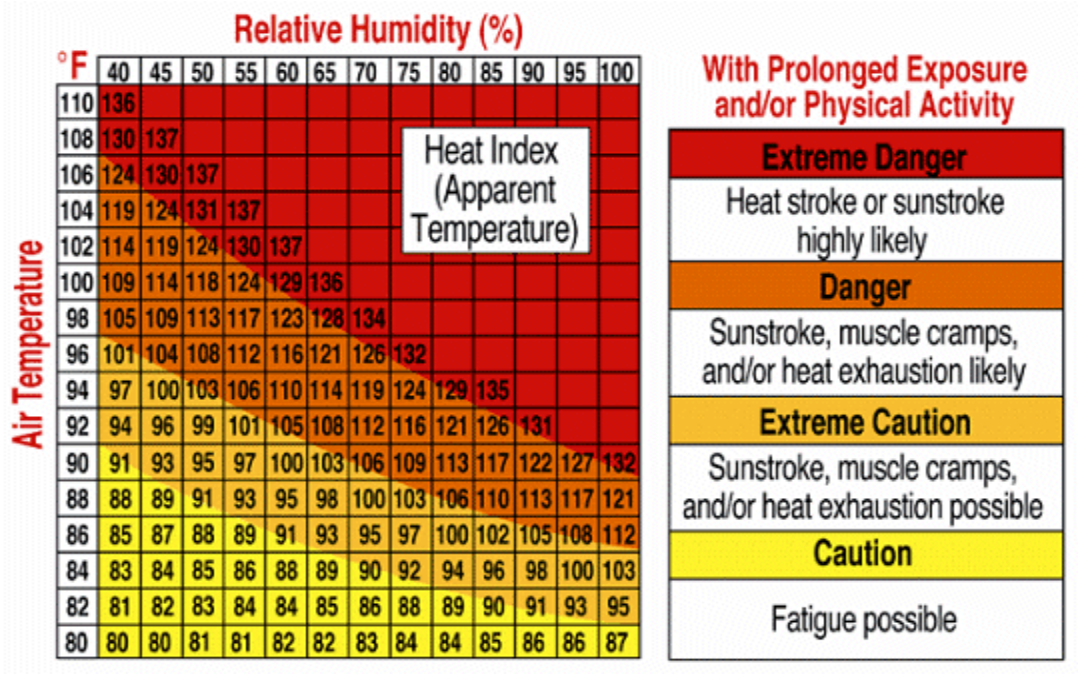
Extreme Heat

Extreme heat is described as temperatures that linger at 10 degrees or more above the average high temperature for the region and last for prolonged periods of time. Three consecutive days of temperatures of 90° F and above, is considered to be a heat wave according to the National Weather Service (NWS). High temperatures generally occur from June through September, but are most prevalent in the months of July and August.

A heat wave can be a very dangerous situation due to the health problems that can occur when dormant atmospheric conditions trap pollutants in cities. It can be especially dangerous for individuals with respiratory conditions, such as asthma. Young children, the elderly, and individuals who have health conditions or overweight are more likely to develop health problems from the extreme heat.

High humidity is another factor that needs to be considered when assessing the effects of a heat wave. Relative humidity must also be considered, along with exposure, wind and activity. According to NWS the heat index combines air, temperature and relative humidity, this is also known as the apparent temperature. The heat index is a measure of how hot it feels outside. For example, if air temperature is 102° Fahrenheit and the relative humidity is 55 percent, then it feels like 130 degrees; 28 degrees hotter than the actual ambient temperature. Figure 2.9 is a heat advisory chart, along with a heat index chart identifying the possible effects of prolonged exposure to the heat and/or physical activity.

Figure 2. 9 - Heat Advisory Chart



°F	40	45	50	55	60	65	70	75	80	85	90	95	100
110	136												
108	130	137											
106	124	130	137										
104	119	124	131	137									
102	114	119	124	130	137								
100	109	114	118	124	129	136							
98	105	109	113	117	123	128	134						
96	101	104	108	112	116	121	126	132					
94	97	100	103	106	110	114	119	124	129	135			
92	94	96	99	101	105	108	112	116	121	126	131		
90	91	93	95	97	100	103	106	109	113	117	122	127	132
88	88	89	91	93	95	98	100	103	106	110	113	117	121
86	85	87	88	89	91	93	95	97	100	102	105	108	112
84	83	84	85	86	88	89	90	92	94	96	98	100	103
82	81	82	83	84	84	85	86	88	89	90	91	93	95
80	80	80	81	81	82	82	83	84	84	85	86	86	87

Extreme Cold

Extreme cold is when temperatures drop considerably below normal. Windchill is an important factor when discussing extreme cold. Windchill is the rate of heat loss from the human body resulting from the combined effect of low temperature and wind. As winds increase, heat is carried away from the body at a faster rate. Both the skin temperature and eventually the internal body temperature decrease.

The Wind Chill index is the temperature your body feels when the air temperature is combined with the wind speed. The following table is a wind chill chart. It shows the difference between actual air temperature and perceived temperature, it also shows the amount of time until frostbite occurs.

Figure 2. 10 – Windchill Chart

NWS Windchill Chart

Wind (mph)	Temperature (°F)																	
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

Extremely cold temperatures often accompany a winter storm. Please refer to the winter storm profile for more information.

History of Extreme Temperature Events

According to the NCDC, there were 2 extreme temperature events from 1950 to 2010. They were as follows:

November 24, 1993	An extreme cold event covered all of Northwest and parts of west central Kansas and lasted until midday on the 25th. Several record low minimum and record low maximum temperatures were set. One previous record dated back to 1895. Temperatures ranged between minus 5 degrees to plus 10 degrees and combined with wind speeds of 15 to 25 mph to produce wind chill temperatures of minus 45 to minus 35 degrees.
July 16, 2006	A deadly heat wave gripped much of central, south-central and southeast Kansas from July 16-20. Broad high pressure in the mid and upper levels of the atmosphere caused temperatures to soar into the 105-110 degree range, with afternoon heat indices about the same. The cover of darkness provided little in the way of relief, as overnight

temperatures were slow to fall off, reaching only the upper 70s by sunrise for some locations. Unfortunately, the prolonged heat claimed five lives across south-central and southeast Kansas, most of them elderly men. Three occurred in Wichita, one in Iola, and another in Coffeyville. The heat unofficially claimed three other lives, two in Wichita and one in Coffeyville. Additionally, dozens of individuals across central, south-central and southeast Kansas were treated for heat-related illnesses.

Probability and Magnitude of Extreme Temperatures

The McPherson County HMPC has determined the probability for an extreme temperature event is "likely" because an extreme temperature event is probable within the next three years.

The HMPC determined the magnitude for extreme temperatures is "limited" because both extreme heat and extreme cold can cause serious health conditions in the susceptible populations.

Extreme Temperature Risk Summary

Table 2.16 is a risk summary for extreme temperatures in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 16 – Extreme Temperature CPRI Ranking

Extreme Temperatures	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	3	4
Magnitude	2	NA*
Warning Time	1	NA*
Duration	3	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.40	2.40
Ranking	15 out of 22	5 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Extreme Temperatures

Although, structures are not vulnerable to the extreme temperature hazard, 100 percent of the residents, livestock and crops in County are vulnerable. Both extreme heat and extreme cold can cause serious health conditions in the susceptible populations. The more susceptible populations are classified as the elderly, young children, individuals who are sick or overweight, individuals without shelter or those that live in a home that is without heat or air conditioning. Weather-related conditions can potentially lead to serious health conditions or even death. Table 2.17 identifies the residents in McPherson County that are in the susceptible population. The City of Windom has the most children under five years old and the highest number of people living below poverty level, making them the most vulnerable to extreme temperature conditions. The City of Inman has the largest number of elderly people living in the community also making them vulnerable.

Table 2. 17 – Extreme Temperatures Vulnerability

Jurisdiction	Total Population (2000 Census)	Under 5 Years (%)	Over 65 Years (%)	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)
McPherson County	29,554	5.9	17.3	4.2	6.6
City of Canton	829	6.3	20.00	4.2	4.8
City of Galva	701	7.6	12.1	6.2	6.6
City of Inman	1,142	4.6	29.3	2.9	5.7
City of Lindsborg	3,321	4.8	20.7	4.9	8.2
City of Marquette	542	3.7	17.7	3.8	5.6
City of McPherson	13,770	6.4	15.7	4.9	8.2
City Moundridge	1,593	7.1	26.4	2.1	4.7
City of Windom	137	9.5	19.0	7.1	11.1

Extreme heat pushes the human body beyond its limits. Under normal conditions, the body produces perspiration that evaporates and cools the body. In extreme heat and high humidity, evaporation is slowed and the body must work harder to maintain a normal body temperature.

Extreme cold can cause hypothermia, frostbite and death. Exposure to a low windchill can be life threatening to both humans and animals. Weather-related conditions may lead to serious health conditions. It can lead to health emergencies in susceptible people, such as individuals without shelter or those that live in a home that is poorly insulated or without heat.

The crops and livestock in McPherson County are also vulnerable to extreme temperatures. They can be killed or injured due to extended periods of severe cold temperatures. Livestock and crops are vital to the economy in McPherson County, making the farming communities at risk to extreme temperatures. According to the 2007 Census of Agriculture, McPherson County had 1,142 farms in 2007, which was a total of 566,309 acres. The market value for products sold in McPherson County totaled $119,750,000 (USDA).

Flood

The photograph above was taken by Mike Rodriquez of stream flooding that occurred in the City of Lindsborg, Kansas on May 7, 2007.

Hazard Definition

A flood is a natural occurrence for rivers and streams. According to the National Oceanic and Atmospheric Administration (NOAA) the term flood reflects "any high flow, overflow, or inundation by water which causes or threatens damage." The National Weather Service (NWS) classifies the magnitude of flood events into the following categories are:

- Minor Flooding - Property damage is minimal or none at all, but possibly some public threat.
- Moderate Flooding – There is some inundation of structures and roads near stream. Some people need to be evacuated and/or transfer of property to higher elevations.
- Major Flooding – There is extensive inundation of structures and roads. A significant amount people need to be evacuated and/or property to higher elevations.
- Record Flooding - flooding which equals or exceeds the highest stage or discharge at a given site during the period of record keeping.

Flooding can generally be defined an accumulation of too much water in a short amount of time within a small area. It can also be characterized by type. They types of flooding are riverine, flash, ice-jam, storm surge, and dam or levee failure. According to the Kansas Water Plan, Kansas is primarily concerned with riverine, flash flooding, and dam or levee failure.

Riverine flooding - occurs as a result of persistently wet weather conditions, causing stream channel capacity to be exceeded and the water flows over the banks onto the adjacent floodplain. The warning time prior to this type of flooding is often quite long, allowing for mitigation measures to occur.

Flash flooding - is characterized by a rapid rise in water level, fast-moving water and flood debris. Hilly terrain is particularly vulnerable to flash flooding.

Dam or Levee Failure - almost 6,000 dams have been built in Kansas for flood control. Many of the dams were built quite some time ago and are showing signs of aging. In some of these cases, development downstream from these dams has resulted in a higher dam hazard classification requiring upgrades to the dam.

The major rivers within McPherson County include the Smoky Hill River, the Little Arkansas River, and the North Cottonwood River. The North Cottonwood River originates in McPherson County. These major rivers, and the larger creeks that drain into them, constitute flood prone areas within the county. The Federal Emergency Management Agency (FEMA) has mapped and categorized the 100-year floodplain along these rivers and creeks.

Flood Insurance Rate Maps (FIRMs)

The 100-year floodplain is the area which has a one percent chance of being flooded in any given year. The FEMA identified flood hazard areas have been mapped on a series of maps known as Flood Insurance Rate Maps (FIRM), and the community number on the maps is 200214. It is current county policy that residential buildings and other buildings will not be allowed to be built in identified flood hazard areas when the landowner has suitable land outside of the flood hazard on which to locate the buildings.

A Flood Insurance Rate Map (FIRM) is an official map of a community, which the Federal Emergency Management Agency (FEMA) has identified the special hazard areas and the risk premium zones applicable to the community (FEMA). The FIRM can be used to locate properties and building in flood insurance risk areas. Community officials also use them to administer floodplain management regulations and to mitigate flood damage. Lending institutions and federal agencies use the FIRM to identify properties and buildings in relation to mapped flood hazards and to determine if flood insurance is necessary when providing loans or grants following a disaster.

National Flood Insurance Program (NFIP)

The National Flood Insurance Program (NFIP) is administered by FEMA. Standard homeowners insurance does not cover flooding, therefore, congress created the NFIP to help provide a way for property owners to protect themselves from flood damage. Communities that participate in the NFIP agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding. Community participation is required in order for the NFIP to offer flood insurance.

The NFIP administered by FEMA, works closely with private insurance companies to offer flood insurance to property owners and renters. The NFIP is a federal program which offers flood insurance that can be bought through property and casualty agents. The rates are a fixed rate and do not vary from company to company. The rates are determined by a number of factors, including the communities risk level according to the FIRMs.

Congress mandated federally regulated lenders to require flood insurance on properties located in high risk flood areas. Structures in the high risk flood areas with mortgages are required to have flood insurance. The high risk areas have a one percent or greater chance of flooding in any given year. Structures located in moderate to low risk areas that have mortgages are not required to have flood insurance. However, it is highly recommended to have flood insurance because 25 percent of all flood claims occur in moderate to low risk areas (FEMA, National Flood Insurance Program).

McPherson County participates in the National Flood Insurance Program, including the Cities of Galva, Lindsborg, Marquette, McPherson, and Moundridge. The City of Inman also participates in the NFIP; however there are no special flood hazard areas in Inman. The residents in these cities are eligible to buy flood insurance through the NFIP because they have adopted flood plain ordinances. The Cities of Canton and Windom currently do not participate in the program. Table 2.18 is a NFIP insurance report for McPherson County.

Table 2. 18 – McPherson County NFIP Insurance Report

CID	Community Name	Total Premium	V-Zone	A-Zone	Number of Policies	Total Coverage	Total Claims Since 1978	Total Paid Since 1978
200497	City of Galva	$5,065	0	6	7	$799,200	0	$0
200215	City of Lindsborg	$6,127	0	4	13	$2,729,600	0	$0
200216	City of Marquette	$326	0	0	1	$210,000	0	$0
200214	McPherson County	$32,573	0	35	52	$6,279,600	4	$23,149
200217	City of McPherson	$66,992	0	64	83	$12,078,600	9	$16,429
200218	City of Moundridge	$7,797	0	8	14	$1,913,100	5	$11,909
	County Total	**$118,880**	**0**	**117**	**170**	**$24,010,100**	**18**	**$51,487**

History of Flood Events

The National Climatic Data Center (NCDC) reported 18 flood events from 1998 to 2010. The property damage was estimated at $32, 016,000 and crop damage estimates were not available. There have been one fatality and two injuries related to flooding in McPherson County. The following events are the details on the more notable events.

November 1, 1998 — Widespread heavy rains of 6-10 inches inundated South-Central and Southeast Kansas from the evening of October 30th thru November 1st while 4-8 inches drenched Central Kansas. As a result, record flooding occurred along the following rivers: Whitewater River, Arkansas River, Walnut River, and Cottonwood River. The record flooding resulted in 1 confirmed death, 2 injuries, just over 5,300 evacuations, and $32 million in damage to crops, highways, property (both business and private), and soil erosion. Though record crests were not achieved on the Chikaskia and Ninnescah Rivers, significant flooding occurred none-the-less as 70 people were evacuated in Argonia along the Chikaskia and in Belle Plaine along the Ninnescah. There were also evacuations in Mulvane along the Arkansas River. In Chase County, approximately 200 people were evacuated in Cedar Point, Saffordville, Strong City and Elmdale. In Elmdale only 1 residence escaped flooding. The $2 million damage was inflicted upon crops, roads, residences and soil erosion. In Greenwood County, most of the $500,000 damage was due to roads being washed out. In Neosho County, $500,000 damage occurred mainly due to partial failure of a levy in Chanute. In Wilson County, 50 people were evacuated in and around Coyville when Toronto Lake began releasing. However, no significant damage resulted.

May 23, 2007 — Numerous, slow-moving thunderstorms produced 4 to 6 inches of rain across primarily the southern two-thirds of McPherson County from the late afternoon hours on May 23rd, to the early morning hours on May 24th. This caused widespread countywide flash flooding. Numerous rural and city roads were closed, and in fact all county roads across the southern half of the county were closed during the overnight hours due to high water. A vehicle was swept off Chisholm Road near 22nd Avenue, just north of Moundridge, but no injuries were reported. The highest measured total was 6.15 inches 7 miles west-northwest of McPherson. Estimated road and bridge damage across the county is $61,000. Other public and private damages are unknown.

June 16, 2009 — Several reports of water covered roads in and around McPherson. The flood waters flooded the basketball courts at Challenger Park in McPherson. Rainfall amounts were

measured at 3.25 inches. The flooding caused $5,000 in property damage. There were no reports of injuries or deaths.

Probability and Magnitude of Floods

The HMPC determined the probability for a flood is "highly likely" because there is about a 33 percent chance for a severe flooding event to occur based on historical events in the county.

In the past flooding has not resulted in deaths or injuries in McPherson County, as a result the HMPC determined the magnitude for flooding is "critical".

Flood Risk Summary

Table 2.19 is a risk summary for flooding in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 19 – Flood CPRI Ranking

Flood	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	3	NA*
Warning Time	4	NA*
Duration	3	NA*
Planning Significance	High	High
Risk Index	3.60	3.30
Ranking	3 out of 22	2 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability of Flooding

The major rivers within McPherson County include the Smoky Hill River, the Little Arkansas River, and the North Cottonwood River. The North Cottonwood River originates in McPherson County. These major rivers, and the larger creeks that drain into them, constitute flood prone areas within the county. The Federal Emergency Management Agency (FEMA) has mapped and categorized the 100-year flood plain along these rivers and creeks. The 100-year flood plain is that area which has a one percent chance of being flooded in any given year. The FEMA identified flood hazard areas have been mapped on a series of maps known as Flood Insurance Rate Maps (FIRM), and the community number on the maps is 200214. It is current county policy that residential buildings and other buildings will not be allowed to be built in identified flood hazard areas when the landowner has suitable land outside of the flood hazard on which to locate the buildings.

The Smoky Hill River upstream of McPherson County has a drainage area of approximately 7860 square miles. The Kanopolis Dam located in Ellsworth is located upstream from the county. Smoky Hill River enters McPherson County from Northwestern corner of the county and passes adjacent to City of Marquette and Lindsborg. There are two previous Flood Insurance Studies (FIS) at these two locations. Table 2.20 provides the 1982 FIS flows at these locations (State of Kansas Division of Water Resources).

Table 2. 20 – Flood Insurance Study Summary Discharges (as reported in the 1982 FIS)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges 10-Year	50-Year	100-Year	500-Year
Smoky Hill River					
At upstream corporate limit of:					
Marquette	101[1]	3,800[3]	11,800[3]	16,700[3]	30,700[3]
At Lindsborg	253[1/2]	5,800[2]	5,800[2]	16,000[2]	61,100[2]

[1]Uncontrolled Drainage Area Downstream of Kanopolis Dam

[2]Data Taken from Lindsborg, Kansas Flood Insurance Study

[3]Data Taken from Marquette, Kansas Flood Insurance Study

According to the McPherson Hydrology Report, even though the City of Lindsborg is 22 river miles downstream from the City of Marquette with 150 extra square mile of drainage area the FIS table indicates a lower flow value for the 100-year peak discharge which is inconsistent with the remaining frequencies. This inconsistency makes the 100-year discharges reported in the 1982 FIS report questionable. Consequently the flow values for Smoky Hill River were calculated using the state wide regression equations using the rural USGS equations for the State of Kansas dated March 2000. The drainage area for the calculated flows was based on the unregulated drainage area below Kanopolis Dam. The 100-year regression flows at similar drainage area locations along the Smoky Hill River are 20,605 and 31,493 cubic feet per second for Marquette and Lindsborg sites, respectively. These discharges are higher than those reported in the FIS, but are more in line with the other reported frequency discharges.

HAZUS Report

HAZUS is a regional multi-hazard loss estimation tool that was developed by FEMA and the National Institute of Building Sciences (NIBS). The main purpose of HAZUS is to provide a method and software application to develop multi-hazard losses at a regional level. The loss estimates are to be used primarily by local, state and regional officials to plan and encourage planning efforts to reduce risks from multi-hazards.

Tables 2.21 is the HAZUS flood loss estimation results that were completed by State and Local Emergency Management Consultants, LLC using FEMA's HAZUS-MH MR4 software program. It was used for estimating potential losses from flooding. Please refer to Chapter 3, for detailed information on flood vulnerability for each municipality.

Table 2. 21 – Flood Vulnerability Summary

Type of Structure	Number of Structures		Value of Structures		Number of People
	# in County	# in Hazard Area	$ in County	$ in Hazard Area	# in County
Residential	13,103	773	$1,430,714,000	$401,181,000	29,554
Commercial	750	15	$308,239,000	$59,766,000	Unknown
Industrial	449	5	$186,223,000	$42,221,000	Unknown
Agricultural	73	30	$38,330,000	$15,513,000	Unknown
Religious/ Non-Profit	70	3	$56,308,000	$5,690,000	Unknown
Government	42	3	$12,256,000	$2,172,000	Unknown
Education	22	2	$22,533,000	$3,563,000	Unknown
Total	**14,509**		**$2,054,603,000**	**$530,106,000**	**29,554**

Table 2.22 identifies the extent of damage the critical facilities in McPherson County could potentially experience as a result of a 100-year flood event.

Table 2. 22 – Expected Damage to Critical Facilities as Result of 100-year Flood

Critical Facility	Total in County	At Least Moderate Damage	At Least Substantial Damage	Loss of Use
Fire Stations	8	0	0	0
Hospitals	2	0	0	0
Police Stations	8	1	0	1
Schools	22	2	0	0

Debris Generation

HAZUS estimated the amount of debris that could be generated by a 100-year flood event. The loss estimation model divides debris into three general categories: 1) finishes (dry wall, insulation, etc.), 2) structural (wood, brick, etc.), and 3) foundations (concrete slab, concrete block, rebar, etc.). The debris is categorized because different types of material handling equipment are required to handle different types of debris.

The loss estimation model estimates that a total 8,033 tons of debris could be generated as the result of a 100-year flood event. Out of that total 54 percent would be finishes and 27 percent would be structure. If the debris tonnage is converted into an estimated number of truckloads, it will require 321 truckloads, at 25 tons per truck to remove the debris generated by the flood.

Building-Related Losses

HAZUS estimated building-related losses as a result of a 100-year flood event. The building losses are divided into two categories; direct building losses and business interruption losses. The direct building losses are the estimated cost to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses related to the inability to operate a business because of damage sustained during a 100-year flood event. Business interruption losses also include the temporary living expenses for those displaced from their homes because of the flood.

The total building-related losses were $77.57 million. The residential occupancies made up over 55 percent of the total loss. Table 2.23 provides a summary of the losses related with building damage.

Table 2. 23 – Building-Related Economic Loss Estimates

Building Loss				Business Interruption			
Category	**Building**	**Content**	**Inventory**	**Income**	**Relocation**	**Rental Income**	**Wage**
Residential	$25.96 million	$17.87 million	0	$20,000	$60,000	$30,000	$50,000
Commercial	$3.88 million	$11.24 million	$430,000	$80,000	$20,000	$10,000	$90,000
Industrial	$2.86 million	$7.34 million	1.21 million	0	0	0	0
Others	$1.43 million	$4.83 million	$530,000	$20,000	0	0	$170,000
Total	**$34.12 million**	**$41.29 million**	**$2.17 million**	**$120,000**	**$80,000**	**$40,000**	**$310,000**

McPherson County Severe Repetitive Loss Properties

FEMA defines severe repetitive loss properties as "a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any

10-year period and must be greater than 10 days apart. There is one repetitive loss property in McPherson County. The following table provides the building type and total loss amounts for the properties.

Table 2. 24 – McPherson's Severe Repetitive Loss Properties

Building Type	Insured	Mitigated	Total Loss Amount	Building Loss Amount	Contents Loss Amount	Number Of Losses	FIRM	Building Value
Single Family	No	No	$22,982.80	$22,982.80	$0.00	2	No	N/A

The following maps were created using the HAZUS-MH MR4 software. HAZUS did not identify any floodplain areas for the Cities of Canton, Galva, Inman, or Windom.

- Figure 2.11 identifies the 100-year flood zones for McPherson County
- Figure 2.12 identifies the 100-year flood zones for the City of Lindsborg
- Figure 2.13 identifies the 100-year flood zones for the City of Marquette
- Figure 2.14 identifies the 100-year flood zones for the City of McPherson
- Figure 2.15 identifies the 100-year flood zones for the City of Moundridge

Figure 2. 11 – McPherson County 100-year Floodplain

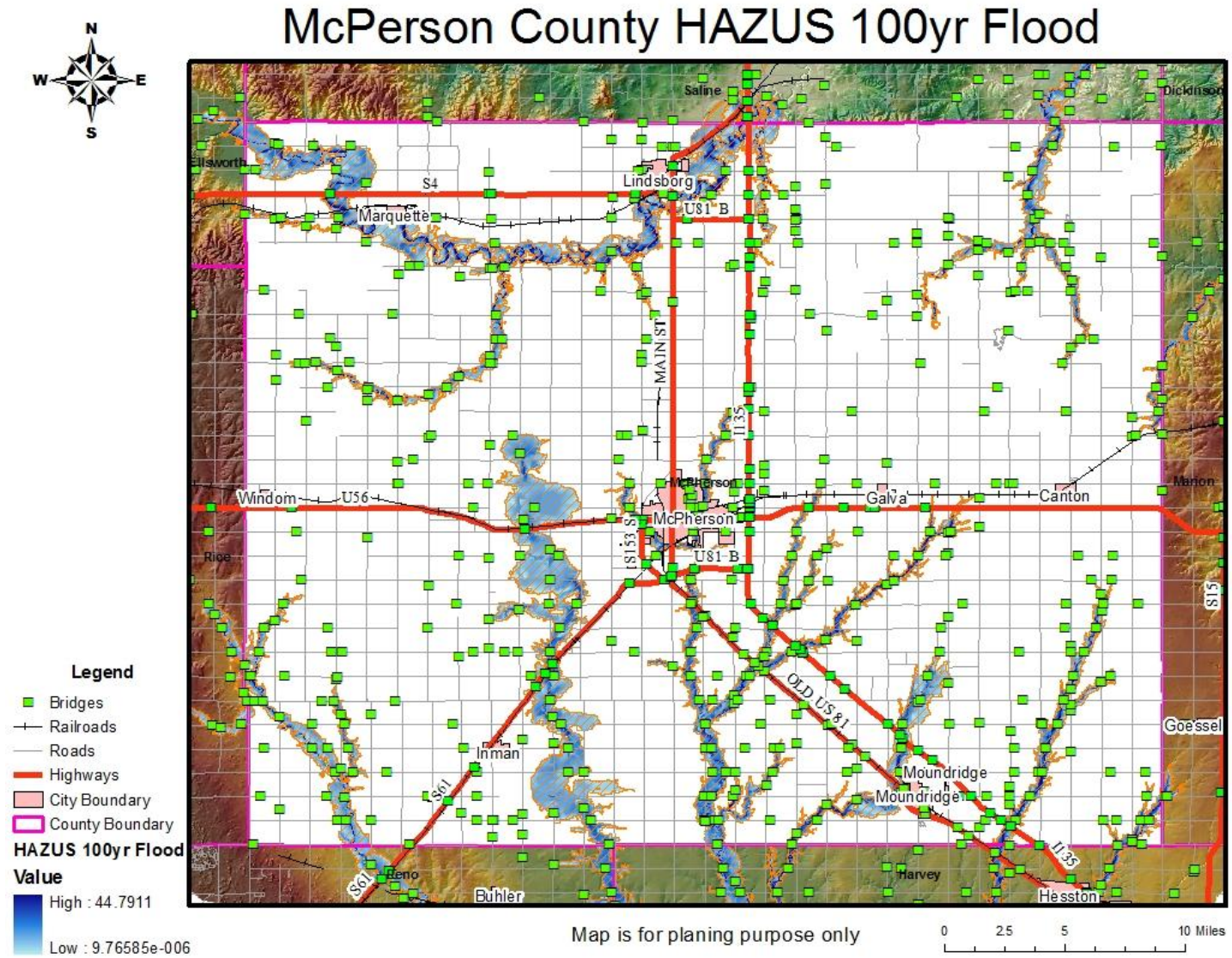


Figure 2. 12 – City of Lindsborg 100-year Floodplain

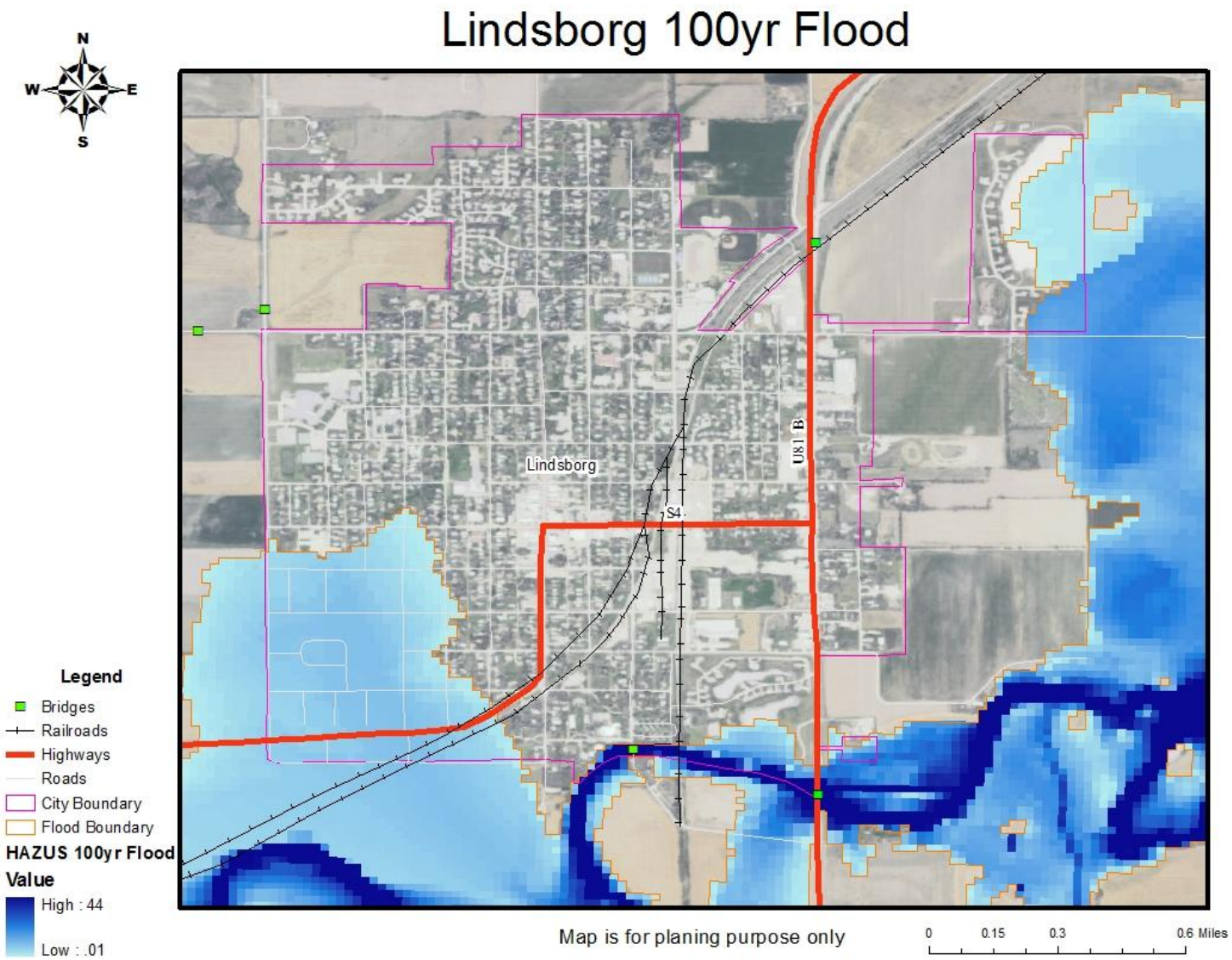


Figure 2. 13 – City of Marquette 100-year Floodplain

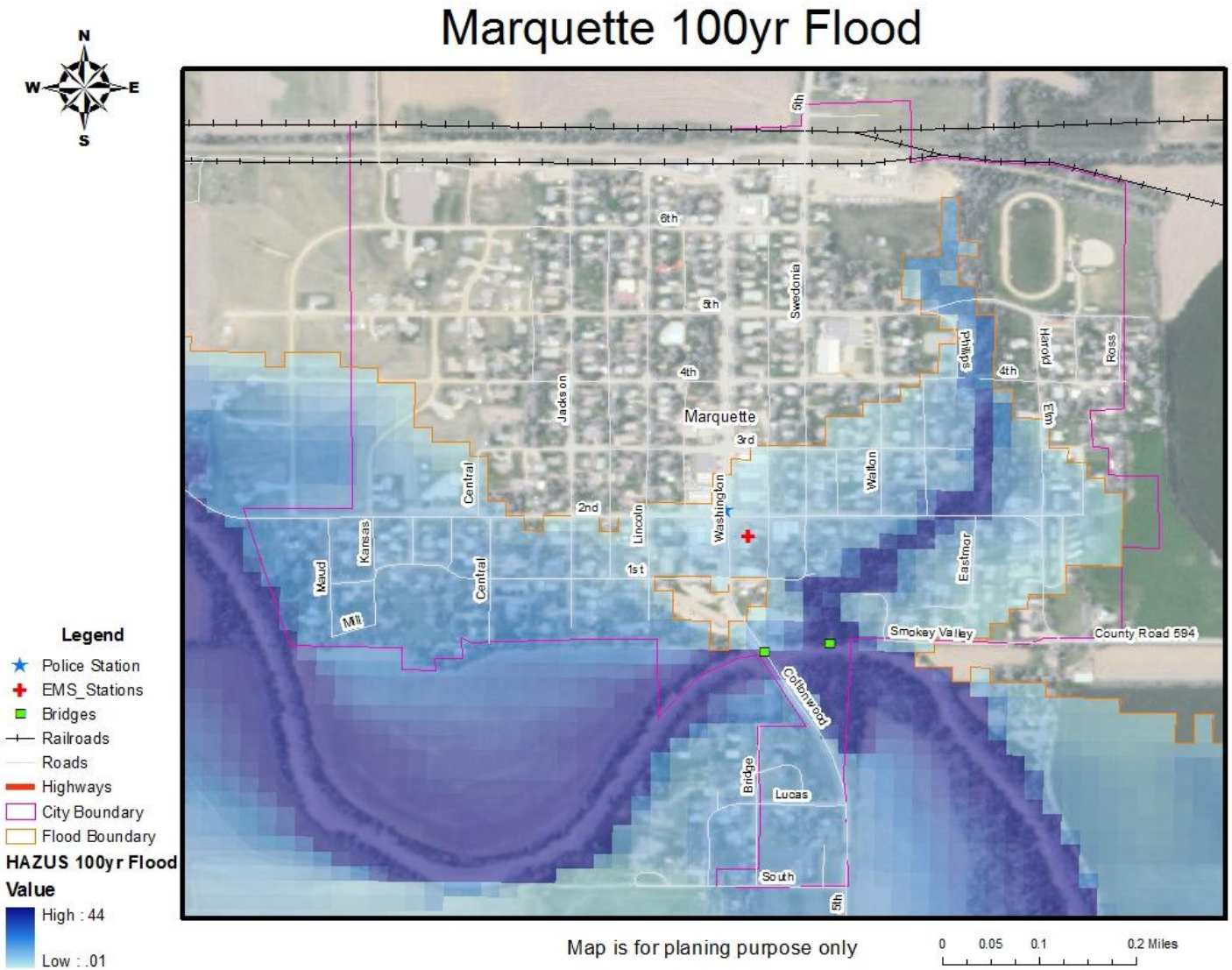


Figure 2. 14 – City of McPherson 100-year Floodplain

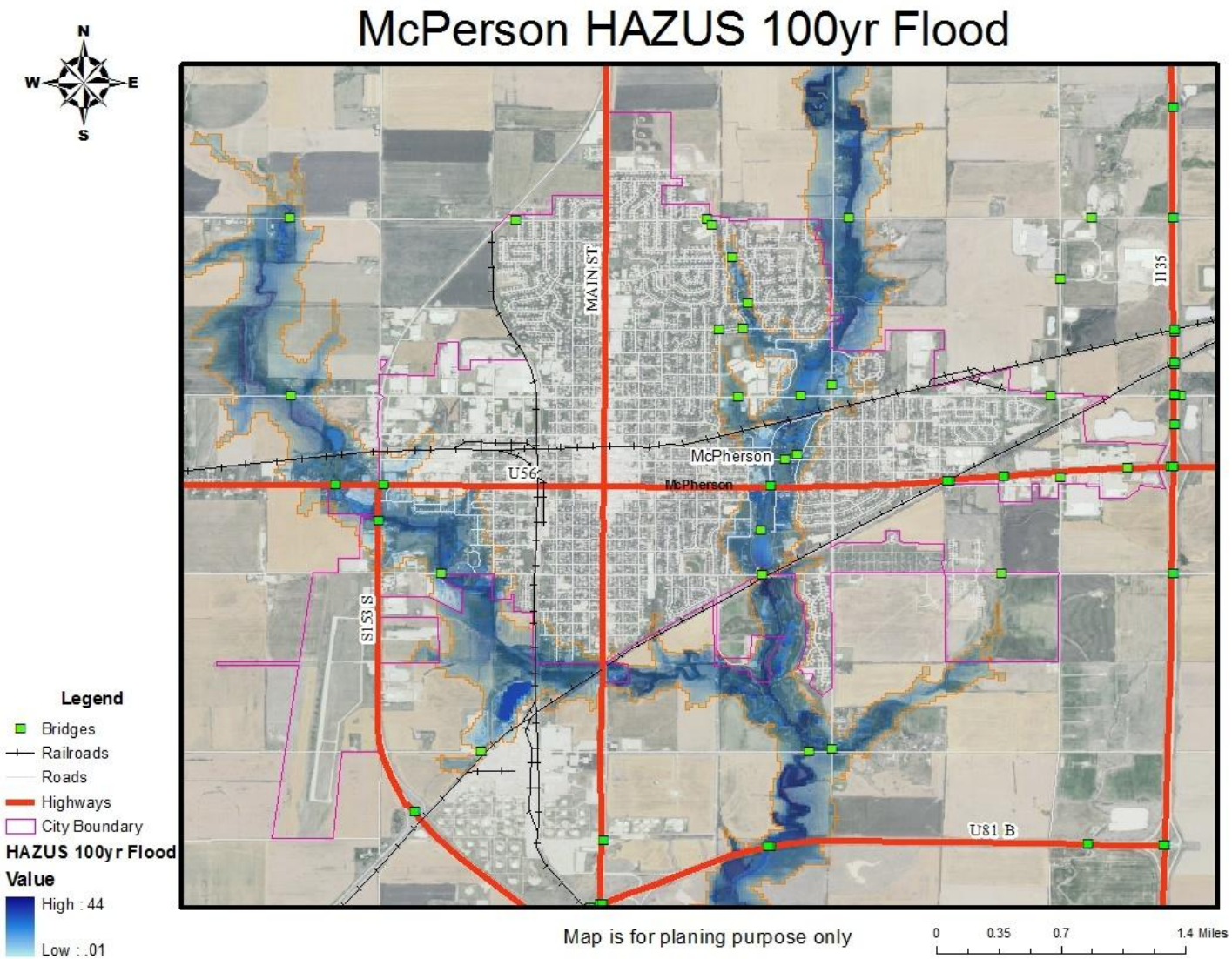
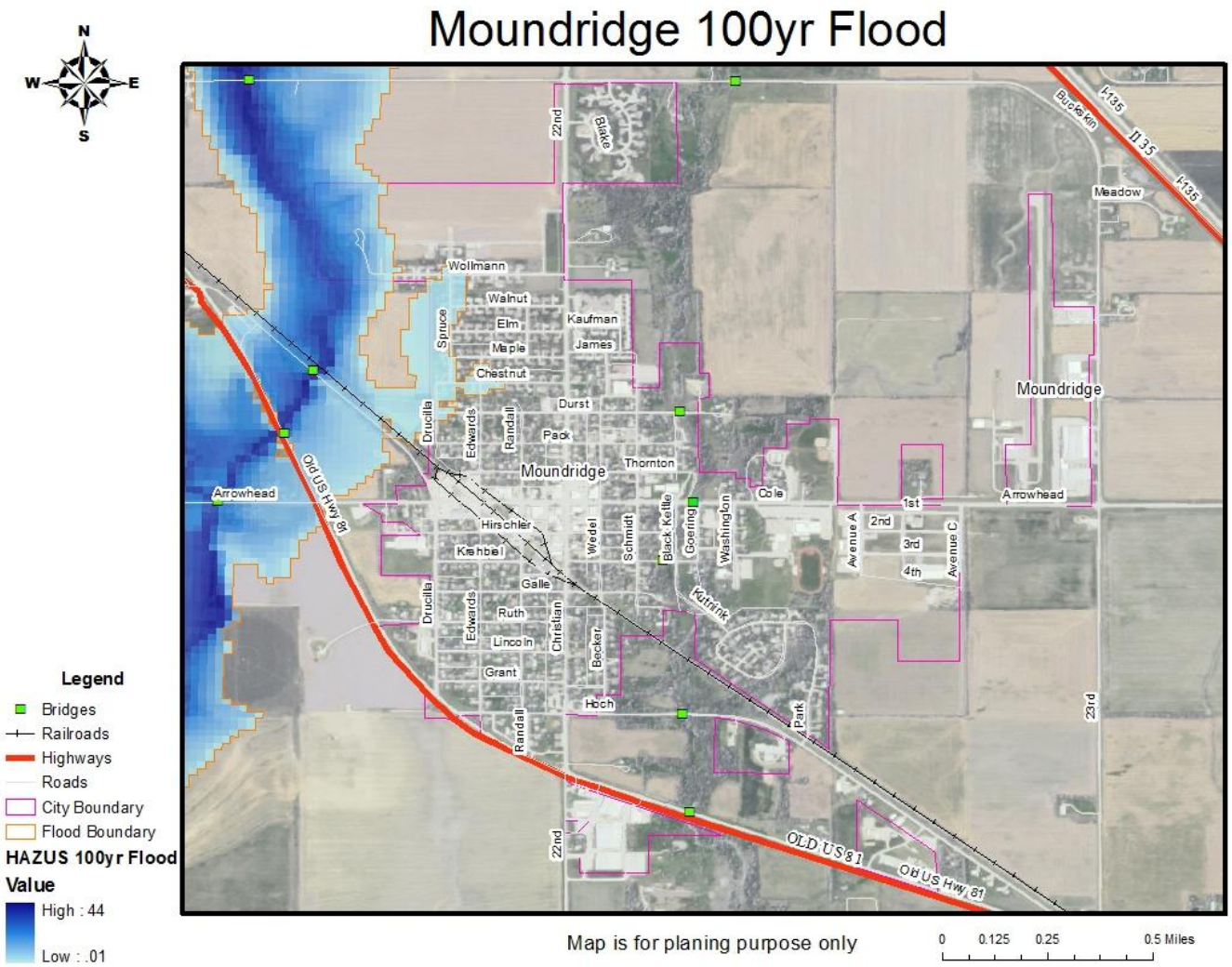


Figure 2. 15 – City of Moundridge



Fog

The photograph above was taken August 25, 2007 of the early morning fog that had set in McPherson, Kansas.

Hazard Definition

Vapor condensed to fine particles of water suspended in the lower atmosphere that differs from cloud only in being near the ground. There are different types of fog, radiation fog, advection fog, upslope fog, ice fog, freezing fog, and evaporation or mixing fog (National Weather Service).

Radiation Fog – This type of fog forms at night under clear skies with calm winds when the heat is absorbed by the earth's surface during the day is radiated into space. As the earth's surface cools and there is a deep enough layer of moist air near the ground, the humidity will reach 100 percent and fog will form. This fog varies in depth from 3 feet to about 1,000 feet, is always at ground level, and usually remains stationary. It can reduce visibility to near zero at times and make driving very hazardous.

Advection Fog – This type of fog looks like radiation fog and is also caused by condensation. The difference is, in this case the condensation is not caused by a reduction in surface temperature, but by the horizontal movement of warm moist air over a cold surface. Advection fog can be distinguished from radiation fog by its horizontal motion along the ground.

Upslope Fog – This fog forms when light winds push moist air up a hillside to a level where the air becomes saturated and condensation occurs. This fog usually forms a good distance from the peak of a hill or mountain and covers a large area. This fog occurs in all mountain ranges in North America and usually occurs in the winter months.

Ice Fog – It forms when the air temperature is below freezing and is composed entirely of tiny ice crystals that are suspended in the air. Ice fog will only occur in cold Arctic air. Generally the temperature has to be 14° Fahrenheit or lower for ice fog to occur.

Freezing Fog – This fog happens when the water droplets that the fog is comprised of are super cooled. The super cooled water droplets remain in a liquid state until they come into contact with a surface upon which they can freeze. As a result, the objects that freezing fog comes into contact with will be coated with ice.

Evaporation or Mixing Fog – This fog forms when sufficient water vapor is added to the air by evaporation and the moist air mixes with cooler, drier air. The tow common types are steam fog and frontal fog. Steam fog forms when cold air moves over warm water. As the cool air mixes with the warm moist air over the water, the moist air cools until its humidity reaches 100 percent and fog forms. This type of fog looks like smoke rising off the surface of the water. Frontal fog forms when warm raindrops evaporated into a cooler drier layer of air near the ground. Once enough rain has evaporated into the layer of cool surface, the humidity of the air reaches 100 percent and fog forms.

History Fog Events

There were no major fog events reported by the NCDC or NWS for McPherson County during the period of January 1, 1950 through February 28, 2010.

Probability and Magnitude of Fog

The probability for a fog event was ranked as "highly likely" because there are multiple fog events each year. However, the HMPC determined the magnitude of a fog event is "negligible" because less than 10 percent of property is severely damaged.

Fog Risk Summary

Table 2.25 is a risk summary for fog in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 25 – Fog CPRI Ranking

Fog	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	2
Magnitude	1	NA*
Warning Time	1	NA*
Duration	1	NA*
Planning Significance	Moderate	Low
Risk Index	2.35	1.60
Ranking	16 out of 22	22 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Fog Vulnerability

Fog does not have an impact on buildings and other structures. Yet it is still a high risk for McPherson County, because of the safety risks it poses for the transportation industry. All highways and roadways in McPherson County are vulnerable to traffic accidents as a result of fog. Fog related traffic accidents can potentially cause deaths and injuries.

The airline industries are particularly vulnerable to fog conditions. Airplanes are grounded until fog conditions clear. According to the NTSB between 1994 and 2003, there were 19,562 aircraft accidents in the United States. Fog was a contributing factor in 336 of those accidents.

Hailstorm

Hazard Definition

Hail is associated with thunderstorms. Hail is produced by intense thunderstorms as water droplets are picked up by strong updrafts and can be carried well above the freezing level. As the frozen droplets fall, the updraft can carry them back up to the top of the storm adding more ice layers. Typically the stronger the updraft, the more times a hailstone repeats this cycle and consequently, the larger it grows. Once the hail stone becomes too heavy to be supported by the updraft, it falls out of the cloud toward the surface. The hailstone reaches the ground as ice.

Hail consists of balls or irregular lumps of ice called hailstones. Most hail is generally small, less than 2 inches in diameter. Hail is measured on an intensity scale called the TORRO Hailstorm Intensity Scale. The scale ranges from H0 to H10 with its increments or damage potential related to hail size, texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind (Tornado and Storm Research Organisation).

Maximum hailstone size is the most important parameter relating to structural damage, especially towards the more severe end of the scale. Hailstone shapes are also an important feature. Spiked or jagged hailstones can also increase some aspects of damage. The following table is the TORRO Hailstorm Intensity Scale in relation to the typical damage and hail size codes (Tornado and Storm Research Organisation). The size codes are in the second table.

Table 2. 26 - TORRO Hailstorm Intensity Scale

Intensity Scale	Intensity Category	Typical Hail Diameter in millimeters	Typical Hail Diameter in inches	Probable Kinetic Energy, J-m^2	Typical Damage Impacts
H0	Hard Hail	5	0.196	0-20	No damage
H1	Potentially Damaging	5-15	0.2-0.6	>20	Slight general damage to plants, crops
H2	Significant	10-20	0.4-0.79	>100	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	0.79-1.18	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	0.98-1.57	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	1.18-1.97	>800	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60	1.57-2.36	N/A	Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75	1.97-2.95	N/A	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	2.36-3.54	N/A	(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	2.95-3.94	N/A	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	3.94	N/A	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Table 2.27 is the hail size code, diameter, and description of shape in relation to the TORRO Hailstorm Intensity Scale.

Table 2. 27 - Hail Size In Relation to the TORRO Scale (Tornado and Storm Research Organisation)

Size code	Diameter (mm)	Diameter (in)	Description
H0	5-9	0.2-0.35	Pea
H1	10-15	0.4-0.6	Mothball
H2	16-20	0.63-0.79	Marble, grape
H3	21-30	0.83-1.18	Walnut
H4	31-40	1.22-1.57	Pigeon's egg
H5	41-50	1.61-1.97	Golf ball
H6	51-60	2.01-2.36	Hen's egg
H7	61-75	2.40-2.95	Tennis ball
H8	76-90	2.99-3.54	Soft ball
H9	91-100	3.58-3.94	Grapefruit
H10	>100	>3.94	Melon

The largest recorded hailstone fell on June 23, 2003 in Aurora, Nebraska and it had a diameter of 7.0 inches, a circumference of 18.75 inches, and weighed 1 pound (National Weather Service). The heaviest recorded hailstone fell in Coffeeville, Kansas on September 3, 1970. It weighed 1.67 pounds; the diameter was 5.7 inches and a circumference of 17.5 inches.

Past Hailstorm Events

According to the NCDC, there were a total of 249 hailstorm events from August 30, 1959 to February 28, 2010 (National Climatic Data Center (NCDC)). Due to the large number of incidents only the events with property or crop damage will be detailed.

March 28, 1993 — A hailstorm with hailstones three-quarters of an inch in diameter hit the Moundridge area in McPherson County. Property damage was estimated at $5,000 along with $5,000 in crop damage.

May 7, 1993 — Moundridge reported hailstones three-quarters of an inch in diameter, causing $500 in property damage and $500 in crop damage.

June 5, 1994 — Pea- to golf ball-size hail fell in an area seven to eight miles north of Canton, breaking branches from trees and damaging the soon-to-be harvested wheat crop. Winds of 61 knots were reported with this storm one mile south of Canton. There was $5,000 in property damage and $5,000 in crop damage.

August 19, 2005 — Marquette reported hail 1.75 inches in diameter. An unspecified number of homes had damage to vinyl siding. There was $100,000 in property damage.

Probability and Magnitude of Hailstorms

Hailstorms have caused widespread losses in McPherson County, damaging property, crops, killing and injuring livestock. All of these losses are possible in the planning area. Table 2.28 identifies hail size and the number hailstorm events with that hail size in McPherson County.

Table 2. 28 - Hailstorm Events

1962 - 2010	
Hail Size	**Number of Events**
4.50	0
4.25	0
4.00	1
3.75	0
3.50	1
3.25	0
3.00	1
2.75	5
2.50	3
2.25	0
2.00	7
1.75	49
1.50	3
1.25	10
1.00	51
0.88	24
0.75	84

Based on data in Table 2.28, the HMPC determined the probability that at least two hail events will occur in McPherson County in any given year is "highly likely".

Hailstorms resulted in $116,000 in property damage and $16,000 in crop damage over the last 60 years in McPherson County. The HMPC determined the magnitude for hailstorms in McPherson County is "limited" based on past events.

Hailstorm Risk Summary

Table 2.29 is a risk summary for hailstorms in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 29 – Hailstorm CPRI Ranking

Hailstorms	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	2	NA*
Warning Time	4	NA*
Duration	1	NA*
Planning Significance	High	Moderate
Risk Index	3.10	2.80
Ranking	7 out of 22	9 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Hailstorm Vulnerability

Every year hailstorms cause damage to structures, crops, livestock, and vehicles. All of the structures in the county are vulnerable to major hailstorm damage. It is difficult to measure the extent of damage that would occur due to data limitations. The data needed to evaluate the damage estimates for each type of structure is not readily available.

Table 2.30 is a hazard vulnerability summary. The value of the structures and number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to hailstorms. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on the size of hailstones and accompanying weather conditions.

Table 2. 30 – Hailstorm Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Losses due to hail are a huge concern for McPherson County because of its large agriculture industry. In 2005, hail and wind damage made up 45 percent of the homeowners insurance losses (Kansas Hazard Mitigation Team). Much of the hail damage was done to crops. Even small hail can destroy plants in a matter of minutes. It can also cause major damage to vehicles, roofs of building, homes, and landscaping. The extent of hail damage can range from very minor dents to holes in vehicles, siding, and roofs.

Hazardous Materials

Hazard Definition

Hazardous materials are chemical substances, which if released or misused can pose a threat to the environment or health. These chemicals are used in industry, agriculture, medicine, research, and consumer goods. Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials.

Many products containing hazardous materials are used and stored in homes on a regular basis. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines.

According to Subpart A, Part 105, Subchapter A, Chapter I, Subtitle B of Title 49 of the Code of Federal Regulations (CFR), The U.S. Department of Transportation defines a hazardous material as a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter.

History of Hazardous Material Releases

February 4, 2010	A portion of U.S. Highway 56 in McPherson County has been closed most of the day as crews clean up a fuel spill. Highway Patrol troopers were called to the scene nine miles west of McPherson at 6:59 a.m. A tanker skidded on the slick highway and its trailer rolled into the ditch. The trailer lost 8,000 gallons of gasoline and ethanol. Hazardous materials crews built a dam to contain the spilled fuel. Troopers said the section of highway will be blocked until at least 10:00 p.m. The truck driver wasn't seriously injured.
2003	National Cooperative Refinery Association (NCRA) was found guilty of violating the Clean Air Act. They were accused of releasing 3,000 tons of pollution over the legal limit on an annual basis. NCRA was fined $350,000 and ordered to spend $1.5 million to upgrade their emission and pollution controls. There was also the presence of asbestos in the plant. It was used in many industrial items around the refinery, such as rubber products and insulation. After it was recognized to be dangerous the plant had to temporarily halt operation an remove every bit of the hazardous material (Mesothelioma & Asbestos Awareness Center).
1980s-2002	Gas was found in wells and local groundwater possibly caused by wet rockhead in Conway, McPherson County, Kansas (Health and Safety Executive). This indicates storage gas migrated away from the original storage area and the storage cavity failed.

Probability and Magnitude for Hazardous Materials

There are many pipelines that transport natural gas. There are also underground storage caverns in McPherson County. For that reason, the HMPC determined the probability of a hazardous materials release is "likely."

Although there have been hazardous material releases in McPherson County, the HMPC determined that the magnitude for a hazardous materials spills is "limited". It was determined to be limited because it would be unlikely that more than 25 percent of property in the area would be severely damaged as a result of a hazardous material release.

Hazardous Materials Risk Summary

Table 2.31 is a risk summary for hazardous materials in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction for the specific ranking information.

Table 2. 31 – McPherson County Hazardous Materials CPRI Ranking

Hazardous Materials	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	3	4
Magnitude	2	NA*
Warning Time	4	NA*
Duration	3	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.85	2.90
Ranking	10 out of 22	6 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Hazardous Materials

Damage estimates for structures is not available because a hazardous materials incident does not normally directly damage structures; however it does directly impact individuals. It can cause death, serious injury, and long-lasting health effects. Many products containing hazardous chemicals are used and stored in homes routinely.

Refineries pose large man-made hazards in the form of pollution, fire, explosions and land covered oil spills. These types of hazards are always present with such large and intensive industrial uses. It is wise that refineries have a large land base surrounding the main processing facility to buffer them from other uses.

In 1933, an oil refinery capable of processing 15,000 barrels of crude oil per day was constructed just south of McPherson to utilize the then expanding McPherson County crude oil production industry. This was the Globe refinery, and it was developed mainly to serve the Kansas market and states to the north and northeast by truck and rail service. At that time, the network of nationwide pipelines for the transportation of petroleum products was not in place. In 1943, the Globe refinery was purchased by the National Cooperative Refinery Association (NCRA), primarily to meet the fuel needs of agriculture during wartime shortages. The NCRA refinery is still operating south of McPherson and has been expanded and modernized several times over the years. The headquarters of NCRA are located next to the refinery. Current capacity of the NCRA refinery is 75,000 barrels of crude oil per day, the third largest refinery capacity in Kansas.

Buildex Inc. is a major mining and processing company in the county. It is located in section 6 of Union Township and section 1 of Marquette Township. This operation is located about 4 miles northeast of Marquette on both sides of 6th Avenue (County Road #594). This company mines shale from the Kiowa Shale formation. The shale is crushed and processed through a very hot rotary kiln. The heating of the raw shale causes rapid expansion (much similar to expanding popcorn), which creates a lightweight expanded aggregate useful in the manufacture of lightweight concrete block, in other lightweight concrete uses, and as an aggregate for asphalt chip sealing. The plant averages 150,000 cubic yards of finished product per year with a monetary value of between 2 to 3 million dollars.

This mine and processing plant are the only one of its kind in the entire state of Kansas. The finished product is distributed to markets in fifteen states. The shale mining area is located in section 1 of Marquette Township, while the processing plant is located in section 6 of Union Township. Finished product is shipped out by truck since the rail service to the site has been discontinued. Company officials estimate that there are shale deposits available for economical mining and processing to last at least another 100 years. It appears that this mining and processing will continue well into the future of McPherson County. Kansas law requires restoration of mined out areas.

There are also several sand mining operations in McPherson County and one volcanic ash extracting operation. The operators of these sand pits and their locations are as follows:

The McPherson County Public Works department is mining sand from the NW 1/4 of section 28, T 18 S, R 4 W, Harper Township. The county uses this sand for its hot asphalt plant.

Digging and Dumping Inc. operates two sand mining operations in McPherson County. One is in the SW 1/4 of section 22, T 18 S, R 3 W, New Gottland Township and the other is located in the SW 1/4 of section 14, T 19 S, R 3 W, McPherson Township.

E-M Sand and Gravel operates a sand mining operation located in the N ½ of the SE 1/4 of section 16, T 18 S, R 4 W, Harper Township.

Shear's Construction LP operates a sand-mining operation in the NW 1/4 of section 18 S, R 4 W, Harper Township and in the NW 1/4 of section 22, T 18 S, R 4 W, Harper Township. Volcanic ash is also extracted from the location in section 22 of Harper Township.

The local sand resource is mostly used to supply the local building and ready-mix concrete production industries, and some is supplied to the Township governing bodies for road purposes.

Underground propane is stored, loaded, and unloaded in salt caverns located in and around the vicinity of the unincorporated area of Conway in the southwest portion of T19S, R4W of the 6th p.m. and also in the eastern portion of T19S, R5W of the 6th p.m. Both of these areas are located several miles directly west of the City of McPherson. The practice of storing propane gas underground has existed for some time, but it does pose hazards to the natural environment and to man in the form of contaminating groundwater supplies or posing risks due to fires or explosion.

Conway was an unincorporated area with many households in it, but it was declared unsafe for humans on private water supplies because of contaminated groundwater during the late 1970's. Today there are only one or two permanent residents of the area.

In addition, underground, high-pressure pipelines running through the county pose hazards to the public. Whether oil or natural gas, pipelines create the threat of environmental contaminations, fire, or explosions.

Anhydrous ammonia storage and staging areas are also located in the county. These present large hazards as this substance is stored, transferred, and handled throughout the county. Anhydrous ammonia in a liquid form stored in a tank released into the environment, whether as a normal farm fertilizer, or by accident, it can injure humans or corrode metals.

Each of the above-listed, man-made hazards should be taken into account when new residential uses in the form of subdivisions are proposed to be platted in the county. Residential uses and high-hazard land uses should not be allowed to be adjacent uses.

Table 2.32 provides the oil and gas production data for McPherson County for April 6, 2010 through December 2009 (Kansas Geological Survey).

Table 2. 32 – McPherson County Oil and Gas Production

Year	Oil			Gas		
	Production (bbls)	Wells	Cumulative (bbls)	Production (mcf)	Wells	Cumulative (mcf)
1995	589,748	862	202,554,338	344,466	75	22,852,745
1996	561,538	695	203,115,876	295,788	76	23,148,533
1997	528,630	680	203,644,506	240,372	72	23,388,905
1998	464,128	646	204,108,634	237,529	71	23,626,434
1999	474,038	602	204,582,672	222,972	68	23,849,406
2000	455,463	600	205,038,135	189,537	59	24,038,943
2001	440,327	594	205,478,462	182,621	57	24,221,564
2002	435,222	578	205,913,684	169,673	53	24,391,237
2003	434,308	602	206,347,992	168,923	51	24,560,160
2004	431,703	595	206,779,695	167,592	50	24,727,752
2005	426,384	597	207,206,079	170,825	53	24,898,577
2006	420,010	595	207,626,089	172,419	54	25,070,996
2007	419,118	604	208,045,207	170,184	50	25,241,180
2008	429,292	614	208,474,499	172,059	45	25,413,239
2009*	436,007	617	208,910,506	145,630	40	25,558,869

***2009 data incomplete at this time.**
Note: bbls is barrels; mcf is 1000 cubic feet.

Figure 2.16 identifies the locations of the oil and gas fields in production in McPherson County (Kansas Geological Survey) .

Figure 2. 16 – McPherson County Oil and Gas Fields

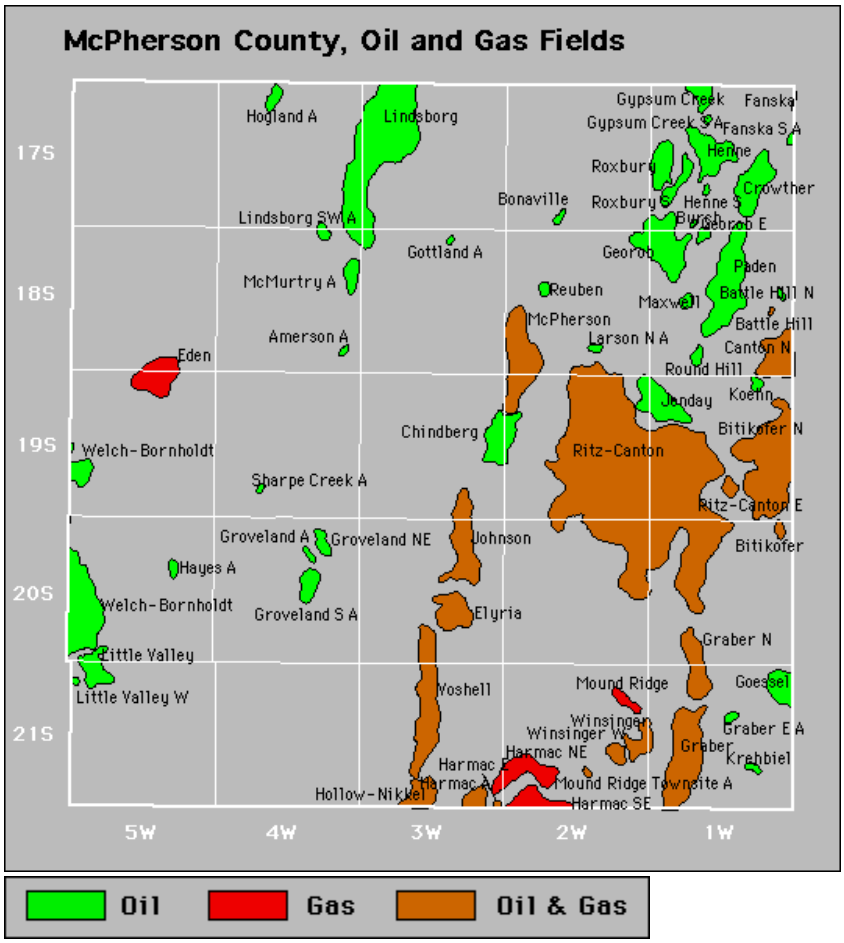


Table 2.33 is a list of all of the active fields in McPherson County (Kansas Geological Survey).

Table 2. 33 – Active Oil and Gas Fields in McPherson County

Active				
Amerson	Elyria	Harmac	Lindsborg	Roxbury
Amerson North	Fanska South	Harmac East	Little Valley	Roxbury South
Battle Hill	Georob	Harmac Northeast	Little Valley West	Vogt
Battle Hill North	Georob East	Harmac Southeast	Maxwell	Voshell
Bitikofer	Goessel	Henne	Mcmurtry	Welch-Bornholdt
Bitikofer North	Graber	Henne South	Mcpherson	Winsinger
Bonaville	Graber East	Hoglund	Mound Ridge	Winsinger West
Burch	Graber North	Hollow-Nikkel	Paden	
Canton North	Groveland Northeast	Jenday	Reuben	
Chindberg	Groveland South	Johnson	Ritz-Canton	
Crowther	Gypsum Creek	Koehn	Ritz-Canton East	
Eden	Gypsum Creek South	Krehbiel	Round Hill	

There are seven abandoned gas and oil fields in McPherson County, Gottland, Groveland, Hayes, Larson North, Lindsborg Southwest, Mound Ridge Townsite, and Sharpe Creek.

Land Subsidence

Hazard Definition

Land subsidence and sinkholes are generally associated with mineral mining activities, oil and gas searching, and natural subsidence and sinkhole areas that have affected ground and surface water quality. Development of land subsidence and sinkhole areas can be grouped into three major categories:

- natural dissolution of soluble minerals (causing the development of sinkholes),
- the extraction of minerals by either solution mining or shaft mining, resulting in a void space where subsidence can occur, and
- Fresh water drains by way of a drill hole or unplugged oil or gas well, which wears down a soluble mineral formation creating an outlet for the solution cavity water to be disposed.

The development of subsidence and sinkhole areas are of concern. Potential subsidence areas that develop in places associated with oil and gas production require a fresh groundwater source, mineral formation (like salt), and a connection to a disposal formation capable of disposing or storing the solution water. All three conditions must be present in order for a subsidence to develop. The potential area that could be affected by this type of subsidence could be very large because of the wide distribution of the Blaine, Cimarron, and Hutchinson salt members and the presence of numerous groundwater aquifers. The subsidence areas can be grouped into three categories (Kansas Department of Health and Environment). The characteristics for each category are as follows:

Category I (High Risk)	Source material is very soluble, thickness may leave large voids, and depth of source material is less than 100 feet in depth. Mining operations as left a large vertical void space (4-300 feet), with vertical shafts or bore holes. The mined area has a large void space to pillar ratio. The void space in the mine has filled with water. Mine floor is susceptible to collapse or loading failure. Cap rock is not competent for long term support. Mine pillars are susceptible to deterioration and future collapse. The mine roof is less than 60 feet in thickness. The bedrock material making up the roof is not competent material for long-term stability. The mine has horizontal or inclined mine shafts with shallow or thin overburden. The areas in the subsurface where the support pillars in columns have been mined or removed.
Category II (Medium Risk)	The mine floor has a depth greater than 125 feet. The void space to pillar ratio is 80 - 90 percent. The vertical opening is four feet or greater. Water filled void increases subsidence risk. The overlying bedrock material is very competent. There are numerous mine shafts or boreholes associated with the mining technique. The support columns or pillars are susceptible to serious deterioration when the void space is filled with water.
Category III (Low Risk)	There is a small vertical void space and the void space to pillar ratio is good, 70-80 percent. The vertical shafts and boreholes are in good condition. The depth of the mined material is relatively deep, around 150 feet. The cap rock over the void space is competent. Long wall mining method allows slow subsidence with minimal vertical opening; surface substance is minimal to undetected. Mine opening is dry and there is no pillar deterioration. The mine area has little risk of sudden subsidence.

History of Land Subsidence

Land surface subsidence is caused by natural or induced dissolving of the thick underground Hutchinson salt bed. Like most sedimentary formations, this salt bed is not horizontal but is inclined gently downward toward the west. The salt bed is fairly near the ground surface in a broad zone extending approximately north-south from near Salina, and just west of Lindsborg and McPherson, and east of Hutchinson.

Geologists have long recognized ancient sinks in this area of McPherson County. Lake Inman, for example, is a large water-filled sinkhole. The Big Basin, a few miles west of McPherson, and the Chain of Lakes wetlands are the result of this process. This process of solution subsidence has been going on in the area for hundreds of thousands,

perhaps millions, of years. In some instances it is believed that abandoned, unplugged oil wells may have acted as a conduit for groundwater to rapidly reach down to and erode the underlying salt formation, thus creating some sinkholes in the county (McPherson County).

In the early 1990's, a residence had to be removed from the SE1/4 of the SE1/4 of section 20, T 20 S, R 4 W due to subsidence over many years, at least since 1972. The county roads of Comanche Road (County Road 445) and 8th Avenue (County Road 446) intersect at this location, and in recent years the county has had to raise the roadbeds and rebuild these roads in this area, at quite a bit of expense.

Probability and Magnitude of Land Subsidence

McPherson County has areas where land surface subsidence is occurring. Therefore, the HMPC determined the probability of land subsidence occurring is “likely”.

The Hutchinson salt formation is very slowly being dissolved by fresh groundwater and this dissolution is causing slow ground surface subsidence. Land surface subsidence is generally a slow process with no sudden catastrophic collapse at the land surface. At first the depressions are shallow enough that water draining into them evaporates during dry periods, or it slowly percolates into the soil. Over time the depressions may become larger and deeper. For this reason the HMPC determined the magnitude of land subsidence is “limited”. The subsidence activity is continually being monitored and evaluated.

Land Subsidence Risk Summary

Table 2.34 is a risk summary for land subsidence in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 34 – Land Subsidence CPRI Ranking

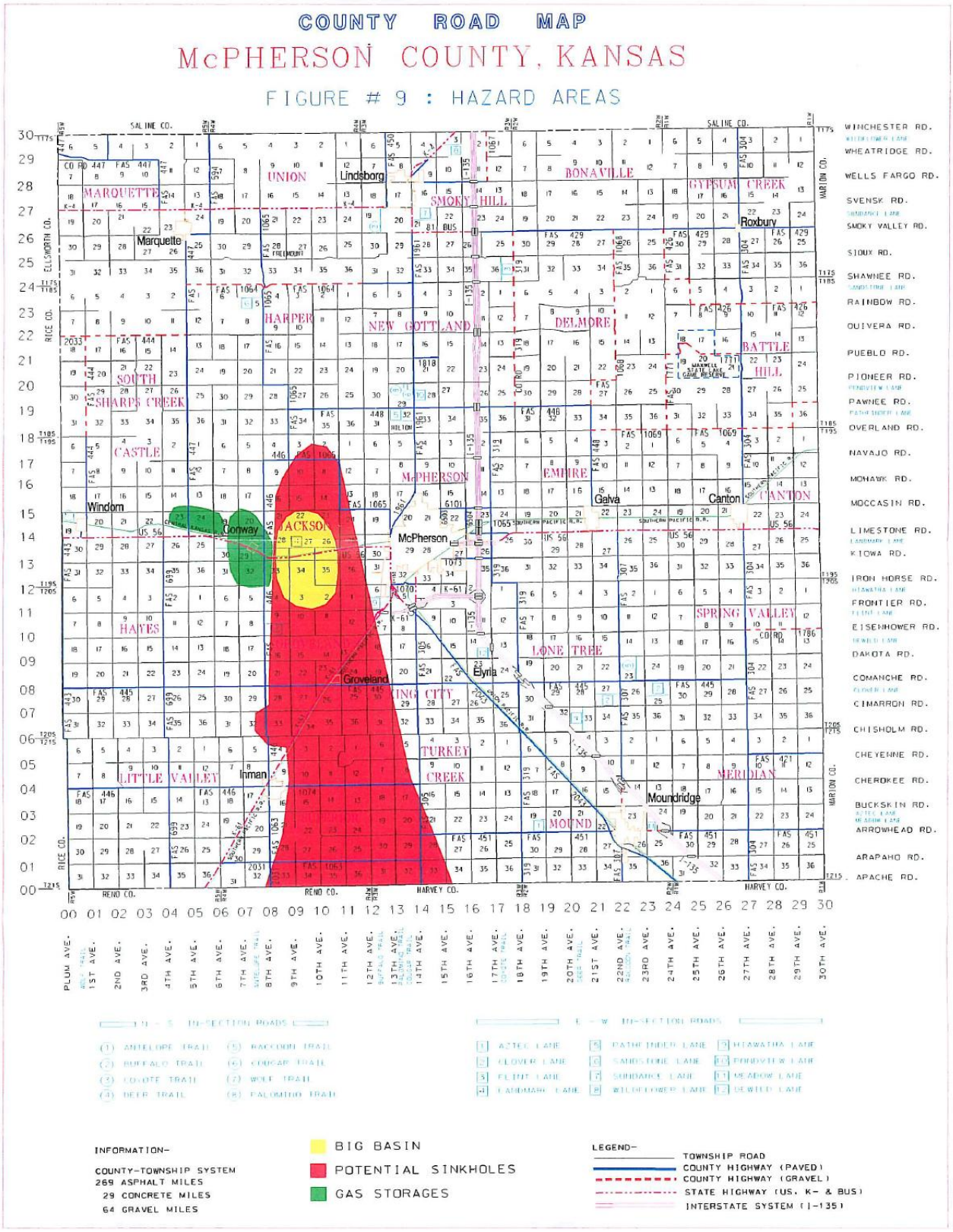
Land Subsidence	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	3	4
Magnitude	2	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.50	2.65
Ranking	14 out of 22	12 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Land Subsidence Vulnerability

Twenty-six out of 105 Counties in Kansas have reported sinkholes. McPherson County is one of those counties that have reported land subsidence (sinkholes). Land surface subsidence is caused by natural or induced dissolving of the thick underground Hutchinson salt bed. Like most sedimentary formations, this salt bed is not horizontal but is inclined gently downward toward the west. Because of this inclination, the salt bed is fairly near the ground surface in a broad zone extending approximately north-south from near Salina, and just west of Lindsborg and McPherson, and east of Hutchinson. Figure 2.17 identifies the areas of land subsidence and potential areas of subsidence.

Figure 2. 17 – McPherson County Land Subsidence Map



Landslide

Hazard Definition

According to the Kansas Geological Survey, a landslide is the downhill movement of masses of soil and rock by gravity. Landslides develop because of a combination of gravity, susceptible soil or rock, sloping ground, and water. There are several different types of landslides. They are rock falls, block slides and slumps, earth flows, and creeps.

Rock falls occur next to cliffs and outcrops where chunks of rock break off and fall down the slope. Block slides and slumps happen where blocks or masses of intact soil or rock move down a slope along a failure surface. A failure surface is a surface at the base of a landslide along which motion has occurred. The moved material is separated from the stationary material by the failure surface. Block slides have straight failure surfaces and the landslide mass slides down a ramp. Slumps, on the other hand, have a concave failure surface. The landslide mass moves along the curved surface, rotating and tilting trees and other objects as it moves so that they point uphill. Earth flows are landslides in soil. The landslide mass breaks apart instead of remaining intact as with the slump or block slide. The earth flow is a mixture of soil and water oozing down the slope. A creep landslide is a slow, barely visible movement of soil and rock. Creep landslides rarely fracture the ground surface; therefore, tilted trees, telephone poles, or walls must be used to identify the affected areas. Creep landslides are widespread on hillsides throughout Kansas.

Landslides occur in hilly terrain. As the slope angle increases, so does the potential for landslides. If anything increases the slope angle, it can trigger a landslide. An example of an area that has the potential for a landslide is a stream that is actively eroding a hill. While slope steepness is the primary factor determining slope stability, soil and rock types are also important. The most common rocks found in Kansas are shale, limestone, and sandstone. Shale—rocks composed of clay- and silt-sized grains—are most often associated with landslides. When shale is near the ground surface where the water content fluctuates, it weathers into a clayey soil that could be landslide prone.

Recently active landslides can be identified by scarps, tension gashes, and lobes. A scarp is a steep, nearly vertical, area of exposed soil and rock at the upslope portion of the landslide where the failure surface ruptures the ground surface. Tension gashes are breaks in the ground surface that are parallel to the scarp and are found throughout the landslide mass. Lobes are bulges in the ground surface where the landslide mass builds up at the downslope portion of the landslide.

There are early warning signs of a potential landslide. They are:

- Saturated soil, seeps, or springs in areas that were previously dry
- Reeds and wetland vegetation growth on the lower portions of the slope
- Fresh breaks and cracks in the ground surface
- There are bulges in the ground surface of the lower portion of the slope
- Defects in new structures, including roads and sidewalks that are out of alignment, cracked foundations, cracked walls, and doors and windows that are out of plumb
- Retaining walls, trees, and telephone poles that are tilted
- Leaking water and sewer lines

History of Landslide Events

There is no history of landslide events in McPherson County, but there have been several in other areas near McPherson County.

May 1995	A landslide caused a collapse of a $400,000 in Overland Park, Kansas. That same month a landslide near Manhattan closed McDowell Creek Road and cost Riley County $880,000 to stabilize the slope and repair the road (Kansas Geological Survey, Public Outreach).

July 2001	A 180 foot wide landslide occurred in Mission, Kansas along the north side of Foxridge Drive. The slope initially moved laterally and downward approximately 2 feet. The stability of the road was compromised by the landslide. It is believed the landslide was caused by a rise in the groundwater level because of the wetter than normal spring weather. A geogrid reinforced earth system was designed to repair the slope (The Geological Society of America). Repairs were completed September 2002.

Probability and Magnitude of Landslides

According to the U.S. Geological Survey, the areas of Kansas that are most prone to landslides are the Missouri River Corridor in northeastern Kansas, including the Kansas City metropolitan area (Johnson, Leavenworth, and Wyandotte counties); the Smoky Hills in northern and central Kansas; and northwestern Hamilton County. The region along the Kansas River and its tributaries from Kansas City to Junction City are also landslide-prone. This includes the cities of Lawrence, Manhattan, and Topeka. Although landslides are more likely to occur in the regions previously mentioned; they can occur anywhere in the state. McPherson County is not in a landslide prone area and for that reason the HMPC rated the probability for a landslide to occur as "unlikely."

Landslides in Kansas have the capability of damaging or destroying houses, roads, and disrupted transportation systems. Structures must be repaired and landslide debris removed from highways and railroad tracks every year. Landslides are responsible for an estimated $1.5 billion in property losses throughout the United States (Kansas Geological Survey, Public Outreach).

The risk for injury during a landslide in the planning area is very minimal and less than 10 percent of property would be severely damaged. Consequently, the HMPC determined the magnitude of a landslide would be "negligible."

Risk Summary for Landslides

The table below is a risk summary for landslides in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction for the specific ranking information.

Table 2. 35 – Landslide CPRI Ranking

Land Subsidence/Sinkholes	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	1	4
Magnitude	1	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Low	Moderate
Risk Index	1.30	2.65
Ranking	20 out of 22	12 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Landslide

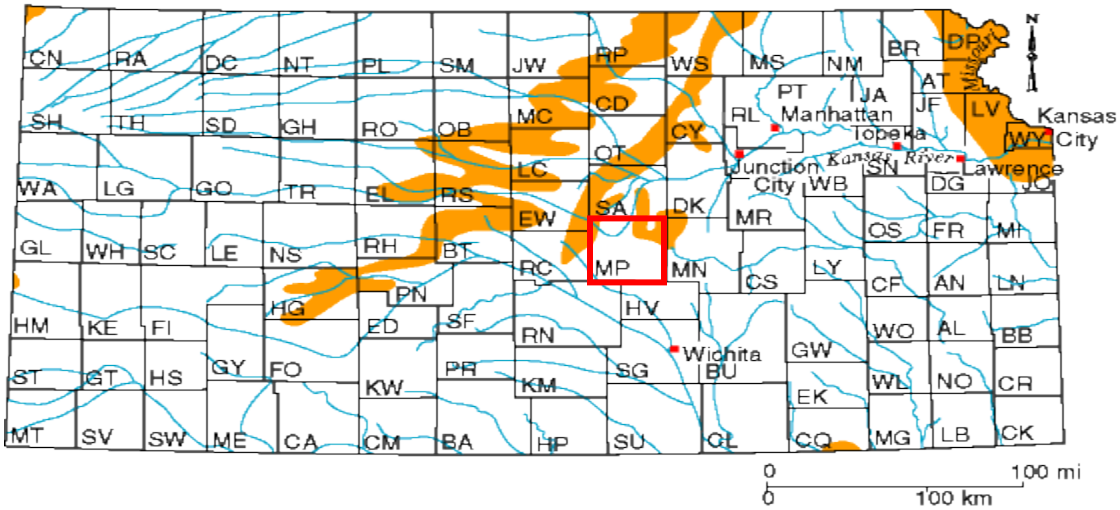
There are some small localized areas in McPherson County where land slippage may present some concerns for the placement of buildings and other physical improvements. Very local and relatively small landslides may occur during wet years in the hilly country underlain by the Dakota formation in northwestern McPherson County.

Exposed areas in cliffs and road cuts that consist of limestone and sandstone are prone to landslide. They can pose a risk for rock fall, especially when they overlie shale. Roads and structures built close to river banks would be the areas that are most vulnerable to landslides. Landslides may occur when soil on hillsides are saturated. Landslides

can damage or destroy structures, roadways, and utilities as well as block roadways with debris. Landslides are very uncommon in most of McPherson County due to the flat topography.

Figure 2.18 shows the landslide prone areas in Kansas that the U.S. Geological Survey identified in 1982. The shaded areas are the areas of moderate risk, 1.5% to 15% of the area is prone to a landslide. The areas that are not shaded have a low landslide risk, less than 1.5% of the area is prone landslide prone. The northeast portion of McPherson County is in the shaded area that has a moderate risk.

Figure 2. 18 – Kansas Landslide Prone Areas



Lightning

The photo above was taken in McPherson County, Kansas on April 16, 2009 (Mike U).

Hazard Definition

Severe thunderstorms strike Kansas on a regular basis. Lightning often accompanies thunderstorms and can cause death, injury, property damage, and wildfires.

Lightning is created in thunderstorms when many small pieces of ice collide into each other and creates an electrical charge in the clouds. After the electrical fields become large enough, a giant spark takes place between them, like static electricity. The protons (positive charges) form at the top of the cloud and the electrons (negative charges) form at the bottom of the cloud. The lightning strike can occur between clouds, between the cloud and the air, or between the cloud and the ground.

The National Oceanic and Atmospheric Administration's National Severe Storms Laboratory has a formula for judging the distance of lightning. When a lightning flash is seen, count the seconds until you hear the thunder. Divide the seconds between lightning strike and thunder by five to judge the distance of the lightning. If the time between lightning strike and thunder is 30 seconds or less - suspend all outdoor activities and seek safe shelter. That means the lightning bolt is 6 miles away or less. If the time between lightning strike and thunder is 15 seconds or less, - a lightning strike could occur where you are. That means it's no more than miles away, and from that distance a bolt can arc and hit anywhere within that radius.

There's also a "30-30 Rule." If you hear thunder by the time you reach 30, you are in danger and need to find safe shelter immediately. Wait at least 30 minutes after you see the last flash of lightning or hear the last roll of thunder before resuming outdoor activities.

History of Lightning Events

Although, there was only one lighting event listed in the NCDC database for McPherson County there have been numerous other events that accompanied windstorm. The following account is from the NCDC database:

February 22, 2000 — One house received extensive damage, mainly to the wiring and interior walls. Forked in appearance, the lightning struck the roof in several places. Traveling through much of the wiring at the residence, the lightning caused shorts in numerous locations. In two instances, the wiring shorted with such force that sections of sheet rock were blown off a wall and an upstairs bathroom mirror was shattered. In the latter case, shards of mirror were embedded in an opposite wall. No fire resulted nor were there injuries. Property damage was estimated at $10,000.

Probability and Magnitude for Lightning

Although the NCDC did not have all of the lightning incidents in the database, there is a 100 percent chance for lightning events to occur every year. Therefore, the HMPC ranked the probability for lightning as "highly likely."

There have not been any deaths associated with a lightning event in McPherson County.. Therefore, the HMPC determined the magnitude for a lightning strike is "negligible."

Risk Summary for Lightning

Table 2.36 is a risk summary for lightning in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 36 – Lightning CPRI Ranking

Lightning	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	1	NA*
Warning Time	4	NA*
Duration	1	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.80	2.5
Ranking	11 out of 22	5 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Lightning

All of the structures in the county are vulnerable to lightning damage. The extent of damage would depend greatly on the exact location of the lightning strike. It is difficult to measure the extent of damage that would occur due to the nature of the hazard.

Table 2.37 is a hazard vulnerability summary for earthquake. The value of the structures and number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to lightning strikes. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on the exact location of the lightning strike.

Table 2. 37 – Lightning Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Although the urban areas are most vulnerable to lightning strikes due to the high population density and building exposure; farmers and livestock are also particularly vulnerable. According to the National Weather Service, lightning causes an average of 80 deaths and 300 injuries in the U.S. each year. In 2008, Kansas made 12 reports of buildings and humans being struck by lightning, resulting in one fatality and ten injuries.

Lightning strikes cause a tremendous number of losses each year. According to the Department of Geography and Earth Sciences at the University of North Carolina, a home owner can expect a damaging lightning strike once every 100 to 200 years. The study they performed revealed that the majority of lightning strikes occurred in areas of suburban growth (Cao, Xiang and Wilson).

The risk of fire, especially fire associated with lightning, is often overlooked and underrated as a potential threat. Lightning associated with thunderstorms can pose a variety of fire hazards. The massive power of lightning's electrical charge and intense heat can induce destructive power surges through home circuitry, burn holes in CSST gas piping, explode brick and roofing materials, and ignite house fires.

An analysis of homeowner's insurance data by the Insurance Information Institute (I.I.I.) found there were 185,789 lightning claims in 2009 costing $798 million, with an average claim totaling $4,296. These losses ranged from damage to expensive electronic equipment to structural fires that destroyed entire homes (Lightning Safety Alliance).

Major Disease Outbreak

Hazard Definition

An outbreak of communicable disease is described in the Kansas State Mitigation Plan as 2 or more cases of disease which are linked by time, place, or person. Threats of illness and disease (viral and bacteriological), community infections, early diagnosis and treatment of illnesses and diseases, or any other health related mechanism that can cause harm to individuals, whether intentional or accidental. This includes the potential for widespread (epidemic) outbreak of a disease, or a large number of cases of a disease in a single community or relatively small area. An epidemic may be restricted to one locale or may even be global (pandemic).

The following diseases have been designated as contagious by Kansas Department of Health and Environment and are required to be reported within seven days in accordance with K.S.A. 65-118 and K.S.A. 65-128:

- Anthrax (report within 4 hours to the Secretary)
- Arboviral disease, including West Nile
- Botulism (report within 4 hours to the Secretary)
- Brucellosis
- Campylobacter infections
- Chlamydia trachomatis genital infection
- Cholera
- Diphtheria
- Ehrlichiosis
- Giardiasis
- Gonorrhea
- Haemophilus influenza, invasive disease
- Hemolytic uremic syndrome
- Hepatitis B in pregnancy
- Hepatitis, viral
- Hantavirus pulmonary syndrome
- Influenza deaths
- Legionellosis
- Leprosy or Hansen's disease
- Listeriosis
- Lyme disease
- Malaria
- Measles or rubeola (report within 4 hours to the Secretary)
- Meningitis, Bacterial(report within 4 hours to the Secretary
- Mumps(report within 4 hours to the Secretary)
- Pertussis or Whooping Cough (report within 4 hours to the Secretary)
- Plague or Yersinia Pestis(report reported within 4 hours to the Secretary)
- Psittacosis
- Rabies (report reported within 4 hours to the Secretary)
- Rocky Mountain spotted fever
- Rubella (report within 4 hours to the Secretary)
- Salmonellosis, including typhoid fever
- Severe acute respiratory syndrome (SARS)(report within 4 hours to the Secretary)
- Shigellosis
- Streptococcal invasive
- Syphilis, including congenital syphilis
- Tetanus
- Toxic –shock syndrome, streptococcal and staphylococcal
- Any transmissible spongioform encephalopathy (TSE) or prion disease
- Trichinosis;
- Tuberculosis (report active disease by telephone within four hours to the secretary);
- Tularemia;
- Varicella or chickenpox;
- Yellow fever

Bioterrorism act is "a dispersion of biological or chemical agents with the intention to harm." (Kansas Department of Health and Evironment) Each bioterrorism act needs to be reported within four hours by telephone to the secretary. The following diseases can be used in a bioterrorism act:

- Anthrax
- Plague
- Smallpox
- Tularemia
- Botulism
- Viral hemorrhagic fever
- Q fever or Coxiella burnetii
- Brucellosis, and

During the planning period for this mitigation plan, the primary concern was focused on H1N1 (Swine Flu). Novel H1N1 (referred to as "swine flu" early on) is a new influenza virus causing illness in people. This new virus was first detected in people in the United States in April 2009. Other countries, including Mexico and Canada, have reported people sick with this new virus. This virus is spread from person-to-person, probably in much the same way that regular seasonal influenza viruses spread. The World Health Organization (WHO) elevated the situation and raised the worldwide pandemic alert level to Phase 6 in response to the ongoing global spread of the novel influenza A (H1N1) virus. A Phase 6 designation indicates that a global pandemic is underway.

The 2009 H1N1 flu pandemic was declared a national emergency on October 23, 2009. This declaration removes obstacles and makes it easier for patients to receive medical treatment. It also allows medical facilities to waive certain standard requirements for Medicare, Medicaid and other federal health insurance programs.

Cases of human infection with novel H1N1 influenza virus were first confirmed in the U.S. in Southern California and near Guadalupe County, Texas. The outbreak intensified rapidly from that time and more and more states have been reporting cases of illness from this virus. As of June 11, 2009, more than 70 countries reported cases of human infection with novel H1N1 flu of which the United States had 21, 449 confirmed and probable cases with 87 deaths.

Since the 2009 H1N1 influenza A virus pandemic started the Kansas Department of Health and Environment (KDHE) has started ILINet. ILINet is a network of outpatient clinics coordinated by the State Health Departments and the U.S. Centers for Disease Control and Prevention. Kansas has traditionally maintained 25 ILINet sites for typical influenza seasons.

History of Major Disease Outbreak

January 2006	An increase in the number of mumps cases in Kansas was detected by routine surveillance. From January 2006 to December 2006 there were 986 cases of mumps affecting 73 counties. The peak of cases occurred in April and May of 2006 and many college campuses were affected throughout the state of Kansas. KDHE issued 35 press releases from April through July of 2006 and held a news conference on 4/11/06. In addition, KDHE held frequent conference calls with local health departments to assist in these investigations. To assist with control of this outbreak KDHE provided 10,000 doses of MMR to local health departments at no charge. During this same time period other states in the United States were reporting similar increases in mumps cases. During 2006, 6,584 cases of mumps were reported (Michael McNolty, Kansas Department of Health and Environment)
May, 2008	Kansas was part of the *Salmonella* Saintpaul multistate outbreak investigation. This multistate outbreak was reported in May 2008 with cluster of cases in both New Mexico and Texas. At the end of the investigation there were 1463 cases reported from 43

states with onset of illness ranging from 4/16/08 to 8/23/08. In Kansas, 22 cases were investigated from 13 counties with onset of illness ranging from 5/12/08 until 7/13/08. Tomatoes were implicated as the food vehicle early in the outbreak. However, *Salmonella* Saintpaul was never isolated from any tomatoes. Additional investigation revealed that jalapenos and Serrano peppers were both associated with illness and *Salmonella* Saintpaul was isolated from jalapeno peppers. Multiple food vehicles are thought to have caused this outbreak. KDHE issued a press release on June 4, 2008 after the warning was issued from FDA about consumption of tomatoes. A second press release was issued by KDHE on July 9 after the warning from FDA changed to include jalapeno and Serrano peppers. KDHE did not publish a report, but CDC published an MMWR on August 29, 2008 (Michael McNolty, Kansas Department of Health and Environment).

June 2008 — Foodborne illness outbreak investigation - Local restaurant, rapid onset of vomiting and diarrhea by patrons – short duration. Investigation directed by KDHE Epidemiology Division and patron contact and information collection done per McPherson County Health Department. Personal or phone contact made and questionnaires completed for 116 individuals. Total cost incident was $2,550 (McPherson County Health Department).

May 2009 to Present — H1N1 Influenza Type A Pandemic – Global pandemic of influenza-like illness with subsequent vaccination for H1N1 Influenza A virus. All response activities were directed by KDHE. McPherson County Health Department conducted an extensive public information campaign, disease surveillance activities, vaccine distribution activities and vaccine administration activities and other responses as needed and directed. Total cost of incident thus far has been $77,461.

Probability and Magnitude For Major Disease Outbreak

The McPherson County HMPC determined that the probability for a major disease outbreak in the planning area is "highly likely". It is probable that McPherson County will experience a disease outbreak within one calendar year.

The HMPC determined the magnitude for a major disease outbreak is "limited". Although a disease outbreak is highly likely to occur, the resulting illnesses are unlikely to result in death or permanent disability due to the active approach the Health Department and other healthcare facilities take regarding vaccinations.

Major Disease Outbreak Risk Summary

Table 2.38 is a risk summary for major disease outbreak in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 38 – Major Disease Outbreak CPRI Ranking

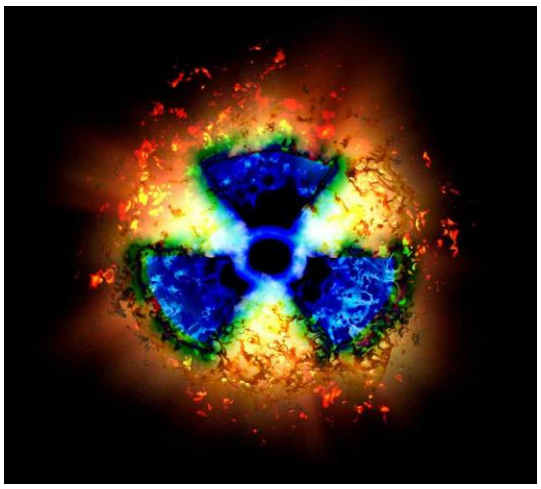
Major Disease Outbreak	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	2
Magnitude	2	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.95	2.65
Ranking	8 out of 22	10 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Major Disease Outbreak

Buildings and other structures are not vulnerable to major disease outbreak, but the individuals within those structures are vulnerable. All of the residents of McPherson County are vulnerable to a disease outbreak; however, urban areas are generally more vulnerable to disease outbreak due to the population density. Health care workers and other first responders may be at greater risk of exposure and illness than the general public.

The Kansas Department of Health and Environment states that if a new and severe strain of influenza A were to begin to spread around the world, Kansas would feel the impact. They estimate that a medium-level pandemic could cause 2,500 deaths in Kansas, with 5,000 hospitalizations, 500,000 outpatient visits, and 1 million cases of the illness (Kansas Department of Health and Environment (KDHE)).



Radiological

Hazard Definition

Radiation is a process of emission of energy or particles. Various forms of radiation may be distinguished, depending on the type of the emitted energy/matter, the type of the emission source, properties and purposes of the emission, etc. There are several different types of radiological threats. They are as follows:

Radiation – High-energy particles or gamma rays that are emitted by an atom as the substance undergoes radioactive decay. Particles can be either charged alpha or beta particles or neutral neutron or gamma rays.

Nuclear Weapons – Nuclear fission is used to produce energy for nuclear power and to drive the explosion of nuclear weapons. Nuclear fusion of light elements releases the energy that causes nuclear weapons to explode. For a low altitude atmospheric detonation of a moderate sized weapon in the kiloton range, the energy is distributed roughly as follows: 50% as blast; 35% as thermal radiation; and, 15% as nuclear radiation of which 5% is initial ionizing radiation within the first minute after detonation, and 10% as residual nuclear radiation (fallout).

Surface Burst - An explosion in which a weapon is detonated on or slightly above the surface of the earth so that the fireball actually touches the land or water surface.

Subsurface Burst - An explosion in which the point of the detonation is beneath the surface of land or water.

High Altitude Burst - The weapon is exploded at such an altitude (above 30 km) that the fireball is much larger and expands much more rapidly. The ionizing radiation from the high altitude burst can travel for hundreds of miles before being absorbed. Significant ionization of the upper atmosphere (ionosphere) can occur. Severe disruption in communications can occur following high altitude bursts. They also lead to generation of an intense electromagnetic pulse (EMP) that can significantly degrade performance of or destroy sophisticated electronic equipment. There are no known biological effects of EMP; however, indirect effects may result from failure of critical medical equipment.

Radiological Dispersal Device (RDD) - Also known as the “dirty bomb,” combines a conventional explosive, such as dynamite, with radioactive material. In most instances, the conventional explosive itself would have more immediate lethality than the radioactive material. At the levels created by most probable sources, not enough radiation would be present in a dirty bomb to kill people or cause severe illness. Contamination caused by the use of certain types of radioactive materials would be the main concern in the release of an RDD.

Electromagnetic Radiation Pulse - The electromagnetic radiation from an explosion (especially nuclear explosions) or an intensely fluctuating magnetic field caused by Compton-recoil electrons (increase in wavelength decrease in energy) which occurs when X-ray (or gamma ray) photons with energies of around 0.5 MeV to 3.5 MeV interact with electrons in a material) and photoelectrons from photons scattered in the materials of the electronic or explosive device or in a surrounding medium. An EMP acts like a stroke of lightning but is stronger, faster, and shorter. It can seriously damage electronic devices connected to power sources or antennas. This includes communication systems, computers, electrical appliances, and automobile or aircraft ignition systems. The damage could range from a minor interruption to actual burnout of components. Battery-powered radios with short antennas generally would not be affected. A nuclear burst of approximately 20 megatons over the central part of the United States at an altitude of 500 kilometers would produce an EMP field that would incapacitate all communications systems in the continental United States.

Solar Radiation – The National Weather Service's Space Environment Center monitors solar activity from the sun to determine the effects of geomagnetic storms, solar radiation storms, and radio blackouts that may occur. Intensities of each of these solar effects are measured on a scale from 1 (minor) to 5 (extreme).

- Geomagnetic Storm Effects (G) - Category G5 – Extreme – can occur on average four times in an 11-year period and can last up to four days per event. This type of storm can affect power systems in the following manner: widespread voltage control problems and protective system problems can occur; some grid systems may experience complete collapse or blackouts. Transformers may experience damage. Pipeline currents can reach hundreds of amps, HF (high frequency) radio propagation may be impossible in many areas for one to two days, satellite navigation may be degraded for days, and low-frequency radio navigation can be out for hours. An example of a G5 storm is one that occurred in 1989 that made currents on the ground that caused a failure in the Hydro-Quebec electric power system. This prevented 6 million people in Canada and the US from having electricity for over 9 hours.
- Solar Radiation Storm Effects (S) – Category S5 – Extreme - occurs less than once every 11 years and can cause the following effects on satellites: satellites may be rendered useless, memory impacts can cause loss of control, may cause serious noise in image data, star-trackers may be unable to locate sources; permanent damage to solar panels possible. Global Positioning System (GPS) would also be impacted by this type storm.
- Radio Blackout Effects (R) – Category R5 – Extreme - occurs less than once every 11 years and can cause the following effects: Complete HF (high frequency) and other frequency radio blackout on the entire sunlit side of the Earth lasting for a number of hours. This results in no HF radio contact with mariners and en route aviators in this sector.

History of Radiological Events

There are no recorded radiological incidents in McPherson County.

Probability and Magnitude for Radiological Events

Although the highways and railroads in McPherson County are used to transport certain types of radioactive materials, the HMPC determined the probability for future occurrence was ranked as "unlikely". This decision was based on the fact there has not been a history of events in the county.

A radiological incident could be very detrimental to the County, but McPherson County has an Emergency Operations Plan (EOP) in place to isolate the effects on the county. Therefore, the HMPC determine the magnitude for a radiological threat is "negligible."

Radiological Risk Summary

Table 2.39 is a risk summary for radiological in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 39 – Radiological CPRI Ranking

Radiological	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	1	1
Magnitude	1	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Low	Low
CPRI	1.30	1.95

Radiological	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Ranking	21 out of 22	20 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Radiological Vulnerability

Buildings and other structures can become contaminated with fallout from a radiological incident. However, it is the individuals that reside or work within close proximity to interstates and railroads that are the most vulnerable to a radiological incident due to the shipment of certain types of radioactive materials. The areas that are near major highways have an increased risk of transportation accidents.

Damage estimates are not available for this hazard due to the nature of the hazard and fact there have not been any significant radiological incidents in McPherson County. The hazard incident can range from a localized event all the way to an event affecting the entire country.

Soil Erosion and Dust

Hazard Definition

Soil erosion is the wearing away of the land surface by physical forces such as rainfall, flowing water, wind, ice, temperature change, gravity or other natural or human-caused activities or agents that abrade, detach and remove soil or geological material from one point on the earth's surface to be deposited elsewhere.

Soil erosion is normally a natural process occurring over geological timescales; but where (and when) the natural rate has been significantly increased by human activity, accelerated erosion becomes an identifiable threat to soil. There are different types of erosion. They are as follows:

- Geologic Erosion – A natural erosion process occurring over long time spans.
- Accelerated Erosion – Erosion that exceeds what is presumed to be naturally occurring levels, and is a direct result of human activities like cultivation.
- Gully Erosion – The photo above, courtesy of USDA NRCS, is Gully Erosion from uncontrolled runoff in Kansas. Water concentrates in narrow channels and over short periods of time, removes the soil from this narrow area to considerable depths, ranging from one to two feet and as much as 75 to 100 feet.
- Sheet and Rill Erosion – A thin layer of soil removed by runoff water often accompanied by the formation of many small eroding channels. Rills are only a few inches deep and do not impede farm machinery. Tillage of the land removes them, but they tend to reappear after heavy rain during the growing season.
- Water Erosion – The process of detachment, transport and deposition of soil by water. This can include sheet, rill, and gully erosion.
- Wind Erosion – The photo above is the courtesy of USDA NRCS. It shows wind erosion of an unprotected cultivated field in Manhattan, Kansas. The process of detachment, transport and deposition of soil by wind. This includes sheet, rill, and gully erosion.

According to the Natural Resources Conservation Service (NRCS), the loss of farmland, wildlife habitats, and open space has accelerated over the last two decades. The National Resources Inventory data shows that the rate of development between 1997 and 2001 averaged 2.2 million acres per year, which is up from 1.4 million acres per year between 1982 and 1992. The increased rate of conversion is due to a number of factors, including increase in population, and inadequate land-use planning zoning and land-use laws.

In the United States, land-use decisions are primarily the responsibility of local governments. Many times these local governments do not have the resources to develop comprehensive land-use plans to guide growth and development. The Natural Resources Conservation Service (NRCS) is working in partnership with local conservation districts and Resource Conservation and Development (RC&D) Councils to provide local jurisdictions with natural resource information, land use planning tools and other technical assistance that can help communities develop comprehensive growth management plans. The conservation district in McPherson County was chartered May 15, 1947 (United States Department of Agriculture; Natural Resources Conservation Service).

No-till farming is becoming a popular way to conserve soil around the County. No-till farmers to have less tillage work, less equipment and consume less fuel while reducing soil erosion significantly. On the other hand no-till requires more herbicides and no-till planters are more expensive. One of the main advantages to no-till is the dry soil takes on water more readily. It takes five to six years after beginning no-till to see improvements in the soil structure. The higher organic content holds the soil together. No-till requires farmers to rotate crops to discourage weeds and diseases from establishing in fields (The McPherson Sentinel).

History of Soil Erosion and Dust Events

1930s	Dust Bowl– McPherson County, along with most of Kansas, suffered a drought for about 10 years. Prolonged drought conditions led to wind erosion. About 21.5 million acres

were lost because of erosion. Many adults and children suffered from dust induced tuberculosis, some cases resulted in death.

Probability and Magnitude of Soil Erosion and Dust

Wind and water erosion is a concern to producers in McPherson County. Erosion removes the most fertile part of the soil and lowers the soil productivity, which in turn, causes poorer grade pastures and reduces crop yields. Soil erosion and dust continues to be an ongoing problem for Kansas. Thus, the HMPC determined the probability for soil erosion and dust is "highly likely."

Even though the probability of an event occurring is highly likely, the HMPC determined the magnitude for soil erosion and dust is "limited." The determination was made because McPherson County takes active measures in reducing the impact of this hazard. The McPherson County Conservation District has implemented various programs in order to control soil erosion and dust.

Soil Erosion Risk Summary

Table 2.40 is a risk summary for soil erosion in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 40 – Soil Erosion CPRI Ranking

Soil Erosion	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	3
Magnitude	2	N/A*
Warning Time	1	N/A*
Duration	4	N/A*
Planning Significance	Moderate	Moderate
Risk Index	2.95	2.20
Ranking	9 out of 22	19 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Soil Erosion and Dust

The entire planning area is prone to soil erosion; however, the farmland is at an increased risk due to the croplands and pastures. Farming is vital to the economy in McPherson County. Farming the land can lead to soil erosion creating problems for farmers. However, many of the farmers in McPherson County are opting for no-till farming to help with soil conservation.

No-till farming is a continuous/permanent system where soil disturbances are kept to a minimum. Farmers place seed, fertilizer and chemicals in precise locations. It focuses on growing and maintaining high levels of surface mulch and plant residue to aid in carbon cycling resulting in improved soil quality. A no-till farmer plants cover crops, which are crops that protect the soil from erosion when main crops are not in the ground.

The United States Department of Agriculture, Soil Conservation Service in cooperation with the Kansas Agricultural Experiment Station conducted a soil survey in 1980 of all the soils present in McPherson County. It was part of the technical assistances furnished to the McPherson County Conservation District. The soil survey can be used in soil management programs. It identifies the many different soils in McPherson County along with their characteristics. The following are the results of the soil survey:

Crete-Smolan Association – This association makes up about 40 percent of the county. The soil is deep, nearly level and gently sloping, moderately well drained soils that have a dominantly clayey subsoil; on uplands. This soil association is used mainly for cultivated crops. Winter wheat and grain sorghum are the main crops. Measures that help control erosion conserve moisture and help prevent deterioration of tilth.

Lancaster-Hedville-Edalgo Association – This association makes up about 21 percent of the county. The soil is moderately deep and shallow, moderate to strongly sloping, well drained and somewhat excessively drained soils that have loamy or silty subsoil; on uplands. This association is used mainly as range. Some of the less sloping areas are used for cultivated crops, primarily winter wheat and grain sorghum. Controlling erosion and conserving moisture are the management needs for this association.

Ladysmith-Goessel Association - This association makes up about 20 percent of the county. The soil is deep, nearly level, somewhat poorly drained and moderately well drained soils that have a clayey subsoil; on uplands. This association is used mostly for cultivated crops but a few small areas are used for range or meadows. Measures that help control erosion conserve moisture and help prevent deterioration of tilth.

Langford-Clime-Irwin Association - This association makes up about eight percent of the county. The soil is deep and moderately deep, gently sloping and moderately sloping, well drained and moderately well drained that have a dominantly clayey subsoil; on uplands. This association is used mostly for cultivated crops but some areas are used for hay or pasture. Winter wheat, grain sorghum and alfalfa are the main crops. Measures that help control erosion, prevent deterioration of tilth and maintain level of fertility are needed for this soil.

Hord-Tobin-Bridgeport Association - This association makes up about nine percent of the county. The soil is deep, nearly level, well drained and moderately well drained that have a silty subsoil; on flood plains and terraces. This association is used mostly for cultivated crops. Winter wheat and grain sorghum are the main dryland crops. Corn and grain sorghum are the main irrigated crops. Measures that prevent erosion of tilth and maintain level of fertility are needed for this soil.

Carwile-Attica Association – This association makes up about two percent of the county. The soil is deep, nearly level and gently sloping, somewhat poorly drained and well drained that have a loamy or sandy subsoil; on uplands. This association is used mainly for cultivated crops but many areas are used as range. Winter wheat and grain sorghum are the chief crops. Soil blowing is a major hazard especially on the ridges. Conserving moisture and maintaining the level of fertility are other management concerns.

Terrorism/Agri-terrorism/Civil Disorder

Hazard Definition

Terrorism

FEMA defines terrorism as "the use of force or violence against persons or property in violation of the United States for the purpose of intimidation, coercion, or ransom." Terrorist acts are often done to create fear among the public in order to try to convince citizens that the government is powerless to prevent terrorism. Domestic terrorism involves groups or individuals who are based and operate entirely within the United States and U.S. territories without foreign direction and whose acts are directed at elements of the U.S. government or population.

Act of terrorism include, assassinations, kidnappings, hijackings, bomb threats and bombings, cyber attacks, and the use of chemical, biological, nuclear, and radiological weapons. High-risk targets include government facilities, international airports, large cities, and high-profile landmarks. Large public gatherings, water and food supplies, utilities, and corporate centers are also targets. Terrorists also have sent explosives or chemicals and biological agents through the mail to cause wide-spread fear.

Explosive devices are one of the most common weapons used by terrorists. An explosive is a sudden rapid violent release of mechanical, chemical, or nuclear energy from a confined region; especially such a release that generates a radial transmitting shock wave accompanied by a loud, sharp report, flying debris, heat, light and fire. Explosive devices are very portable, using vehicles and humans as a means of transport and can be easily detonated from remote locations or by suicide bombers. Terrorists have used bombs in the past to damage and destroy financial, political, social, and religious institutions. Explosive devices include:

- Nuclear Blast – An explosion with intense light and heat, a damaging pressure wave, widespread dispersal of radioactive material. The radioactive material can contaminate the air, water, and ground surface. A nuclear device can be extremely dangerous because even if people are not close enough to be directly direct impacted, they still may be affected by radioactive fallout. Fallout from a nuclear blast may be carried by the wind.
- Radiological Dispersion Device (RDD) – This device is often referred to as a "dirty nuke" or "dirty bomb." This bomb is more likely to be used than a nuclear explosive device. It combines conventional explosive devices with radioactive material. It is designed to scatter radioactive material over an area.

Terrorists also use biological threats to attack people. Biological agents are organisms or toxins that can kill or debilitate people, livestock, or crops. Biological agents can be dispersed by spraying them into the air, infecting animals, and contaminating the food and water supply. The agents can be delivered via aerosols, animals, food and water contamination, and person-to-person. Some of the diseases that can potentially be used as biological weapons include:

- Anthrax: Grazing livestock can become infected by anthrax spores in the soil, and humans can contract the disease by handling products (cutaneous transmission) from infected animals, by breathing (inhalation transmission) anthrax spores from infected animal products (i.e. wool from sheep), or eating (digestive transmission) undercooked meat from infected animals. In the United States, 22 cases of anthrax infection were reported from a higher grade form of anthrax and delivered through the mail system to intentionally contaminate individuals for terrorist purposes.
- Botulism: There are three main kinds of botulism: foodborne botulism is caused by eating foods that contain the botulism toxin; wound botulism is caused by toxin produced from a wound infected with *Clostridium botulinum*; and, infant botulism is caused by consuming the spores of the botulinum bacteria, which then grow in the intestines and release toxin. In the United States an average of 110 cases of botulism are reported each year of which 25% are foodborne and 72% are infant botulism.
- Plague: Plague is an infectious disease of animals and humans caused by a bacterium named *Yersinia pestis*. Fleas feeding on infected animals transmit the disease to humans and mammals. The disease can

also be transmitted through handling infected animals or exposure to persons or animals with plague pneumonia and cough. Human plague in the United States has occurred as mostly scattered cases in rural areas (an average of 5 to 15 persons each year). About 14% (1 in 7) of all plague cases in the United States are fatal.

- Smallpox: Smallpox is a serious, contagious, and sometimes fatal infectious disease. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977. Smallpox also can be spread through direct contact with infected bodily fluids, direct and fairly prolonged face-to-face contact, or contaminated objects such as bedding or clothing.
- Tularemia: Tularemia is one of the most infectious pathogenic bacteria known that occurs naturally in the United States and is caused by the bacterium *Francisella tularensis* which is especially found in rodents, rabbits, and hares. Humans can become infected through diverse environmental exposures to include bites by infected arthropods; handling infectious animal tissues or fluids; direct contact with or ingestion of contaminated food, water, or soil; and inhalation of infective aerosols. It is. Between 1985 and 1992, 1409 cases and 20 deaths were reported in the U.S., a case fatality rate of 1.4%.
- Viral Hemorrhagic Fever: Generally, this group of illnesses cause severe multisystem syndrome (multiple organ systems in the body are affected), the overall vascular system is damaged, and the body's ability to regulate itself is impaired. For the most part, rodents and arthropods are the main reservoirs for the viruses. This includes Argentine hemorrhagic fever, Bolivian hemorraghic fever, Sabia-associated hemorrhagic fever, Venezuelan hemorrhagic fever, Lassa fever, Lymphocytic choriomeningitis (LCM), Crimean-Congo hemorrhagic fever (CCHF), Hantavirus Pulmonary Syndrome (HPS), hemorrhagic fever with renal syndrome (HFRS), Rift Valley fever, Ebola hemorrhagic fever, Marburg hemorrhagic fever, Kyasanur Forest disease, Omsk hemorrhagic fever, tick-borne encephalitis, Hendra virus disease, and Nipah virus encephalitis.

Another form of attack used by terrorists includes chemical agents. Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants. The chemical agents can be dispersed via bombs, or sprayed from airplanes, boats, or vehicles. Some chemical agents are odorless and tasteless. Many have an immediate effect, but some of a delayed effect. A chemical attack can occur with no warning.

Ever since the 9-11 attacks, the United States government devised the Homeland Security Advisory System (U.S. Department of Homeland Security). The system is designed to provide communication to public safety officials and the public. The Color-coded Threat Level System is used to communicate with public officials and the public through a threat-based color coded system to ensure protective measures can be implemented to reduce the impact or likelihood of an attack. Figure 2.18 identifies the Color-Codes.

Figure 2. 19 - Homeland Security Color-Coded Threat Level System

As of November 9, 2010 the United States government national threat level is "Elevated" or "Yellow." This means there is a significant risk for a terrorist attack. The threat level for all domestic and international flights is "High" or "Orange." This means there is a high risk for a terrorist attack (U.S. Department of Homeland Security). It is recommended that everyone should establish an emergency preparedness kit and emergency plan for themselves and their family and stay informed about what to do during an emergency.

Agri-terrorism

Agri-terrorism is also known as agriterrorism. It is the deliberate use of plant or animal pathogens to cause devastating disease in the agricultural industries in order to undermine socioeconomic stability and generate fear. Kansas, including McPherson County, is primarily concerned about a major agri-terrorist attack because it would have major economic repercussions on the agriculture industries.

Hundreds trucks go through Kansas everyday transporting cattle. Some of the cattle will graze in the Flint Hills pastures, while others are taken to feedlots or a Kansas slaughter house. It is estimated that 800 to 1,000 trucks travel on the roads of Kansas carrying about 50,000 head of cattle each day (Cattlenetwork).

Civil Disorder

Civil disorder is also known as civil unrest. According to Webster's Dictionary, the definition for civil disorder is a "public disturbance by three or more people involving acts of violence that cause immediate danger, damage, or injury to others or their property. Civil disturbances can be riots, protests, demonstrations, or bomb threats.

History of Terrorism

There are no recorded acts of terrorism, agri-terrorism, or civil disorders for McPherson County.

Probability and Magnitude for Terrorism

Although historically there have not been any terroristic attacks in McPherson County, the HMPC determined the probability of a future occurrence is "possible". The event is probable with the next five years.

An agri-terrorism attack would be devastating to the economy in McPherson County because agriculture is the primary source of income for McPherson County. Hence, the HMPC determined the magnitude for this hazard is "critical".

Terrorism Risk Summary

Table 2.41 is a risk summary for terrorism in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 41 – Terrorism/Agri-terrorism/Civil Disturbance CPRI Ranking

Terrorism	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	2	1
Magnitude	3	NA*
Warning Time	1	NA*
Duration	4	NA*
Planning Significance	Moderate	Moderate
Risk Index	2.35	2.65
Ranking	17 out of 22	10 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Terrorism

Although terrorism is another hazard that does not have a direct impact on buildings and other infrastructure, it could potentially have enormous economical impact on the entire planning area. Many businesses would be affected by disruption of service that would come with a terrorist attack. The farming communities in McPherson Could would be financially devastated by an agri-terrorism attack.

Due to the nature of the hazard it is not feasible to predict the losses from this hazard. Losses could range from minor to catastrophic depending on the magnitude of the attack.

Tornado

This photo was taken in from the Kentucky Fried Chicken Restaurant in McPherson, Kansas on March 13, 1990. The witness was near the overpass by Interstate 135 (Community Discussion Forum). For more information on this storm event please see the section: History of Tornado Events.

Hazard Definition

The definition of "tornado" is a violently rotating column of air, extending between a cloud and the ground. In order for a vortex to be classified as a tornado, it must be in contact with the ground *and* the cloud base. Tornadoes are generally spawned by thunderstorms.

Tornado wind speeds are estimated after they occur based on the damage produced. Tornadoes are categorized on an Enhanced Fujita Scale from 0 (weakest) to 5 (strongest).

In February 2007, forecasters adopted the Enhanced Fujita Scale, which modified the way tornadoes are rated but continued to rank them on a 0 to 5 scale.

Since 1950, there has been only six EF-5 tornadoes in Kansas, the latest being the EF-5 storm in Greensburg. The tornadoes were believed to have begun in Sitka, a township in McPherson County.

History of Tornado Events

According to the National Weather Service, there have been a total of 41 tornado events reported throughout McPherson County between June 17, 1955 and January 31, 2010. There has been one fatality and 16 injuries reported as a result of the tornadoes. Below are events from the NCDC database unless otherwise noted.

June 8, 1950	A F4 tornado was reported in McPherson, Kansas causing $250,000 in property damage. There were no reports of deaths or injuries.

August 13, 1951	A tornado went through McPherson County causing $25,000 in property damage. There were no reports of deaths or injuries.
April 27, 1955	A F2 tornado went through McPherson County causing $25,000 in property damage. There were no reports of deaths or injuries.
June 13, 1971	A F2 tornado went through McPherson County causing $250,000 in property damage. There were no reports of deaths or injuries.
September 25, 1973	A F2 tornado went through McPherson County causing $25,000 in property damage. There were no reports of deaths or injuries.
May 13, 1974	A F2 tornado went through McPherson County causing $25 million in property damage. There were no reports of deaths or injuries.
March 13, 1990	A devastating F5 tornado was labeled the "Hesston tornado" even though its inception began just to the north of Pretty Prairie in Reno County. The tornado entered Harvey County 8 miles southwest of Burrton. The tornado was on the ground for 48 miles and had a maximum width of a quarter mile. As this tornado ripped through Hesston, a second weaker tornado developed one mile north of Hesston. The two tornadoes traveled parallel to each other into southeast McPherson County before merging into another large F5 tornado. The initial tornado was on the ground for 48 miles and was a quarter mile wide. The second and subsequent merged tornado was on the ground for 22 miles. It also strengthened to an F5 and was a quarter mile wide. Despite the intensity and path lengths of these tornadoes there were only two fatalities and 60 injuries. The tornadoes each produced one fatality. The first fatality occurred in Burrton where a six year old boy was killed as he huddled with his family. The chimney toppled into the basement where he and his family were hiding for safety. The second fatality, an elderly woman occurred near Goessel in southwest Marion County. In Hesston about 226 homes and 21 businesses were damaged or destroyed in the western sections of town. About 90 homes were destroyed beyond repair and 30 were totally destroyed. The tornado produced over 25 million dollars in damage in Harvey County alone. Checks from a plumbing and heating supply store in Hesston were found 85 miles to the northeast in Manhattan...and a personal check was carried 115 miles to the northeast near the Pottawatomie County community of Blaine (Jeff Herzer, Missouri State Troopers Association). Property damage estimates from this F5 tornado was $25 million.
May 4, 1999	A F1 tornado was reported 13 miles south west of the City of McPherson. Initial damage occurred 3.5 miles south west of Inman where an old barn collapsed and trees were uprooted. The greatest damage occurred 3-4 miles east of Inman where one house sustained minor roof damage, a circle irrigation system was destroyed, a tin cattle shed was destroyed, and an irrigation pipe was wrapped around trees. As the tornado continued a northeast track along and just east Highway 61, it inflicted more tree damage as well as damaging part of the wheat crop as it passed 2 miles southeast of Groveland before lifting 3 miles southwest of McPherson. Though possessing an overall track of 10 miles from point of entry into McPherson County to dissipation, the tornado skipped, never maintaining ground contact for more than 2 miles at a time with the segments totaling about 5 miles. The property damage was estimated at $50,000.
June 20, 2009	Strong to severe thunderstorms ignited across portions of central, south-central and east-central Kansas during the afternoon and evening hours on the 20th, along and north of a warm front. The thunderstorms became super cellular as they moved north of the warm front, producing a handful of tornadoes across portions of Barton,

McPherson and Marion counties. Severe straight-line winds also slammed the community of McPherson, producing some damage across town. A F1 tornado moved across a farmstead and destroyed a barn, toppled a tractor trailer, and threw two grain bins out into the wheat field. Three barns were completely destroyed, a silo was blown into a cornfield, a center-pivot irrigation system was destroyed, and 26 power poles were downed. Additionally, an SUV was thrown into a wheat field. Property damage was estimated at $75,000.

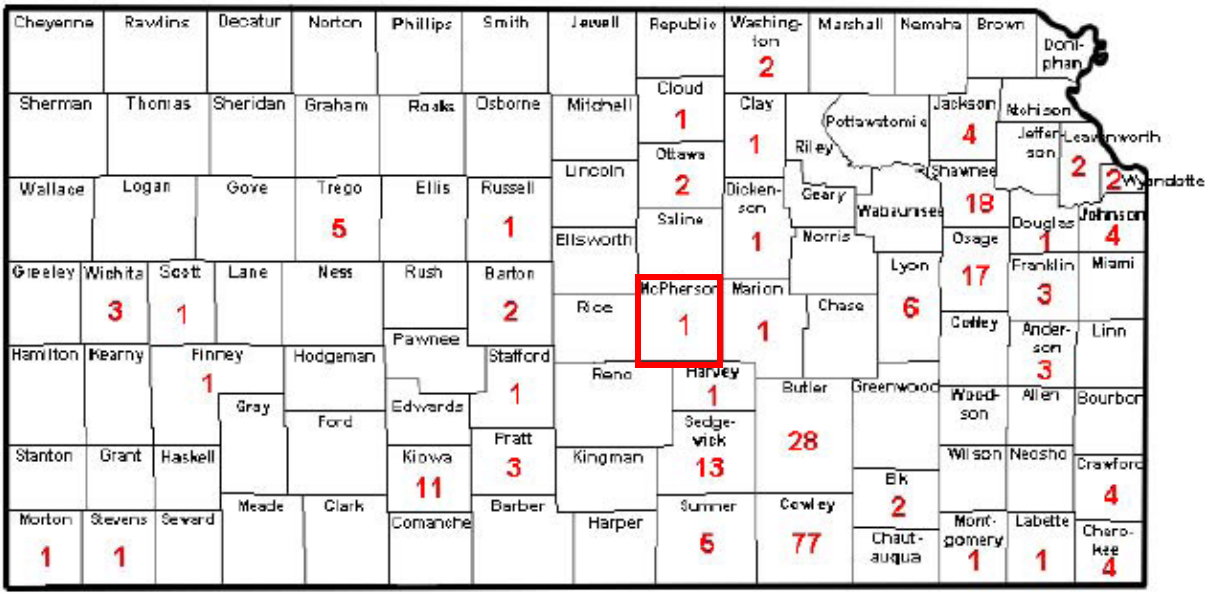
May 12, 2010 — Thunderstorms that fired up this afternoon in central and south-central Kansas have produced at least two short-lived tornadoes. One tornado was confirmed near Lehigh in McPherson County, and another touched down south of Haven in Reno County, authorities said. No injuries or damage have been reported (Wichita Eagle).

Probability and Magnitude of Tornadoes

The NCDC reported 44 tornado events from 1955 to 2010. As a result, the HMPC determined the probability is "highly likely."

Figure 2.19 identifies the number of fatalities that each county has experienced due to tornadoes from 1950 through 2008 (Kansas Emergency Management Association). There has been one tornado fatality in McPherson County.

Figure 2. 20 - Kansas Tornado Fatalities 1950-2008



The HMPC determined the magnitude of a F5 is "catastrophic". A tornado of this magnitude has the potential to cause multiple deaths and injuries. It also has the capability of severely damaging or destroying over 50 percent of the property.

Tornado Risk Summary

Table 2.42 is a risk summary for tornadoes in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 42 – Tornado CPRI Ranking

	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	4	NA*
Warning Time	4	NA*
Duration	2	NA*
Planning Significance	High	High
Risk Index	3.80	3.40
Ranking	1 out of 22	1 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Tornadoes

All of the structures in McPherson County are exposed to potential damage from a tornado. The extent of damage would depend greatly on the path and size of the tornado. It is difficult to measure the extent of damage that would occur due to the nature of the hazard.

Table 2.43 is a hazard vulnerability summary for tornadoes. The value of the structures and number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to earthquakes. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on the path and size of the tornado.

Table 2. 43 – McPherson County Tornado Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Areas with a higher population density, such as cities, have a greater chance of fatalities and injuries occurring during a major tornado event. The city would also experience more property damage due to the greater number of buildings and utility infrastructure.

The EF Scale previously discussed uses observed Degrees of Damage (DOD) to develop wind speed ranges, which are then used to classify tornadoes. The following table was developed by Texas Tech University showing DOD for 23 different building types and gives wind speed ranges for each of the DOD. The ranges list lower-bound, upper-bound, and expected wind speed. All of the wind speeds are 3-second gusts to match with the ASCE engineering

loads standards. To utilize the EF Scale, the degree of observed damage to buildings was compared to the DOD for the appropriate building type, thus yielding a probable wind speed range.

Table 2.44 illustrates an example of the EF Scale tables and extent of damage that can be expected. The range of wind speeds is a function of variations in the wind resistance of specific buildings (due to design, construction, and maintenance variations) and uncertainty in the wind speed necessary to cause a specific type of damage. The wind speed values are expressed in miles per hour (URS Group, Inc).

Table 2. 44 - Example of EF Scale Table: DOD Scale for Single-Family and Two-Family Residences

Degree of Damage (DOD)	Damage Description	Expected Wind Speed (Exp)	Lower-bound Wind Speed (LB)	Upper-bound Wind Speed (UP)
1	Threshold of visible damage	65	53	80
2	Loss of roof covering material (<20%), gutter and/or awning; loss of vinyl or metal siding	79	63	97
3	Broken glass in doors and windows	96	79	114
4	Uplift of roof deck and loss of significant roof covering material (>20%), collapse of chimney; garage doors collapse inward or outward; failure of porch or carport	97	81	116
5	Entire house shifts off foundation	121	103	141
6	Large sections of roof structure removed; most walls remain standing	122	104	142
7	Top floor exterior walls collapsed	132	113	153
8	Most interior walls of top story collapsed	148	128	173
9	Most walls collaped in bottom floor, except small interior rooms	152	127	178
10	Total destruction of entire building	170	142	198

Utility/Infrastructure Failure

The photograph on the left was taken July 15, 2009 by Todd Vogts. McPherson Board of Public Utilities workers set an electric pole in the ground as they work to restore power to Moundridge. Approximately 20 poles were knocked down during the July 14 storm. Moundridge was without electricity for 28 hours.

Hazard Definition

This hazard as described by the Kansas State Hazard Mitigation Plan includes transportation systems, power systems, natural gas and oil pipelines, water and sewer systems, storage networks, and telecommunication facilities. Another part of the infrastructure included in this hazard is the State and locally designated critical facilities, including hospitals and government centers. Disruption of these services can be the result of most of the hazards described in this plan.

Power outages typically occur several times per year in small areas in McPherson County with on-line capabilities within hours to several days depending on the extent of damage to utilities. These outages are significant enough to call all available crews to duty for more than a 24-hour period. Causes of the power failures are largely due to high winds that damage power lines. Lightning, ice storms, and heavy rain or snowstorms have also contributed to the cause of power outages. Rural electric companies are more susceptible to long duration outages due to population density over a large area resulting in longer electric power transfer or switching time. Natural gas and electric companies have internal dispatch centers to maintain service.

The McPherson Board of Public Utilities (BPU) is located in McPherson, Kansas. The BPU provides electric and water service to all homes and industries in the city limits of McPherson and 1,200 rural customers outside the city. Customers are billed monthly for water and electric service. Charges for trash pickup and sewer service are included on the BPU monthly billing for city residents.

The BPU is a municipally owned utility with approximately 8,000 customers. We boast the lowest electric rates in the state of Kansas and rank among the lowest nationwide.

BPU also offers a program to residential customers called “Operation Warmth”. Operation Warmth is a local program developed to help prevent the interruption of heating and electric services to needy customers.

There are three rural electric companies that provide electrical service to the planning area, DS&O Electric Cooperative, Flint Hills Rural Electric, and Ark Valley Rural Electric Cooperative Association.

DS&O Electric Cooperative provides electric power to residential, commercial, and industrial accounts in Dickinson, Saline, Ottawa, McPherson, Geary, Cloud, Marion and Morris Counties. The REC is owned by members of the community and governed by a Board of Directors elected by the members. They supply power to 8,159 meters through 2,469 miles of transmission and distribution lines and own 18 substations of delivery points. Through membership in the Kansas Electric Power Cooperative, DS&O REC owns part of the nuclear generating facility at Wolf Creek, part of the new Iatan coal fired plant at Weston, MO and rights to federal hydropower through the Southwest Power Administration. Primary financing is done through the USDA’s Rural Utility Service and the National Rural Utilities Cooperative Finance Cooperation.

Flint Hills Rural Electric Cooperative provides electric service into ten counties in our area, including McPherson, Marion, Harvey, Dickinson, Chase, Morris, Lyon, Wabaunsee, and Geary. Flint Hills REC provides customer service to approximately 6,400 services over 2,500 miles of distribution line.

Ark Valley Electric Cooperative Association, Inc. distributes electricity in rural Kansas. The Cooperative is a member-owned utility provider. Members of Ark Valley Electric purchase electricity within its rural service territory. Ark Valley's electric lines, of over 2,000 miles, stretch across nine counties, McPherson, Saline, Ellsworth, Lyons, Reno, Kingman, Stafford, Barton, and Harvey.

History of Utility/Infrastructure Failure

Utility and Infrastructure is generally a secondary hazard as a result of other hazard events. Water systems are particularly vulnerable to drought. The following events are examples of that. The following events were from the NCDC database.

July 1, 1994	Over 60 mile an hour winds from Windom to McPherson downed tree limbs and power poles. Some businesses in McPherson had their storefront windows blown out. There was $5,000 in property damage.
June 21, 1998	The storm also blew a restaurant sign down, a barn just southwest of McPherson was severely damaged, and numerous tree limbs blew onto power lines severing power to numerous residences. Property damage was estimated at $85,000.
December 10, 2007	One to two inches of ice accumulated across McPherson County during the ice storm. This resulted in approximately 500 downed power poles and 2000 downed lines. Damage to the electrical infrastructure is estimated at $9.8 million. There was also widespread damage to trees but the cost of the damage is unknown.
July 14, 2009	McPherson Board of Public Utilities workers had to set an electric pole in the ground to restore power to Moundridge. Approximately 20 poles were knocked down during the July 14 storm. Moundridge was without electricity for 28 hours.
June 14, 2010	Northern McPherson County was hit by a round of thunderstorms that resulted in downed tree limbs, structural damage and power outages. Buildings in Lindsborg, including Smoky Valley High School, suffered roof damage from 65 to 70 mile-per-hour winds. The winds and rain also damaged crops in the northern portion of the county and left Lindsborg residents without power. The wind was the result of a down burst. The National Weather Service (NWS) reported that most of McPherson County received 1.18 inches of rain Sunday with Lindsborg area receiving 1.77 inches (McPherson Sentinel).

Probability and Magnitude of Utility/Infrastructure Failure

The HMPC determined the probability of future utility/infrastructure failure is “highly likely” because there is a 100 percent chance that the planning area will experience utility or infrastructure failure every year.

The HMPC determined the magnitude for utility/infrastructure failure is “limited” because historically power outages have impacted a limited number of individuals. Power is generally restored within a few hours.

Utility/Infrastructure Failure Risk Summary

Table 2.45 is a risk summary for utility/infrastructure failure in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 45 Utility/Infrastructure Failure CPRI Ranking

Utility/Infrastructure Failure	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	3
Magnitude	2	NA*
Warning Time	4	NA*
Duration	2	NA*
Planning Significance	High	Moderate
Risk Index	3.20	2.85
Ranking	5 out of 22	7 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Vulnerability to Utility/Infrastructure Failure

The entire County is vulnerable to utility and infrastructure failure. Utility and infrastructure failure is a secondary hazard that is a result of numerous other hazards, including but not limited to earthquakes, expansive soils, flood, hailstorms, sinkholes, lightning, tornado, windstorm, and winter storms. Actual buildings and structures are generally not damaged from this hazard. This hazard has more of an economic impact.

Water supply and wastewater facilities are vulnerable to drought, flooding, power failure. McPherson County is divided between two water basins, the Smoky Hill-Saline Basin and the Lower Arkansas Basin and the majority of the water used in the basin is made up of surface water. A drought would significantly impact the water levels, resulting in water shortages in the planning area. The community is aware of this hazard and is involved in surface water management and conservation programs.

Flooding and power failure can cause wastewater facilities to become inoperable causing wastewater to backup into homes, businesses, and critical facilities. Critical facilities, such as schools, hospitals, nursing homes and daycare centers are responsible for ensuring the overall safety and well-being of their students, patients, residents, staff and visitors to their facilities and lack of clean water can jeopardize their safety.

Power lines and telephone lines are vulnerable to high winds, lightning, tornadoes, and winter storms, causing power and telephone failure. Generally residents have experienced uninterrupted service in the county with minimal delays in service restoration. On rare occasions, customers may be without service for up to one week if the extent of damage of utility lines and equipment caused by lightning, ice storms, and heavy rain or snowstorms exceeds normal repairs. These outages are occasionally significant enough to call all available crews to duty for more than a 24-hour period.

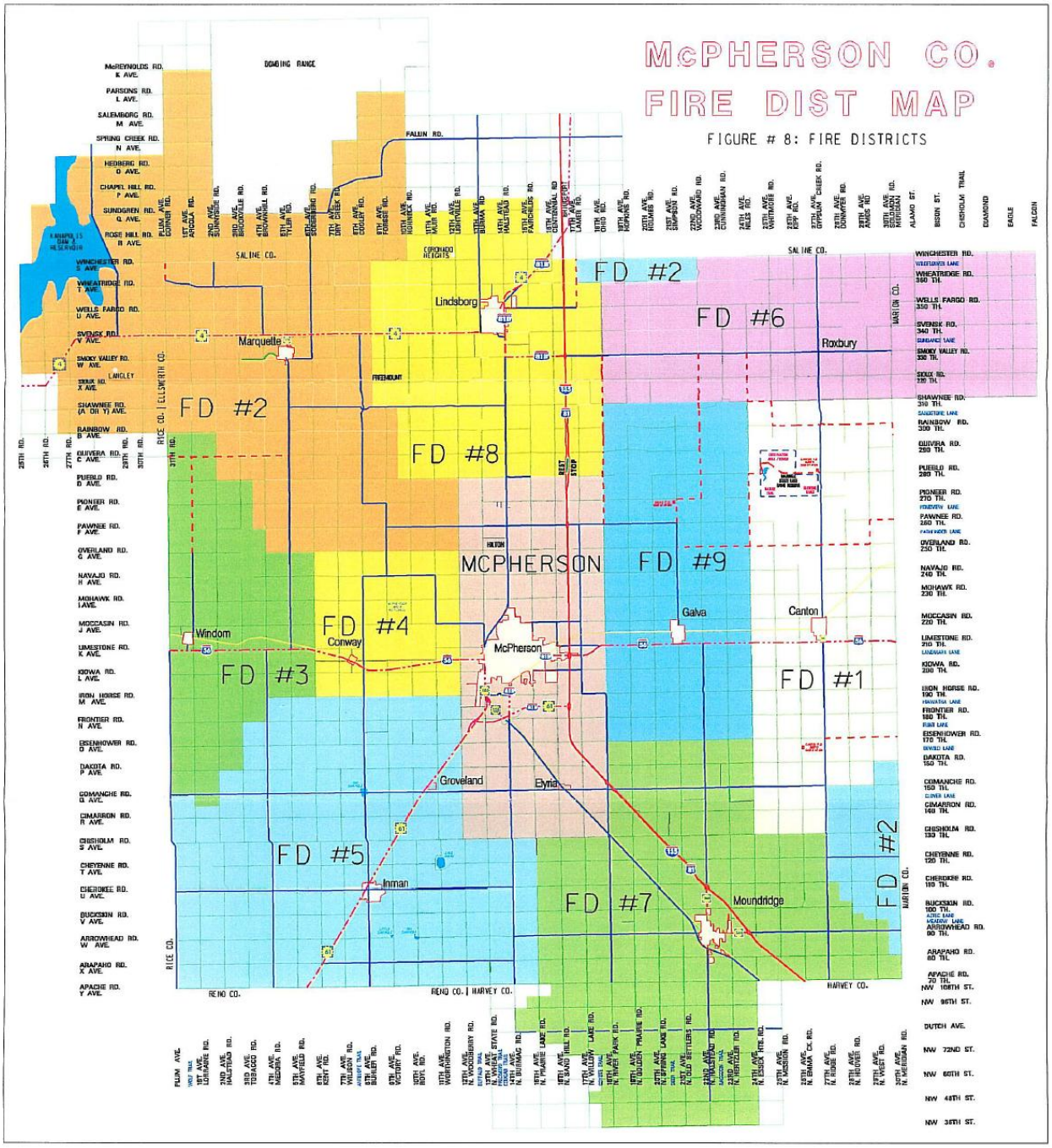
Power outages can be extremely dangerous to individuals with medical conditions requiring electricity. Possible losses could include repair or replacement of damaged power lines and economic costs of business interruption. Precise loss estimates are not available due to a number of variables associated with this hazard.

Wildfire

Hazard Definition

Wildfire is defined as a raging, uncontrollable, and rapidly spreading fire. McPherson County is serviced by ten rural fire districts. Figure 2.21 identifies the fire district boundaries for McPherson County.

Figure 2. 21 – McPherson County Fire District Map



Fire District #1 is 101 square miles in size and is located in the east-central portion of the county. During 2001, the board of county commissioners approved two conditional use permits to establish two separate new rural fire stations in this district. These were built to enhance rural fire protection and to lower fire insurance rates for property within the district.

Fire District #2 was formed in 1966 and is 93.5 square miles in size and is located in the northwest corner of the county.

Fire District #3 is approximately 63 square miles and is located in the west-central portion of the county.

Fire District #4 was organized in 1967 and encompasses all of Jackson Township and is 36 square miles in size. The fire station, which is located in the unincorporated community of Conway, was built in 1966 and houses three fire trucks.

Fire District #5 was formed in January, 1966. This district, 149.5 square miles in size, is located in the southwest corner of the county.

Fire District #6 is 68 square miles in size and is located in the northeast corner of the county. It encompasses all of Gypsum Creek Township and almost all of Bonaville Township. A fire station is located in Roxbury.

Fire District #7 is about 104 square miles in size and located in the southeast corner of the county. It encompasses all of Mound Township and most of Lone Tree and Meridian Townships.

Fire District #8 was formed in June, 1966 and is about 81 square miles in size and is located in the north-central portion of the county. It encompasses all of Smoky Hill Township and most of Union Township.

Fire District #9 was formed in 1975 and is 84 square miles in size and encompasses all of Empire and Delmore Townships. During 2001, the district received approval from the board of county commissioners for a conditional-use permit to build a rural fire station. It was built to enhance rural fire protection and to lower fire insurance rates for property within the district.

Fire District #10 is 90 square miles in size and is located in the southern half of New Gottland Township, north of the City of McPherson. The district also encompasses all of McPherson and King City Townships, as well as the City of McPherson. The fire station for the district is located inside the City of McPherson. This station went through a major renovation during 1999.

History of Wildfire Events

From 2000 to 2009 there have been a total of 16,880 acres burned in McPherson County as the result of wildfires. History of wildfires in McPherson County was limited. The information in Table 2.46 was provided by McPherson Fire Department, Canton Fire Department (Fire District #1), Marquette Fire (Fire District #2), Windom Fire Department (Fire District #3), Inman Fire/Rescue (Fire District #5), and Galva Fire Department (Fire District #9).

Table 2. 46 – McPherson County Fires (1995-2009)

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1995	744	31	76	466	1	0	0	0	0
1996	822	28	65	1,711	3	0	0	0	0
1997	771	26	52	996	0	0	0	0	0
1998	811	31	57	29	0	0	0	0	0

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1999	873	36	55	107	1	0	0	0	0
2000	1,014	32	41	1,227	1	0	0	0	0
2001	984	31	35	42	1	0	0	0	0
2002	1,035	26	42	1,980	0	0	0	0	0
2003	998	22	59	1,082	1	0	0	0	0
2004	920	32	31	83	0	0	0	0	0
2005	1,088	27	72	1,822	1	0	0	0	0
2006	1,040	33	89	2,253	2	0	0	0	0
2007	1,079	34	51	995	2	0	0	0	0
2008	955	31	66	2829	0	0	0	0	0
2009	974	27	72	1258	1	0	0	0	0

Probability and Magnitude of Wildfire

According to data from the Kansas State Fire Marshal Office, between 2003 and 2006, Kansas experienced 22,806 wildland and/or crop fires across 482,264 acres. That is an average of 5,702 wildland and/or crop fires each year for the State. McPherson County had 5,240 acres burned during the same time frame. According to table 2.46, over six percent of the calls received by the fire department are wildfire calls. Therefore, the HMPC determined the probability of a wildfire occurrence is “highly likely.”

Although the HMPC ranked the probability for future occurrence as highly likely, they determined the magnitude for wildfire is “limited” because the number of deaths and injuries as a result of wildfire is low.

Wildfire Risk Summary

Table 2.47 is a risk summary for wildfires in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 47 – Wildfire CPRI Ranking

Wildfires	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	2	NA*
Warning Time	4	NA*
Duration	2	NA*
Planning Significance	High	High
Risk Index	3.20	3.2
Ranking	6 out of 22	4 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Wildfire Vulnerability

Development in the wildland/urban interface (WUI) area is a growing trend. Wildland urban/interface areas pose a great challenge to the fire districts. Firefighting techniques for wildfires are different from the techniques used to fight structure fires. Access to rural areas is often limited, due to unpaved roads and isolated water supply.

The homes and structures that are located in the WUI area within the County are most vulnerable to this hazard. The WUI is the area where people build structures in an area that comes in contact with the wildland. Many people want to live on a few acres of land and have a secluded home outside of town. The areas in which people are living near the wildland area, the threat of wildfire is present.

The Marquette Fire Department (RFD #2) reported that wildfire is a concern for the community due to the wildland-urban interface (WUI) areas. Over 50 percent of the fire district has WUI, including the northwest corner of the fire district and areas south of Marquette to McPherson.

Windstorm

The photograph above was taken March 23, 2009 of a thunderstorm just outside of Galva.

Hazard Definition

Windstorm is defined by the NWS as "a storm with sustained winds of 40 miles per hour (mph) or gusts of 58 mph or greater, not caused by a thunder storm, expected to last more than 1 hour." Other terms which can be associated with windstorms include:

- Straight-line winds – These winds are generally any thunderstorm wind that is not associated with rotation (i.e. is not a tornado). These winds can exceed 100 mph that represent the most common type of severe weather and are responsible for most wind damage related to thunderstorms. Since thunderstorms do not have narrow tracks like tornadoes, the associated wind damage can be extensive and affect entire (and multiple) counties. Objects like trees, barns, outbuildings, high profile vehicles, and power lines/poles can be toppled or destroyed, and roofs, windows, and homes can be damaged as wind speeds increase.
- Derecho - A widespread and long lived windstorm that is associated with a band of rapidly moving showers or thunderstorms. Derechos are associated with a band of showers or thunderstorms that are often "curved" in shape. These bowed out storms are called "bow echoes". A derecho can be associated with a single bow echo or multiple bow echoes. The bow echoes may vary in scale and may die out and redevelop during the course of derecho evolution. Further, derecho winds can be enhanced on a smaller scale by embedded super cells within the derecho producing storm system. By definition winds in a derecho must meet the National Weather Service criterion for severe wind gusts (greater than 57 mph) at most points along the derecho path. In the stronger derecho events winds can exceed 100 mph. The winds associated with derechos are not constant and may vary considerably along the derecho path, sometimes being below severe limits (57 mph or less) and sometimes being very strong (from 75 mph to greater than 100 mph). The patches of stronger winds embedded within the general derecho path are called downbursts and they are often in clusters. A derecho is made up of a "family of downburst clusters" and by definition must be at least 240 miles in length.

History of Windstorm Events

According to the NCDC, McPherson County experienced 199 windstorm events from 1956 to 2009, resulting in $3.574 million in property damage. There were three injuries and no fatalities reported. Some of the more notable events are as follows:

July 1, 1994	Over 60 mile an hour winds from Windom to McPherson downed tree limbs and power poles. Some businesses in McPherson had their storefront windows blown out. There

	was $5,000 in property damage. A semi-trailer was blown over on Interstate 135, five miles north of McPherson resulting in $25,000 in property damage.
May 25, 1997	Severe thunderstorm winds caused the following damage: widespread tree damage, destroyed animal housing, blew over a windmill, tore part of a roof off a shed as well as slightly moving the shed from its foundation, completely destroyed a machine shed damaging much of its contents, tipped over 2 sections of a pivot irrigation system and blew a second irrigation system from one farm across an eight foot drainage ditch and into an adjacent farm. The property damage was estimated at $50,000.
June 21, 1998	An awning of a service station was blown down during a severe thunderstorm. The storm also blew a restaurant sign down, a barn just southwest of McPherson was severely damaged, and numerous tree limbs blew onto power lines severing power to numerous residences. Property damage was estimated at $85,000.
September 30, 1998	A wind storm caused damage in the City of Windom. Grain bins were blown over, power lines and power poles were blown down, houses sustained damage to roofs, siding and windows and vehicles had windows blown out. Total property damage estimates totaled $100,000.
May 31, 2007	Rather extensive damage occurred across the town of Moundridge due to extreme straight line winds estimated at 90 to 100 mph. Three businesses and one residence received major damage. Numerous trees were uprooted across the town. The damage path was relatively narrow, indicating an intense channel microburst. Three individuals received minor injuries. A strong upper level disturbance approaching from the northwest spawned a powerful squall during the evening hours of May 31st. The squall line moved east to southeast across portions of central and south-central Kansas, producing large hail and high winds in its path. 90 to 100 mph winds hit the community of Moundridge in southeast McPherson County, inflicting a narrow swath of substantial damage. Property damage was estimated at $1.5 million dollars.
July 14, 2009	McPherson Board of Public Utilities workers had to set an electric pole in the ground to restore power to Moundridge. Approximately 20 poles were knocked down during the July 14 storm. Moundridge was without electricity for 28 hours.
June 14, 2010	Northern McPherson County was hit by a round of thunderstorms that resulted in downed tree limbs, structural damage and power outages. Buildings in Lindsborg, including Smoky Valley High School, suffered roof damage from 65 to 70 mile-per-hour winds. The winds and rain also damaged crops in the northern portion of the county and left Lindsborg residents without power. The wind was the result of a down burst. The National Weather Service (NWS) reported that most of McPherson County received 1.18 inches of rain Sunday with Lindsborg area receiving 1.77 inches (McPherson Sentinel).

Probability and Magnitude of Windstorms

There have been 199 reports of thunderstorms in McPherson County in 53 years. For that reason, the HMPC determined the probability of a major windstorm to occur is “highly likely.”

The HMPC determined the magnitude for windstorm is “critical” because there have been three injuries as a result of windstorms.

Windstorm Risk Summary

Table 2.48 is a risk summary for windstorms in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 48 – Windstorm CPRI Ranking

Windstorm	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	3	NA*
Warning Time	4	NA*
Duration	3	NA*
Planning Significance	High	High
Risk Index	3.60	3.20
Ranking	2 out of 22	5 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Windstorm Vulnerability

All of the structures in McPherson County are exposed to potential damage from a windstorm. Damage would depend on wind speed, flying debris and building construction material. Wind damage prediction is an issue because all existing structures are not windstorm-resistant.

It is difficult to measure the extent of damage that would occur because of the nature of the hazard. A thunderstorm can be an isolated event or widespread. It is unpredictable what portion of the community would be most vulnerable. However, stone or brick type buildings will endure a windstorm better than a mobile home or wooden structures that are old or poorly constructed.

Table 2.49 is a hazard vulnerability summary for windstorms. The number and value of the structures, as well as the number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in hazard area indicates that all structures in the County are exposed to windstorms. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on wind speed, flying debris and building construction material.

Table 2. 49 – Windstorm Vulnerability

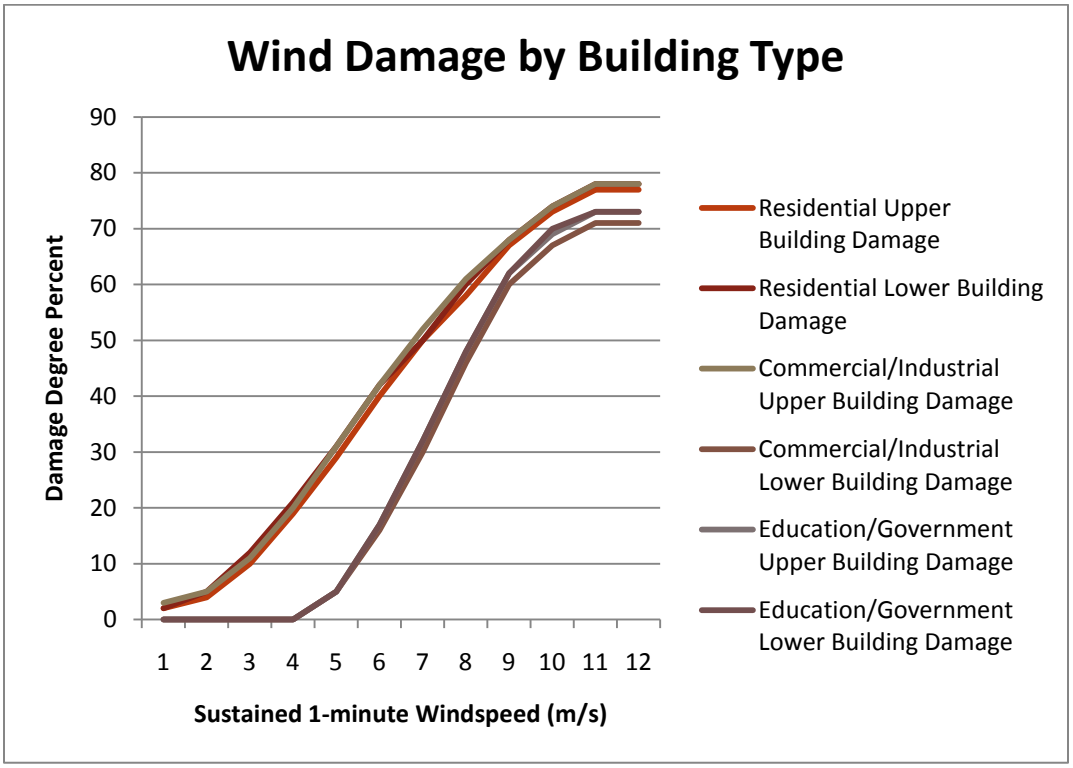
Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Power lines and structures are damaged by windstorms. Downed power lines create hazardous conditions for people. Debris from high winds can shatter windows and can injure people without adequate shelter. While the entire planning area is vulnerable to windstorms, it is the areas of dense population that would be most affected by windstorms due to the increased number of structures. Windstorms and hail also do extensive damage to crops each year.

Individuals participating in outdoor activities are most vulnerable during a windstorm. Those individuals that are camping or hiking in forested areas are very in danger of death or injury from falling trees, flying debris, and even lightning strikes.

According to the *Journal of Wind Engineering and Industrial Aerodynamics,* the greatest amount of building damage occurs to building in the 43-60 sustained 1-minute windspeed (m/s) range for buildings 1-3 stories. For mid-rise buildings the most damage occurs between 54-81 m/s. The study revealed that 1-3 story residential, commercial/industrial, education/government buildings do not show any pronounced differences in peak values of damage extent. Given that differences in building occupancy classes are reflected in terms of component cost factors, the cost of damage would vary greatly. Figure 2.22 indicates the extent of damage expected to occur by building type with respective windspeeds (McDonald, Mehta and Smith).

Figure 2. 22 - Wind Damage by Building Type



Winter Storm

The photograph above was taken in January along the Smoky Hill River by Kalle Oskar.

Hazard Definition

Winter storms in Kansas usually come in the form of heavy snow or freezing rain (ice storms). A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall, and cold temperatures (see Section 3.3.6 Extreme Temperatures). The National Weather Service describes different types of winter storm events as follows:

- Blizzard—Winds of 35 mph or more with snow and blowing snow reducing visibility to less than 1/4 mile for at least three hours.
- Blowing Snow—Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- Snow Squalls—Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- Snow Showers—Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- Freezing Rain—Measurable rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Most freezing-rain events are short lived and occur near sunrise between the months of December and March.
- Sleet—Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects.

History of Winter Storm Events

According to the NCDC, there were 34 major winter storm events in McPherson County, resulting in three fatalities and two injuries. The total property was estimated at $39,905 million. The following events are from the NCDC database.

November 23, 2004	An area of wet, heavy snow, about 50 miles wide and centered near McPherson, accumulated to depths of 4-6 inches as intense low pressure moved from Northeast Oklahoma to Central Missouri. Some tree and power line damage resulted. Property damage totaled $20,000.
January 4, 2005	On January 3rd, a strong cold front surged south across Kansas & Oklahoma before stalling along/near the Red River during the afternoon of the 4th. The result was what

many consider to be the worst ice storm since 1982 to ravage all of Central & most of South-Central Kansas from the afternoon of the 4th thru the morning of the 5th, coating almost the entire warning area with 1/2 to 1 inch of ice. Although freezing rain was the primary culprit, the winter storm was magnified considerably by periods of sleet that accumulated to depths of 1 to 2 inches. In Central Kansas, the situation was further worsened by periods of light snow that accumulated to 3 to 5 inch depths in Russell, Lincoln, and Saline counties. Damage to trees and power lines was major. Obviously, countless accidents occurred, and were not only traffic-related, but also occurred during the extensive cleanup of tree damage. It was in Wichita that all three fatalities occurred. In South Wichita, a 63-year old woman succumbed to carbon monoxide after using a portable generator inside her home. Also in South Wichita, an unidentified elderly man using a portable generator was found dead in his home. (Pending further details, his age listed at the end of this report is an approximation.) In West Wichita, an 80-year old man died outside his home while trying to remove downed tree limbs. As of this writing, it is not clear if his death was cold or health related. Two people were seriously injured. A 39-year old man was listed in serious condition at Via Christi Regional Medical Center with head and neck injuries after a 15-foot tree limb fell as he was sawing it, and a power line crewman was listed in serious condition at Via Christi Regional Medical Center's burn unit when he came into contact with a 12,700 volt power line. Approximately 370 utility crews from 15 states assisted WESTAR Energy with power restoration. Working 12-16 hour days, the crews responded from as far as Illinois, Indiana, Kentucky, Minnesota, New Mexico, South Texas, Tennessee, and West Virginia. Kansas Governor Kathleen Sebelius issued a declaration of state disaster emergency to 56 counties, of which 20 are in the Wichita County Warning Area, and a federal disaster declaration was expected to be issued. In addition to law enforcement, emergency managers and trained spotters provided numerous and timely reports during this event. The reports of one and all, be they law enforcement, emergency management, trained spotters or the print media, are truly appreciated, especially during very difficult circumstances. It is their dedication that made such a detailed narrative possible.

April 13, 2007	Law enforcement estimated that 3 to 5 inches of snow fell across Chase County. The snow caused a fatal accident 150 when a female driver lost control of her car, turned sideways and collided with a tractor-trailer. Property damage was estimated at $5,000.
December 10, 2007	One to two inches of ice accumulated across McPherson County during the ice storm. This resulted in approximately 500 downed power poles and 2000 downed lines. Damage to the electrical infrastructure is estimated at $9.8 million. There was also widespread damage to trees but the cost of the damage is unknown.
March 27, 2009	Light snow affected the county during the morning and afternoon hours on the 27th, with occasional moderate to heavy snow developing by late afternoon and persisting through the late morning hours on the 28th. Snowfall amounts ranged from roughly 6 to 12 inches, with the least amounts across northwest portions of the county. Salina reported around 10 inches. Stout north to northeast winds resulted in considerable blowing and drifting of snow. A number of relatively minor traffic accidents occurred across the county, including numerous slide-offs. The Salina Journal contributed to this report. Property damage was estimated at $40,000.
December 7, 2009	Twelve inches of snow fell across the county leaving some residents home bound for a few days as frigid temperatures moved in after the storm. Even with the heavy snowfall very few accidents were reported. There was $30,000 in property damage. Snowfall amounts of 2 to 4 inches produced 18 accidents across McPherson County. One such accident occurred along Interstate 135 when a vehicle slid into a semi tractor trailer. The

driver of the car was seriously injured and taken to the hospital. Property damage totaled $10,000.

Probability and Magnitude for Winter Storm

Estimated storm loss data consist of windstorm, tornado and hail damage or other weather-related claim losses for insured real and personal property in Kansas reported for each calendar year and monthly during the calendar year. No other insured perils are included in the data. The data shown below includes only estimated storm losses reported at the request of the Insurance Commissioner by the private insurance companies selling and servicing property insurance coverage in Kansas.

Table 2. 50 – Kansas Estimated Storm Losses

Kansas Estimated Storm Losses		
Year	**No. Storm Claims**	**Est. Storm Losses**
1996	46,150	$100,000,000
1997	53,600	$87,950,300
1998	30,250	$103,700,000
1999	80,925	$350,000,000
2000	35,344	$118,000,000
2001	103,149	$256,700,000
2002	82,872	$248,800,000
2003	63,778	$275,000,000
2004	50,250	$199,550,000
2005	63,875	$184,000,000

There have been 34 major winter storm events in the past 14 years. Based on that information, the HMPC determined the probability of a future winter storm occurrence as “highly likely.”

The HMPC determined the magnitude for winter storms is “critical” because there have been three fatalities and two injuries associated with winter storms in the past.

Winter Storm Risk Summary

Table 2.51 is a risk summary for winter storms in McPherson County. These are the overall vulnerabilities for the entire planning area. The individual jurisdictions may vary due to specific hazard events. Please refer to the individual jurisdiction profiles in Chapter 3 – Jurisdiction Profiles for the specific ranking information.

Table 2. 51 – Winter Storm CPRI Ranking

Winter Storm	McPherson County Rankings	State of Kansas Rankings (Kansas Hazard Mitigation Team)
Probability	4	4
Magnitude	3	NA*
Warning Time	3	NA*
Duration	3	NA*
Planning Significance	High	High
Risk Index	3.45	3.30
Ranking	4 out of 22	3 out of 22

NA* = Ranking Not Stated in the 2007 Kansas Hazard Mitigation Plan

Winter Storm Vulnerability

A winter storm is generally a widespread event. It is unpredictable what portion of the community would be most affected by it. All of the structures in the county are exposed to winter storms.

Table 2.52 is a hazard vulnerability summary for winter storms. The number and value of the structures, as well as the number of people is based on data obtained from the 2000 U.S. Census, HAZUS data, and information provided in the juris*d*ictional profiles in Chapter 3. The number and percentage of structures in the hazard area indicates that all structures in the County are exposed to earthquakes. The column "Value of Structures" is the total value of structures for the entire county. The cost of damage would vary greatly depending on wind speed, wind chill, ice level, snow amount, and duration of the event.

Table 2. 52 – Winter Storm Vulnerability

Type of Structure	Number of Structures			Value of Structures	Number of People
	# in County	# in Hazard Area	% in Hazard Area	$ in County	# in County (2000 Census)
Residential	13,103	13,103	100%	$1,430,713,000	29,554
Commercial	750	750	100%	$308,239,000	Unknown
Industrial	449	449	100%	$186,223,000	Unknown
Agricultural	73	73	100%	$38,330,000	Unknown
Religious/Non-profit	70	70	100%	$56,308,000	Unknown
Government	42	42	100%	$12,256,000	Unknown
Education	22	22	100%	$22,533,000	Unknown
Total	**14,509**	**14,509**		**$2,054,603,000**	**29,554**

Property damage as a result of winter weather includes damage to dwellings, structures, roadways, cars, trucks, equipment, trees, wires, and pipes. Wind damage, weight or load damage, and exposure damage all are very common situations that can affect and damage physical property during the winter.

Fallen trees or limbs, downed power lines, blowing debris, equipment damage, structural damage, and roof damage are generally the results of wind damage. Load damage from accumulated snow and ice also may cause similar failures. Exposure or extreme winter temperatures can cause damage to pipes, cables, wiring, exposed structures during renovation or construction.

The extent of damage incurred as a result of winter storms would depend greatly on the construction materials used for the structure. A building with a flat or low-pitched roof could potentially sustain greater damage than a steeper-pitched roof because of the weight of snow or ice. Significant ice buildup in one area of the roof could cause load issues. There could be places where snow could accumulate in abnormal levels due to the roof's design. If a foot of snow falls there could be places on the roof where there are five feet of snow, just because of the way snow blows and drifts accumulate. Areas where the roof adjoins a solid wall, or where there is a lower roof such as awnings or canopies, are especially susceptible to accumulation.

High winds compo intensify the damage. Snow and ice on tree branches can cause them to break or bend from the extra weight. Broken tree limbs can land on utility lines causing utility outages. Large amounts of ice build-up on the power lines will also cause the power lines and poles to become brittle and break.

Chapter 3 – Jurisdiction Profiles

Multi-Jurisdictional Hazard Mitigation Plan

The authority to implement mitigation strategies may not exist within one governmental entity because local governments are structured differently. In view of that, FEMA has identified procedures for agencies to follow in order to ensure that eligibility requirements are met.

44 CFR €201.6 FEMA requires all participating jurisdictions meet the requirements for mitigation plans. The requirements are as follows:

- Participate in the planning process, including attending meetings, contributing research, data, or other information, comment on drafts of the plan, etc.
- Participate in the analysis of the hazards.
- Participate in the development of goals for the planning area.
- Participate in the development of the maintenance strategy.
- Identify the risks, where they differ from the general planning area.
- Each jurisdiction must develop and implement mitigation actions.
- Each jurisdiction must formally adopt the plan.

Despite the fact that, there are certain aspects of this hazard mitigation plan that are common to all participating jurisdictions (e.g. planning process, hazards, goals and maintenance), there are some elements that are unique to the individual participating jurisdiction. According to the *Local Multi-Hazard Mitigation Planning Guidance,* the multi-jurisdictional hazard mitigation plan should include for each jurisdiction:

- Risks, where they differ from the general planning area;
- Mitigation actions (actions must be identified for each participating jurisdiction);
- Participation in the planning process (e.g. attending planning meetings, contributing to research or data, commenting on the drafts of the plan, etc.; and
- Adoption (each participating jurisdiction must formally adopt the plan).

College or University Participation

Public colleges or universities two options, 1) they may be an active participant in a FEMA-approved State, Tribal, or Local Mitigation Plan; 2) or they may have an approved plan of their own that meets the requirements to be eligible for mitigation project grants. Colleges or universities that completely participated in the development and review of a plan in accordance with 44 CFR €201.6(b), it is not necessary for them to approve/adopt the plan, as long as it is adopted by the appropriate State, Tribal, or Local government.

School District Participation

Section 201.2 of 44 CFR defines school districts, independent school districts, or other special districts as local governments, and as such they are required to follow the local government regulations. The regulations state that local governments must have a FEMA-approved local mitigation plan to be eligible for project grants under the FEMA hazard mitigation assistance programs. School districts are not considered private nonprofit organizations.

Private Nonprofit Organization Participation

Private nonprofit (PNP) organizations are not considered governmental entities. This distinction is important because 44CFR part 201 provides only for governments (State, Tribal or Local), not PNPs, to meet the planning requirement for having a FEMA-approved Mitigation Plan in order to receive project grant funds. Under Hazard Mitigation Grant Program (HMGP) regulations at 206.434(a)(1), certain PNPs are eligible as sub-applicants. However, in those cases, the local jurisdiction in which the PNP project is located must have a FEMA-approved Mitigation Plan to be eligible for grant funds. FEMA strongly recommends that PNPs participate in the

development of Local Mitigation plans to ensure that projects funded are consistent with the mitigation strategies of the jurisdiction.

McPherson County Participating Jurisdiction

In this chapter are the profiles of the jurisdictions that have met the FEMA requirement to be considered a participating jurisdiction. The profiles in this chapter include:

- McPherson County (unincorporated & townships)
- City of Canton
- City of Galva
- City of Inman
- City of Lindsborg
- City of Marquette
- City of McPherson
- City of Moundridge
- City of Windom
- Smoky Valley USD 400
- McPherson USD 418
- Canton-Galva USD 419
- Moundridge USD 423
- Windom USD 444
- Inman USD 448
- McPherson College
- Hutchinson Community College
- Central Christian College
- DS&O Electric Cooperative
- Flint Hills Rural Electric Cooperative
- Ark Valley Electric Cooperative

In order to ensure compliance with the regulations set forth in 44 CFR §201.6, each participating jurisdiction profile is divided into the following sections:

- Location
- History
- Governance
- Population and Demographics
- Economy
- Capabilities
- Vulnerabilities
- 2010 Mitigation Actions

Jurisdiction: McPherson County	
NFIP Participation	Yes
Date of FEMA Maps	01/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	1

The following map identifies the geographic planning area for McPherson County. The incorporated cities and the unincorporated towns are also identified.

Figure 3.1. 1 - McPherson County

Description of the Planning Area

The geographical size of McPherson County is 900 square miles and contains 2,241 census blocks. There are over 11 thousand households in the planning area. There are an estimated 14,509 buildings in the county. Over 90 percent of the buildings are associated with residential housing.

Incorporated Cities

According to the U.S. Census Bureau, the total population for McPherson County in 2000 was 29,554. There are eight incorporated cities, 6 third class and 2 second class, in McPherson County. The City of McPherson is the county seat.

- Canton (3rd Class) – 819 residents
- Galva (3rd Class) – 747 residents
- Inman (3rd Class) - 1,190 residents
- Lindsborg (2nd Class) – 3,305 residents
- Marquette (3rd Class) -579 residents
- McPherson (2nd Class) – 13,672 residents
- Moundridge (3rd Class) – 1,644 residents
- Windom (3rd Class) - 136 residents

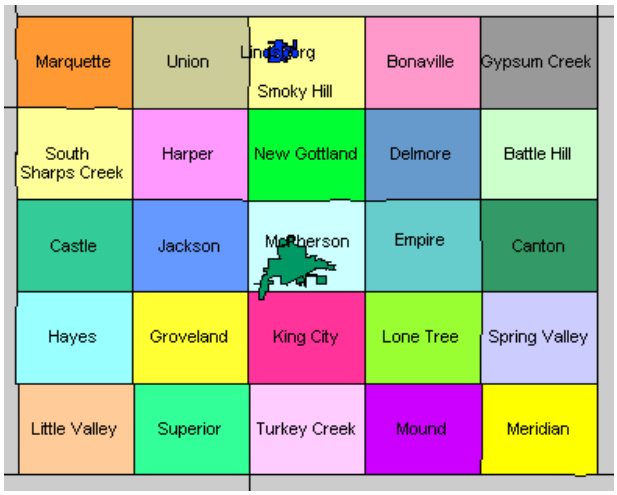
Unincorporated Areas and Townships

There are four unincorporated areas in McPherson County; Conway, Elyria, Groveland, and Roxbury.

Figure 3.1.2 identifies the location of each township in McPherson County. The entire area of Kansas is covered by townships. At present 95 of the 104 Kansas counties have active townships. McPherson County is divided into twenty-five townships. The McPherson County Townships are:

- Battle Hill
- Bonaville
- Canton
- Castle
- Delmore
- Empire
- Groveland
- Gypsum Creek
- Harper
- Hayes
- Jackson
- King City
- Little Valley
- Lone Tree
- McPherson
- Marquette
- Meridian
- Mound
- New Gottland
- Smoky Hill
- South Sharps Creek
- Spring Valley
- Superior
- Turkey Creek
- Union

Figure 3.1. 2 - McPherson County Townships



School Districts and Colleges

Three types of school districts in Kansas are counted as separate governments for census purposes; unified school districts, community college districts, and municipal universities. An elected board of education, also known as a "school board," governs each unified school district. An elected board of trustees governs each community college district.

All school district governments in Kansas may levy ad valorem school taxes and issue bonds with the approval of the voters. There are five unified school districts in McPherson County:

- Smoky Valley – USD 400
- McPherson – USD 418
- Canton-Galva – USD 419
- Moundridge – USD 423
- Inman – USD 448

There are four colleges and universities in the planning area. They are:

- Hutchinson Community College
- McPherson College
- Central Christian College
- Bethany College

Cemeteries

The following types of cemetery districts are counted as governments for census purposes:

- **Cemetery district associations**—established by petition of voters to the county commissioners or by resolution of the county commissioners after a hearing; governed by elected directors.
- **Cemetery districts (joint city and township) -** composed of a second- or third-class city in conjunction with one or more townships and established by petition of voters to the county commissioners and resolution by the city governing body, with administration by a board of trustees composed of the township trustees and the city mayor.
- **Cemetery districts (township)** – established by petition of voters to the county commissioners plus resolution adopted by township; governed by elected directors.
- **Cemetery districts (abandoned cemeteries)** - established by resolution passed by the governing body upon petition of voters and governed by a board of trustees composed of township trustees and mayor.

All of the above types of cemetery districts may levy an ad valorem tax. Cemetery district associations may issue bonds. There are 13 cemetery districts in McPherson County:

- Marquette Cemetery
- Swedish Lutheran Cemetery
- Stephens Cemetery
- Sharps Creek Cemetery
- South Sharp Creek Cemetery
- Fairview Cemetery
- New Gottland Cemetery
- Canton Cemetery
- Groveland Cemetery
- Empire Cemetery
- Evergreen Cemetery
- Superior Cemetery
- Moundridge Township Cemetery

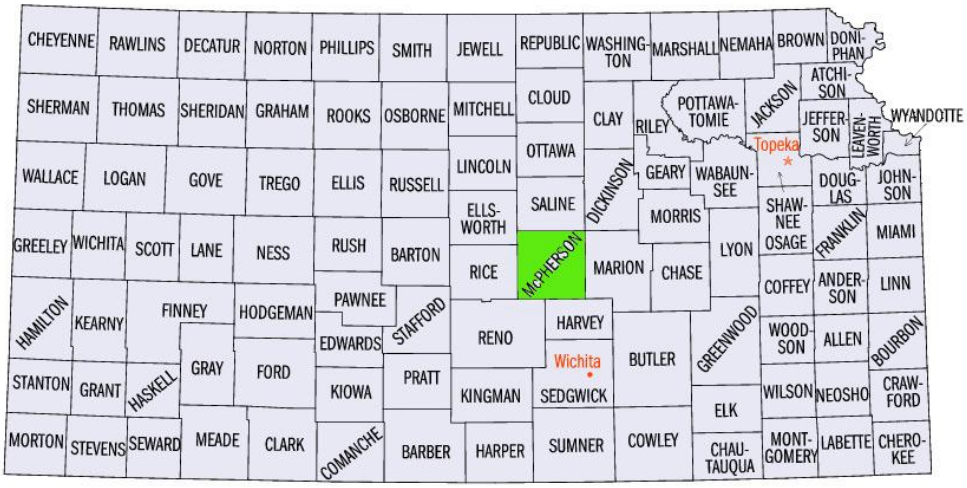
Neighboring Counties

During the development of a hazard mitigation plan, it is important for the planning to take a look at the surrounding counties, especially during the mitigation action development stage. McPherson County is surrounded by the following counties:

- Saline County to the north
- Dickinson County to the northeast
- Marion County to the east
- Harvey County to the southeast
- Reno County to the southwest
- Rice County to the west
- Ellsworth County to the northwest

Figure 3.1.3 identifies the geographic location of McPherson County, as well as the neighboring counties. McPherson County is identified in green.

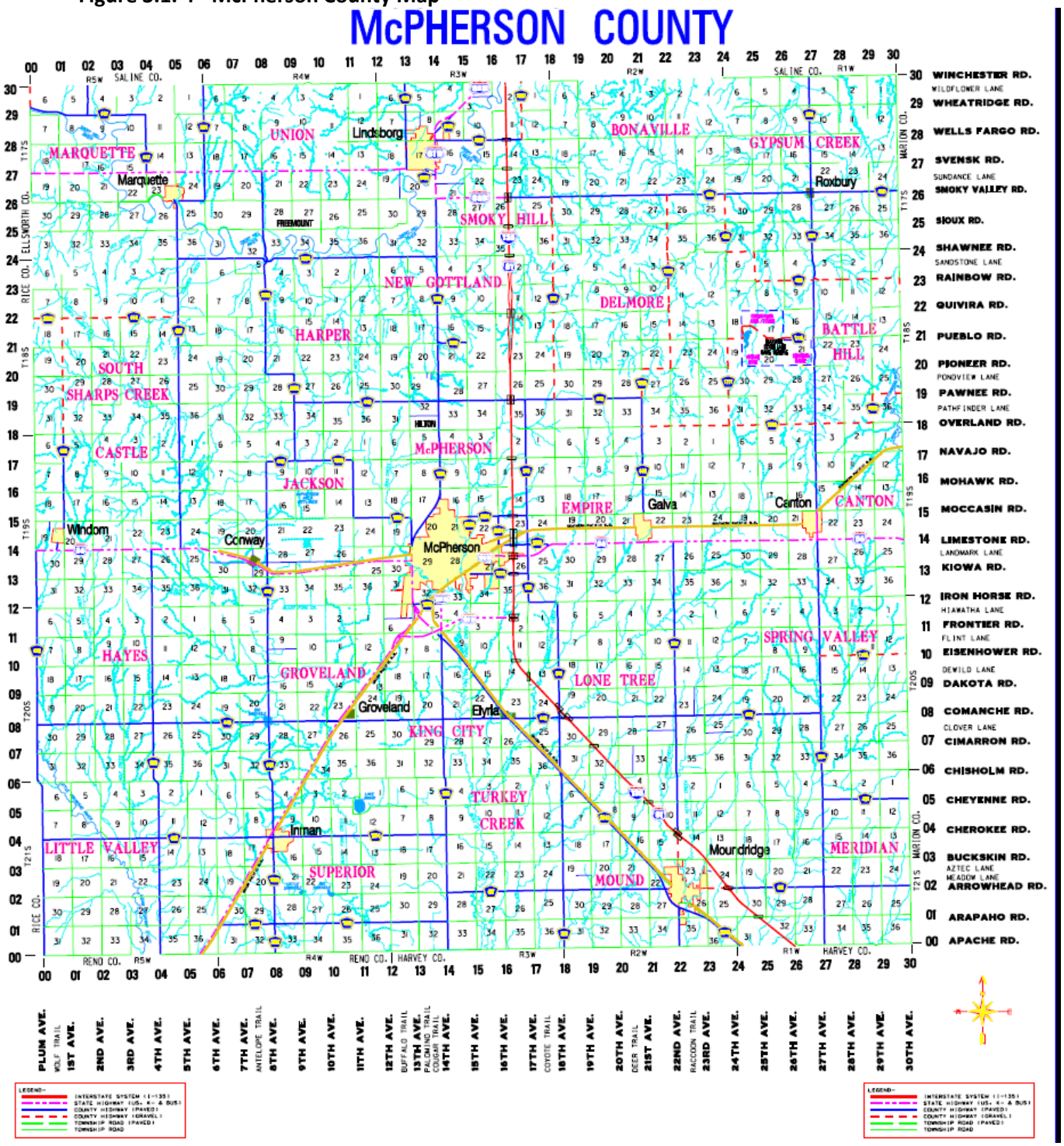
Figure 3.1. 3 - Kansas Counties



Location

McPherson County is located in the east-central portion of Kansas. The geographical size of the region is 900 square miles and contains 2,241 census blocks. There are over 11,000 households in the region and has a total population of 29,554 according to the 2000 Census.

Figure 3.1. 4 - McPherson County Map



Geography and Topography

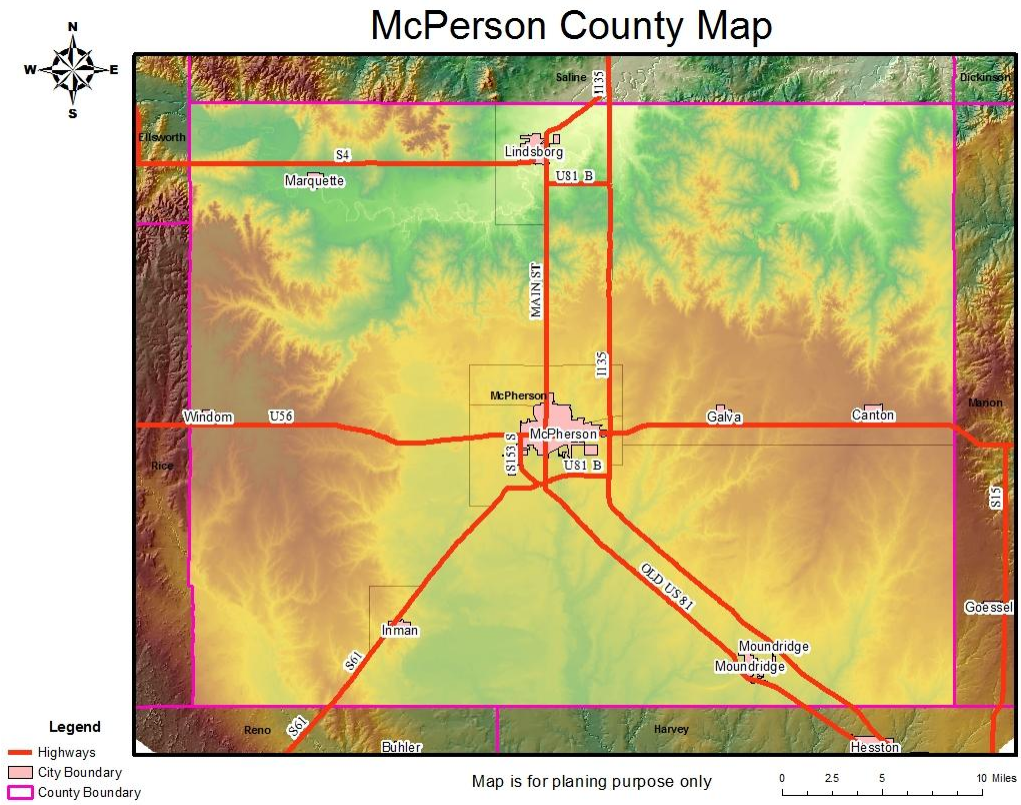
Geographic areas of the county include the Central Sandstone Hills land resource area in the northern part of the county and the Central Loess Plains land resource area in the southern portion of the county. Generally the soils of the county are deep, they are nearly level to moderately sloping, and have silty or clayey subsoil. McPherson County elevations range from 1,265 to 1,690 feet above sea level. The Smoky Hill River, the North Cottonwood River, the Little Arkansas River, and numerous tributaries to them drain the county.

The county's topography is characterized by extreme flatness in some areas and low topographic relief in other parts. Many areas of the county have a slope of between 1 to 3%. Very little of the county area has a slope of more than 10%. Only the Lancaster-Hedville (Lh) loam soil has a slope of from 6 to 12 percent. Small portions of this soil may have a greater slope. Most of the county's northern half drains into the Smoky Hill River by way of the Sharps Creek, Indian Creek, Kentucky Creek, and Gypsum Creek. The southern half of the county drains into the Little Arkansas River by way of Lone Tree Creek, Wolf Creek, Blaze Fork Creek (mainly a drainage structure today), Turkey Creek, Running Turkey Creek, Sand Creek, and Emma Creek. In the northeast portion of the county a small portion drains into the North Cottonwood River by way of Cottonwood Creek and a few other tributaries.

McPherson County is in the transition area between tall and short native grasses and has a mixture of warm season grasses including bluestems, buffalo and the grama grasses. Over 70 species of wild flowers are found in the county. Figure 3.1.5 is a generalized topographic map of Kansas (Geology.com). McPherson County is outlined in red. It shows elevation trends across the state. McPherson County is in the region with an elevation of 1200-1800 feet.

The subsurface geology of McPherson County is characterized by Pre-Cambrian igneous and metamorphic rocks, covered by 4,000 to 4,500 feet of limestone, sandstone, shale, clay, silt, sand, and gravel. The underlying consolidated sedimentary bedrock is of the Paleozoic Era with the Wellington, Ninnescah, and Stone Corral formations being exposed in some areas of the county.

Figure 3.1. 5 – McPherson County Topographic Map



Water Resources

McPherson County gets water supplies from surface water and groundwater. Springs, streams, rivers, ponds, reservoirs and lakes make up the surface water and groundwater is available from bedrock aquifers and unconsolidated aquifers which overlie bedrock formations. Groundwater is the principal source for most uses in the county. The three leading uses of water in the planning area are industrial, irrigation, and municipal.

There are no major water impoundments in McPherson County. Lake Inman, the largest natural body of water in Kansas, offers very little potential as a surface water resource. The major rivers in McPherson County are the Smoky Hill River, the Little Arkansas River, and the North Cottonwood River.

Fresh and usable groundwater resources in McPherson County include the alluvium of the Smoky Hill River, the northeastern upland area between Kentucky Creek and the area drained by Gypsum Creek, and the area in the south-central portion of the county underlain by the Equus Beds aquifer (McPherson County).

The alluvium of the Smoky River Valley ranges from being very thin at the valley edges to 90 feet thickness in the deepest part of the valley. This alluvium consists of silt, clay, and beds of sand and gravel of varying thickness at its base. Where the coarser material occurs in considerable thickness, wells have been developed that yield up to 1,000 gallons per minute.

The northeastern upland area of McPherson County is underlain by the Kiowa shale except in the valley of Gypsum Creek, where the Wellington formation is near the surface. There is very little data on water conditions in this area. Water available from the Wellington shale is of very hard quality and is available to wells in very small quantities. Gypsum Creek's name originates from the chemical character of the water flowing in it. Water from sandstone formations has a better chemical quality than the water in the alluvium. Numerous stock wells draw water from the Cretaceous sandstones in this area, and many small springs occur along the ravines which have cut into the sandstone.

The Equus Beds aquifer is the main source of water for the central and southern portions of McPherson County. It is the primary water source for the cities of McPherson, Inman, and Moundridge and also for several of the rural water districts. The Equus Beds aquifer underlies portions of a four-county area and is about 900,000 acres in size. A regional aquifer management program was developed and implemented in 1978 by the Equus Beds Groundwater Management District to prevent over development and contamination of the aquifer.

The Equus Beds aquifer is part of a regional aquifer known as the High Plains aquifer system. This regional aquifer extends from Kansas into Colorado, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming. The Equus Beds aquifer forms the eastern most portion of the regional aquifer system in Kansas. It derives its name from Equine fossils found in unconsolidated deposits underlying the entire area. The Equus Beds aquifer was formed by the cutting of deep troughs or channels in bedrock. These channels were later filled by unconsolidated clay, silt, sand, and gravel deposits. The thickness of the deposits ranges from 300 feet in the McPherson Channel to 350 feet in the ancestral Arkansas River Channel. Depth from ground surface to water in the Equus beds ranges from 40 feet to 110 feet in McPherson County.

The McPherson Intensive Groundwater Use Control Area (IGUCA) encompasses a 56-square mile area located in and around the City of McPherson. The control area was established March 28, 1980 by the Chief Engineer-Director, Kansas Division of Water Resources, at the request of the Equus Beds Groundwater Management District No. 2 because of declining water levels in the Equus Beds aquifer. Groundwater development or withdrawal exceeded natural groundwater recharge, and groundwater mining resulted (McPherson County). Groundwater management actions established in the control area include:

1) Closing the area to further groundwater development, except for domestic use;

2) Dismissing all groundwater permit applications filed prior to the establishment of the control area;

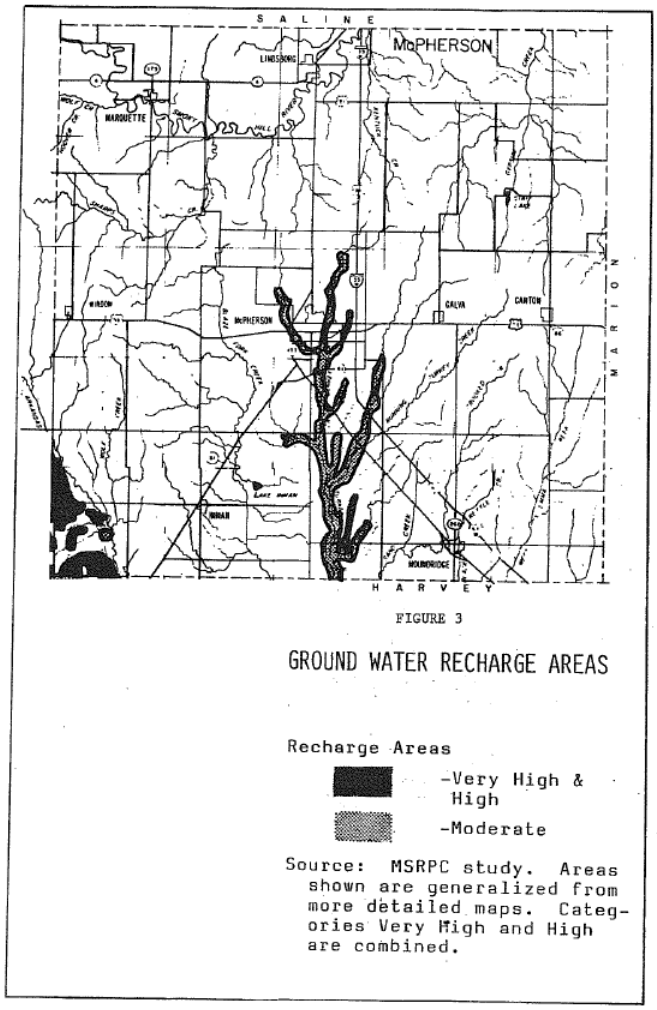
3) Requiring the installation of water meters on all water wells in the control area, except for domestic wells; and

4) Establishing a data collection and reporting system for monitoring water levels, rainfall, and groundwater withdrawals.

Recharge to an aquifer is a continuous process that adds water directly to the aquifer. Natural precipitation contributes the greatest amount to groundwater recharge. Factors which affect the rate of precipitation recharge to an aquifer include surface topography (slope), vegetation, temperature, evaporation, soil properties, subsurface conditions, and depth to the aquifer's water surface. In McPherson County, conditions for recharge to the Equus Beds aquifer are not favorable with only 10 percent, or about three inches, of annual precipitation being recharged to the aquifer. In general, the best times of the year for recharge are in the spring and fall when temperature and plant growth are at a minimum. Known areas of good recharge potential should not be covered over with impervious surfaces, and possible contamination of the water should be guarded against also. Figure 3.1.6 identifies the groundwater recharge areas in McPherson County (McPherson County).

In general, the inorganic quality of the Equus Beds aquifer in McPherson County is good, but some contamination from natural and man-made sources has occurred. Oil field brine and high iron concentrations are contaminations associated with oil field areas. Nitrate contamination due to excessive fertilizer usage or animal feeding operations is evident in some areas.

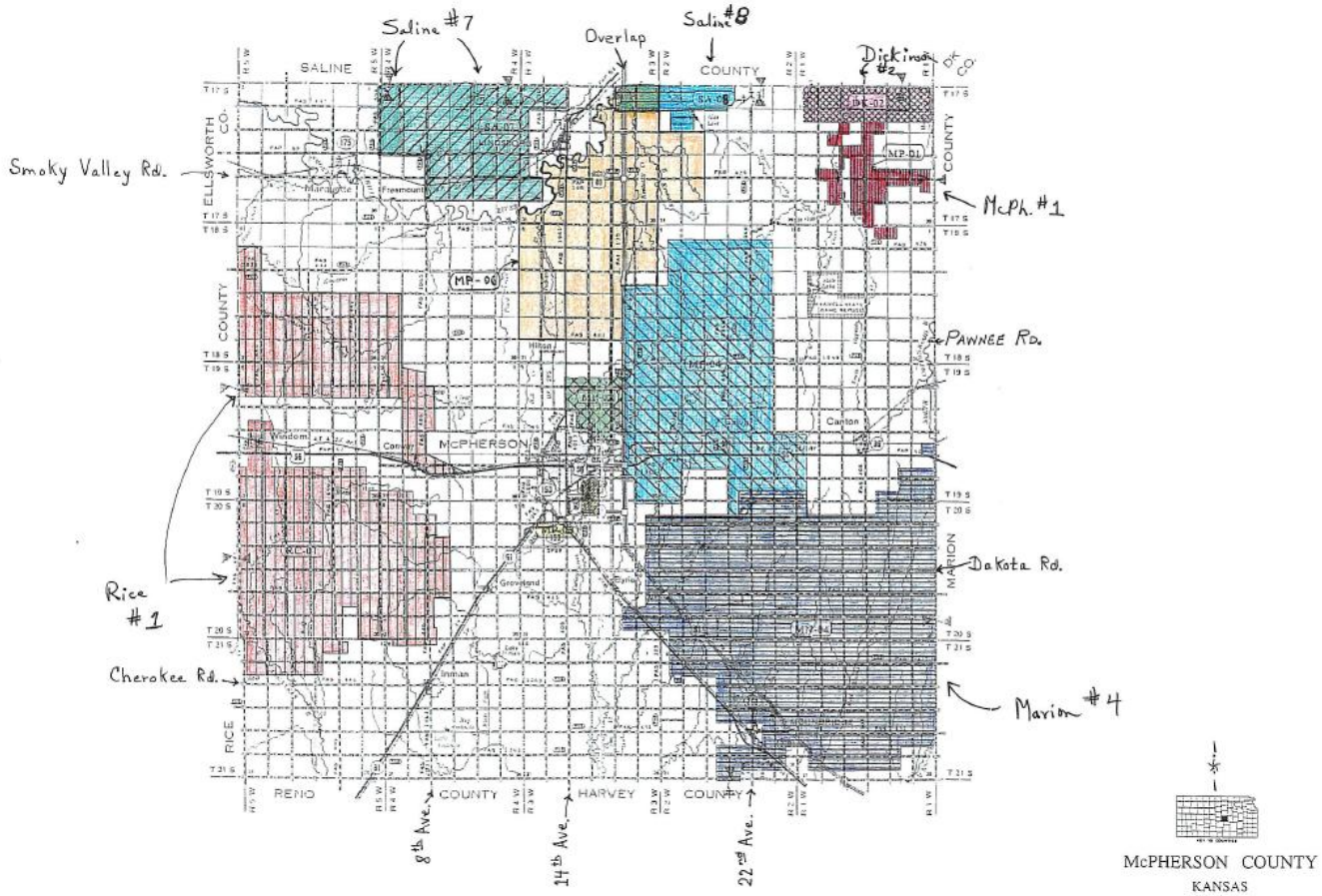
Figure 3.1. 6 – McPherson County Ground Water Recharge Areas



Rural Water Districts

There are eleven separate rural water districts (RWD) that have territory within McPherson County, six which originate in McPherson County, RWD's #1, 2, 3, 4, 5 and 6. The lack of sufficient supplies of quality water in many areas of the county has lead to the formation of these districts over the years. Listed below is information about each of these ten rural water districts that have area in McPherson County. This information was gained from letter solicitation of each of the rural water districts conducted during January of 2002. Figure 3.1.7 identifies the boundaries for the rural water districts.

Figure 3.1. 7 – McPherson County Rural Water District Boundaries



RWD #1 was formed in 1964 and generally serves the northeast corner of the county, including the unincorporated community of Roxbury. The district consists of 8.9 square miles and serves 86 customers, four in Marion County and eighty-two in McPherson County. The number of customers has remained steady over the last ten years. It has one 9' x 52' standpipe with a capacity of 24,000 gallons. No wells are located in McPherson County, but three wells are located in Marion County. The pumping capacity is adequate, but the storage and line distribution is near maximum with daily use. The district is not considering expanding its boundaries. The district is working on a source water assessment in cooperation with the Kansas Rural Water Association (KRWA).

RWD #2 was formed in 1970 and generally serves north and slightly east of the City of McPherson. The eastern boundary of the district is Interstate I-135. The district is approximately five square miles and has 69 connections. The district's contract to receive water from the Board of Public Utilities (BPU) is for 2 million gallons per month. The district uses about half of that amount during the peak months of the year. The district has a small building containing a pump and a backflow preventer located at the half-mile line on the south side of Moccasin Road. The district has the ability to accept applications for additional service connections.

RWD #3 was formed in 1972 and serves a small area southeast of the City of McPherson. It is bounded by East Avenue A on the north, Kansas Highway 61 on the south, the half mile line between Maxwell Road and 16th Avenue on the east and about a quarter of a mile west of South Maxwell Road on the west. It is 1.13 square miles in size. It originated with ten service connections. There are now 15 service connections.

RWD #4 was formed during the mid 1970's and began serving 140 patrons in May of 1977. It consists of approximately 69 square miles of territory. It is located northeast of McPherson and directly southeast of the City of Galva. More specifically, the boundaries are south of Shawnee Road on the north, west of 25th Avenue on the east, north of Frontier Road on the south, and east of Interstate I-135 on the west. There are currently 260 customers. Water is purchased from BPU with the average use being two million gallons per month. The district consists of over 100 miles of water lines, various pumps, and two standpipes.

RWD #5 was formed on October 31, 2000, and serves a small area north of the City of Canton. The district is one-and-a-half miles deep on both sides of 27th Avenue and runs six miles north of Canton. It contains 18 square miles of territory and serves 25 users. The main line runs down 27th Avenue.

RWD #6 was formed in 2001. Its boundaries are the county line on the north, 20th Avenue on the east, Pawnee Road on the south, and 12th Avenue on the west, consisting of approximately 54 square miles. The water supply is furnished from the City of Lindsborg. As of April 2003, 61 miles of pipe have been laid and 150 meters have been installed. A stand-pipe is planned for construction near the intersection of 16th Avenue and Pueblo Road.

There are five other rural water districts that have territory in McPherson County but originate in other counties. They are Dickinson County RWD #2, Marion County RWD #4, Rice County RWD #1, Saline County RWD #7, and Saline County RWD #8.

Dickinson County RWD #2 has about eight square miles of territory located in the far northeast corner of McPherson County.

Marion County RWD#4 has 130 square miles of territory in McPherson County. The district is located over most of the southeast portion of the county. Its western boundary roughly follows old Highway 81 in McPherson County. The district was incorporated in 1977, but did not actually begin pumping water until 1980. There are 184 service connections in McPherson County alone, and this number is growing. One source of water for this district is south of the City of Moundridge, where two wells are located. A booster pump station is located just east of Moundridge.

Rice County RWD #1 has about 100 square miles of area in McPherson County. It serves the west central and southwest portion of McPherson County. It was formed in the early 1990's. Its water is from the City of Lyons and first began serving customers during 1994. There are 205 service connections in McPherson County. They have been adding a few customers per year, but they do not have the capacity to grow much more without major infrastructure improvements.

Saline County RWD #7 has about 30 square miles of territory in the extreme northwest and north central portion of McPherson County. It purchases water from Ellsworth County RWD #2 (Post Rock) and began serving customers during 1990. It has 51 service connections in McPherson County.

Saline County RWD #8 was created in 1981.This district was formerly #5, but was disbanded and reformed as #8. It entered with about three to four square miles of territory in McPherson County's extreme north central region in 1995. Interstate I-135 is roughly its western boundary, and Wells Fargo Road is roughly its southern boundary in the county. It has two service connections in McPherson County. Located in Section 7, Township 17 South, Range 2 West of the 6th P.M. in McPherson County are two water wells and a chlorination and meter house.

Climate

The climate of McPherson County is characterized by large daily and annual variations in temperature. Winter temperatures may be fairly cold due to intrusion of polar air masses brought by the southerly-dipping jet stream. Extreme winter temperatures usually last only from December through February. Warm summer temperatures, on an average year with ten days or more exceeding 100°F, prevail for about six months every year. Frost-free days average 185 per year usually from the third week in April to the third week of October. This long stretch of warm weather provides a long growing season for the crops commonly grown in the county. Mild weather periods during spring and fall are usually of short duration.

In winter the average temperature is 33.1°F, and the average daily minimum temperature is 22.4°F. The lowest temperature on record is -27°F, which occurred at McPherson on February 12, 1899. In summer the average temperature is 78.0°F, and the average daily maximum temperature is 90.3°F. The highest recorded temperature, which occurred at McPherson on several dates, the last being August 12, 1936, is 117°F.

Precipitation in the county is influenced by moisture-laden air from the Gulf of Mexico. McPherson County is at the western limits of this airflow. Periodic shifts in the air current result in a somewhat wide range in the annual amount of precipitation in the county. Heaviest precipitation is usually during the period from April through September. A large part of the annual precipitation falls during late-evening or nighttime thunderstorms. During drier years precipitation may be marginal for dryland farming. Even in wet years, prolonged periods without rain, especially during critical periods for some crops, can result in reduced productivity, except for irrigated land. From 1971 through 2000 the total annual precipitation average was 32.2 inches. Of this total, 21.47 inches, or 70 percent, usually falls in April through September. Average seasonal snowfall from July of 1982 to July of 2002 was 14.9 inches. On an average of 17 days, at least 1 inch of snow is on the ground. A light snow cover can be beneficial for hard winter wheat, a major agricultural crop in the county.

The sun is shining 75 percent of the time during the summer season and 63 percent of the time during winter. Prevailing wind direction is from the south. The highest average wind speed of 13.5 mph occurs during April.

History

Prior to European settlement of Kansas, the area of McPherson County was inhabited by indigenous North American Indians. Tribes that were living permanently in Kansas included the Kanzas (also known as Kaw), Pawnee, Osage, and Wichita. Other tribes, primarily the Comanche, migrated through the western area of the state. The Wichita tribe claimed south-central Kansas in the area of the Arkansas River, and this area included present day McPherson County. The Kanza, Pawnee, Osage, and Wichita tribes lived in villages. They built earth or grass-covered houses. Their gardens included maize (corn), beans, squash, pumpkin, and other crops. The gardens were protected from wandering deer, antelope, elk, and buffalo by erecting stockade type fences around them. These tribes also engaged in hunting, fishing, and gathering in fairly close proximity to their villages (McPherson County).

It is believed that the Spanish explorer, Coronado, may have led his band of men from Santa Fe into present day Kansas and McPherson County in the year of 1541 on his historic search for the seven cities of gold. Coronado Heights, the sandstone formation located northwest of Lindsborg just over the county line in Saline County, is named after this explorer.

It is believed that the first European to settle in McPherson County was Isaac Sharp, who moved with his parents from Pennsylvania in the winter of 1859-60. Mr. Sharp engaged in hunting, trapping, and trade with the Indians of the area. He built a log cabin southwest of what is now Lindsborg. Later he moved to Council Grove, Kansas. Some accounts have Mr. Sharp setting up a hunting camp along Sharps Creek in partnership with a Swede named Knutson (McPherson County).

In the years from 1862 to 1868, the U.S. government completed the survey of Kansas land, dividing it into square mile sections and 36 section townships in preparation for homesteading. By 1865, a few Swedish settlers had trickled into Kansas. During 1867- 1868, the Kansas Pacific Railway brought rail line into Kansas. This brought a quicker pace of settlement.

Two ethnic groups have had a major impact on the settlement of McPherson County - Swedish Lutheran settlers and those of the ethnic Dutch, German, and Swiss Mennonite faith who arrived by way of Armenia and Georgia.

In 1867 and 1868, people mostly from the province of Varmland, Sweden began settling in the Smoky River Valley near present day Salina. These venturesome settlers provided an impetus and inducement for other Swedish families and organized groups to migrate to and settle in McPherson County. In 1867, a party of young Swedes who had worked on building the railroad came to the Smoky Valley area. A year later an organization in Chicago aided additional Swedish settlers in migrating to the area. In 1868, a group of Swedish settlers also arrived in the Smoky River valley area. That same year, the city of Lindsborg was established. Lindsborg quickly became a jumping off point for settlement of the surrounding countryside by Swedish immigrants. Roxbury to the east, Freemount to the southwest, and Johnstown, a group of settlers' cabins six miles to the south of Lindsborg along Indian Creek, were primarily Swedish settlements. In 1870 and 1871, the high prairies south of Lindsborg began to be occupied by Swedish settlers who named it New Gottland. Many Swedes also settled around the city of McPherson (McPherson County).

In about 1873 and continuing through 1884, various groups of Mennonite settlers migrated from the southern regions of Russian-held territory in the Ukraine and settled in central Kansas, primarily in the counties of Harvey, Marion, and McPherson. Most of the Mennonite settlers in McPherson County took up land holdings in the southern area of the county. Mennonite settlers coming from Russia to Kansas were aided in their migration by the Santa Fe Railroad's foreign immigration department.

The Mennonites who migrated from the southern Russia area to central Kansas brought with them the hard winter wheat varieties, especially one variety known as Turkey Red winter wheat. The introduction of hard winter wheat into central Kansas transformed the agricultural practices of the region and made Kansas into the "wheat state."

There were, at one time, many more settlements and trade centers in McPherson County than now. Some previous settlements that no longer exist include Christian (south of Moundridge), Empire (south of Galva), Dole's Park (north of Canton), Freedonia, Freemount, Hilton (Simpson's Station), Johnstown, King City, and Sweadal. The incorporated cities that exist today: Canton, Inman, Galva, Lindsborg, Marquette, McPherson, Moundridge, and Windom. Unincorporated towns existing today are Conway, Elyria, Groveland and Roxbury.

Economics and modern farm methods have brought about larger farm units. In 1900, the average farm size was 202 acres in McPherson County. Today, the average is 430 acres. Due to the consolidation of farms, there are numerous abandoned homesteads in the rural area.

Rural public schools in the county numbered approximately 131 sometime during the 1930's. After school consolidation, all of the public tax-financed schools are now in the incorporated cities. Only private schools remain in the rural areas. Most of the private schools are run by the local Holdeman Mennonite churches, while one is a non-denominational Christian school located in Elyria. Mennonite administered schools include the Sugar Creek school north of Galva, the Sunflower school southeast of Galva, the Wheatland school north of Moundridge, the Meadowlark school southeast of Moundridge, and the Plainview school northwest of Inman.

There are at least nineteen rural churches outside the incorporated cities. Most of these churches are of either Lutheran or Swiss Mennonite denominations.

Governance

The entire state of Kansas is encompassed by county governments. The county governing body is called the board of county commissioners. The McPherson County also has the following departments in addition to the Board of County Commissioners:

- County Appraiser
- County Attorney
- County Clerk
- County Engineer
- County Treasurer
- Register of Deeds
- Sheriff
- Floodplain Manager

- Emergency Management
- County Health Department
- Planning & Zoning
- Safety Coordinator
- Economic Development
- Extension Office
- County Health Department
- County Shop
- District Court
- Public Works

Population and Demographics

McPherson County is mostly a rural county. It appears that the rural population reached its peak in 1920 with 12,123 residents. Following World War II, industrialization and mechanization of farming caused the rural population began to decline. Thirty-one percent of farm operators were working 100 days or more in employment off the farm by 1964 (McPherson County). Farming on a part-time basis became possible with the mechanization of farming.

The main change in McPherson County demographics is not the number of rural residents, but the portion of non-farming residents living in rural area. In 1960 most of the rural population was strictly agricultural and now a large percentage of the rural population are non-farming. The rural county population is larger than any city other than McPherson. Table 3.1.1 identifies the populations from the U.S. Census from 1940 to 2000 for each of the cities, as well as the rural areas of the county.

Table 3.1. 1 – McPherson County Population 1940-2000

Jurisdiction	1940	1950	1960	1970	1980	1990	2000
Canton	828	771	784	893	926	794	829
Galva	454	420	442	522	664	651	701
Inman	534	615	729	839	947	1,035	1,142
Lindsborg	1,893	2,383	2,609	2,764	3,155	3,077	3,321
Marquette	609	666	607	578	642	593	542
McPherson	7,035	8,689	9,996	10,851	11,753	12,422	13,770
Moundridge	870	942	1,214	1,271	1,453	1,531	1,593
Windom	194	193	168	183	153	136	137
Total Cities	**12,417**	**14,679**	**16,549**	**17,898**	**19,693**	**20,239**	**22,035**
Rural County	11,708	8,985	7,736	6,880	7,162	7,029	7,519
Entire County	**24,125**	**23,664**	**24,285**	**24,778**	**26,855**	**27,268**	**29,554**

The population growth rates per decade for McPherson County since 1960 have been 2.0% (1960-1970), 8.4% (1970-1980), 1.5% (1980-1990), and 8.4% (1990-2000). The average growth rate for the entire county is 5.1%.

The majority of the incorporated cities in McPherson experienced population gains from 1990 to 2000 according to the 2000 U.S. Census. The City of McPherson experienced the largest gain with 10.9 percent. The City of Windom had the smallest gain in population with 0.7 percent. The City of Marquette was the only incorporated city that had a decrease in population with -8.6 percent.

Table 3.1.2 is select demographic statistics from the U.S Census Bureau. Seventeen percent of the population in McPherson County is over the age of 65, which is about four percent higher than the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and shelter needs.

Table 3.1. 2 – McPherson County Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2

Economy

Mineral resources in the county have played an important part in its history, economy, and land use patterns. Some important minerals include petroleum, natural gas, clays, shale, some stone, pumice, sand, and gravel.

Commercial drilling and extraction of oil and natural gas deposits began in the 1920's. Oil and gas are produced from a number of geologic formations and fields in McPherson County. Drilling and extraction has been reasonably easy because oil and gas resources are shallow below the land surface. Oil production declined from 575,847 barrels of oil from 632 active wells in 1995 to 209,196 barrels from 402 active wells in 1999 (McPherson County).

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. Farm employment was 1,626 in 1989 with non-farm employment 15,477. The farm employment decreased to 1,423 in 1999 and non-farm employment increased to 18,482. Table 3.1.3 are the statistics from the 2000 census for the employed civilian population 16 years and over for McPherson County.

Table 3.1. 3 – McPherson Economic Statistics

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Educational services, and health care and social assistance	3,988	25.20%
Manufacturing	3,469	21.90%
Retail trade	1,226	7.70%
Construction	1,054	6.70%
Finance and insurance, and real estate and rental and leasing	970	6.10%
Professional, scientific, and management, and administrative and waste management services	909	5.70%
Arts, entertainment, and recreation, and accommodation, and food services	908	5.70%
Agriculture, forestry, fishing and hunting, and mining	884	5.60%
Transportation and warehousing, and utilities	835	5.30%
Other services, except public administration	721	4.60%
Wholesale trade	426	2.70%
Public administration	291	1.80%
Information	158	1.00%

Table 3.1.4 is the select economic characteristics for McPherson County from the 2000 census. McPherson County has a lower unemployment rate than the State of Kansas average and has about the fewer families and individuals living below poverty level.

Table 3.1. 4 – McPherson County Select Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

McPherson County and all of the cities within the county boundaries acquired new flood maps on January 16, 2009 from FEMA, at which time the floodplain management regulations were updated. McPherson County resolution 09-01 was approved on January 13, 2009. The County regulations include additional language above the minimum National Flood Insurance Program requirements. The regulations include language for agriculture, accessory, and critical structures in the floodplain. They have the 1' of freeboard required by statute. There is also cumulative improvement language.

National Flood Insurance Program (NFIP)

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). McPherson County is a participant in the National Flood Insurance Program. Table 3.1.5 is from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for McPherson County.

Table 3.1. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200214#	McPherson County	McPherson	6/28/1977	4/4/1983	1/16/2009	4/4/1983	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to McPherson County. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to

implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.1.6 identifies the existing planning ordinances, codes, and plans for McPherson County.

Table 3.1. 6 – McPherson County Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans	Comments
Zoning Regulations	ENTIRE COUNTY ZONED JUNE 21, 1978
Subdivision Regulations	MCPHERSON COUNTY HAS SUBDIVISION REGULATIONS
Growth management ordinance	COMPREHENSIVE PLAN
Floodplain Management	RESOLUTION 09-01 APPROVED 1/13/2009
Fire Prevention Code	BURN BAN POLICY
Disaster and Recovery Plan	COUNTY EMERGENCY OPERATION PLAN, UPDATED JUNE 2010
Fire department ISO rating	EACH OF THE 10 FIRE DISTRICTS IN MCPHERSON COUNTY HAS THEIR OWN ISO RATING
Economic development plan	MCPHERSON COUNTY STRATEGIC PLAN UPDATED 2005
Local emergency operations plan	UPDATED 2010
Comprehensive Land Use Plan	YES
Mutual Aid Agreements	MUTUAL AID AGREEMENTS BETWEEN FIRE DISTRICTS IS AUTOMATIC

Administrative/Technical Resources

This section will identify the administrative and technical resources available to McPherson County. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.1.7 identifies personnel resources and warning capabilities for McPherson County.

Table 3.1. 7 – McPherson County Administrative/Technical Resources

Personnel Resources	Department/Position
Personnel skilled in GIS	THROUGH COUNTY APPRAISER
Floodplain Manager	PLANNING & ZONING ADMINISTRATOR
Emergency Manager	YES
Grant writer	PART-TIME THROUGH EMERGENCY MANAGEMENT
GIS Data – Hazard areas	THROUGH COUNTY APPRAISER
GIS Data - Critical facilities	THROUGH COUNTY APPRAISER
GIS Data – Building footprints	THROUGH COUNTY APPRAISER
GIS Data – Land use	THROUGH COUNTY APPRAISER
GIS Data – Links to Assessor's data	THROUGH COUNTY APPRAISER
Warning Systems/Services	SIRENS ARE OWNED AND MAINTAINED BY CITIES
Outdoor weather warning signals	SIRENS ARE OWNED AND MAINTAINED BY CITIES

Financial Resources

Generally, McPherson County handles the financing of public improvements on an ad hoc basis by budgeting for improvements in years prior to their construction. This applies to county buildings, facilities, and major equipment purchases. The county's administration, working in conjunction with individual departments, drafts individual budgets for every fiscal year and then works to finalize the budgets of the individual departments weighing various funding mechanisms for desired projects or improvements. Once this process has been worked out, then the proposed final budget is presented to the board of county commissioners for discussion, review, debate, and final adoption.

The greatest proportion of revenue that comes to the county perennially is from collected taxes, mainly property taxes on existing and newly built structures in McPherson County. In 2001, revenue from all taxes was $9,987,589. The second largest category was from intergovernmental sources at $4.4 million. The entire list of yearly revenues and expenditures can be seen in the McPherson County, Kansas, Comprehensive Annual Financial Report, which is produced after the close of each calendar year. This is available at the county's Administration Department located in the courthouse.

The construction of new facilities is financed with the issuance of general obligations bonds. The most significant capital facility expense that the county has is the solid waste authority utility. As indicated early in the plan, a transfer station was built recently to temporarily store the solid waste before it is transferred to Reno County. The only remaining outstanding bonds the county has are for this McPherson Area Solid Waste Authority transfer station. General obligations bonds were issued in 1999 for 20 years; however, the debt service payments are made from revenues generated from user fees and special assessments on all residential and commercial property.

In past fiscal years, the county has also budgeted periodically to fund various capital improvements or major equipment purchases. For the year 2001, no monies are budgeted for either of these two areas. The final debt service payment for the law enforcement center is August 1, 2004. Table 3.1.8 is the financial resources that are available to McPherson County.

Table 3.1. 8 – McPherson County Financial Resources

Financial Resources	Comments
Capital improvements project funding	AVAILABLE FOR COUNTY OWNED FACILITIES OR ANOTHER GOVERNMENT ENTITY SHARED COSTS.
Authority to levy taxes for specific purposes	AS ALLOWED BY STATE STATUTES
Impact fees for new development	BOARD WOULD NEED TO APPROVE WITH REQUIRED POLICIES
Incur debt through general obligation bonds	COUNTY HAS ABILITY TO INCUR DEBT THROUGH GENERAL OBLIGATION BONDS
Withhold spending in hazard prone areas	HAS NOT BEEN CONSIDERED

Vulnerabilities:

Hazards Affecting McPherson County

History of Flooding

Please see Chapter 2 – Risk Assessment for the historic flooding events in McPherson County.

Repetitive Flood Loss Properties

FEMA defines severe repetitive loss properties as “a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart.There is one repetitive loss property in McPherson County. The following table provides the building type and total loss amounts for the properties.

Table 3.1. 9 – Severe Repetitive Loss Properties

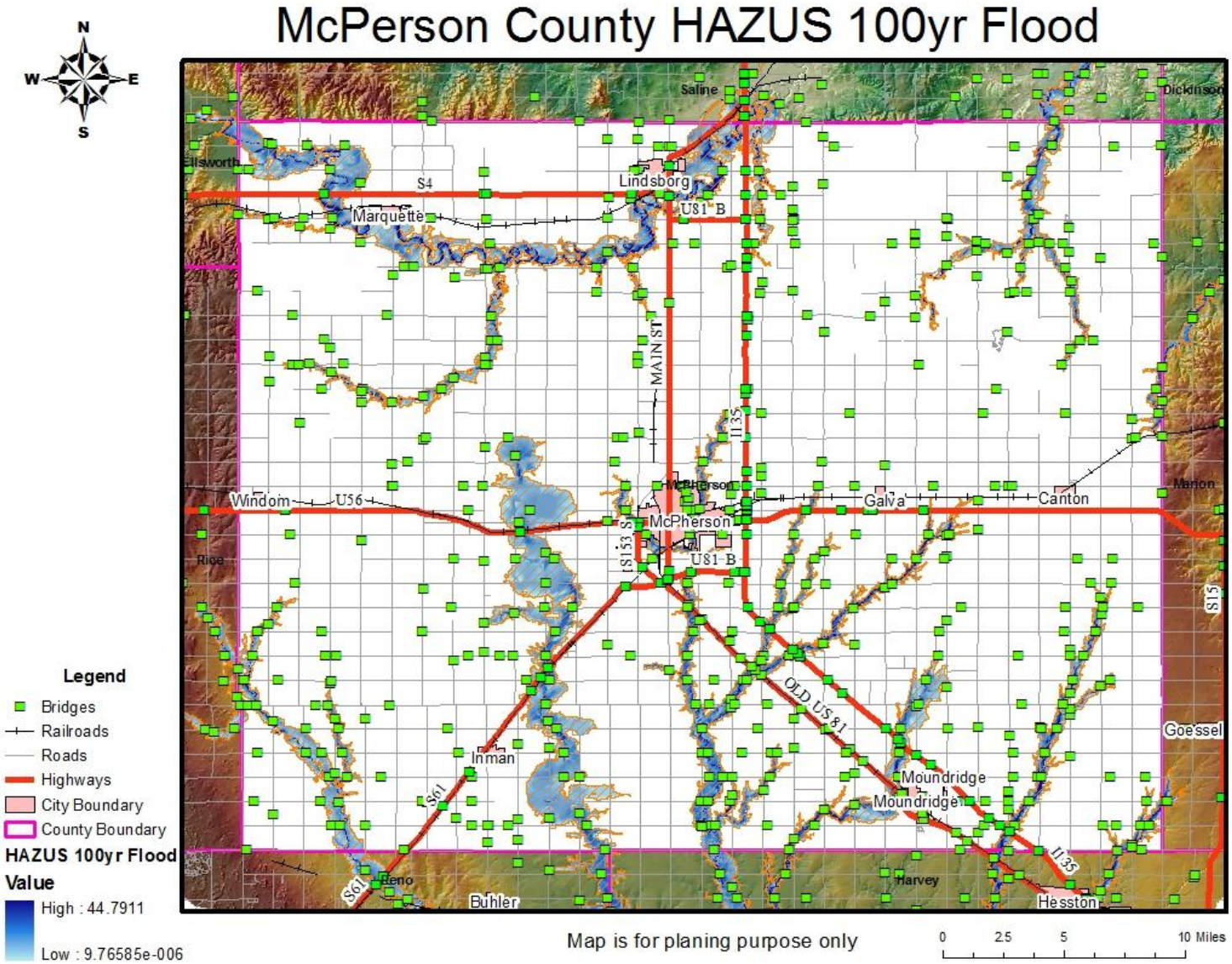
Building Type	Insured	Mitigated	Total Loss Amount	Building Loss Amount	Contents Loss Amount	Number Of Losses	FIRM	Building Value
Single Family	No	No	$22,982.80	$22,982.80	$0.00	2	No	N/A

HAZUS Report

A “flood” HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA’s software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.1.8 is a map that identifies the 100-year floodplain for McPherson County.

According to the HAZUS loss estimation model for McPherson County unincorporated areas and townships, there are approximately 15 households could receive minor damage, 31 households could receive minor to moderate damage, 20 houses could receive moderate to severe damage and 11 could receive severe damage as the result of a 100-year flood event. There are also approximately 30 agricultural structures and one commercial facility that could receive minor flooding.

Figure 3.1. 8 – McPherson County 100-year Floodplain



McPherson County Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability ranking for the McPherson County and the HMPC. The first column is the priority order the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to McPherson County. The third column is the HMPC planning significance ranking (high, moderate, or low). The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the McPherson County townships and unincorporated areas for their specific community.

Table 3.1. 10 – McPherson County Hazards Vulnerability Assessment

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	McPherson County Planning Significance (unincorporated areas & townships)
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	High
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate
10	Hazardous Materials	Moderate	Moderate
11	Lightning	Moderate	Moderate
12	Expansive Soils	Moderate	Moderate
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Moderate
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Moderate
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Moderate
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

Highways/Roads

McPherson County is served by several state highways, including Interstate 135, which runs north and south through McPherson County. The highway provides access to Salina, Kansas and Interstate 70 to the north and Wichita and Interstate 35 to the south. I-135 is located two and a half miles east of Lindsborg and to the eastern edge of McPherson.

U.S. Highway 56 runs east and west through McPherson County. Highway 56 connects the cities of Canton, Galva, McPherson, and Windom. It also provides access to Lyons, Ellinwood, and Great Bend to the west of McPherson

County and Hillsboro, Marion, Strong City, and I-135 to the east. Highway 56 is a major route for transportation of cattle from the Flint Hills region of Kansas to the cattle feed lots in western Kansas.

Kansas State Highway 4 is located in the northwestern portion of the county and provides access between Lindsborg and smaller towns to the west.

Kansas State Highway 61 is a major link between McPherson and Hutchinson, Kansas to the southwest. Plans are currently under development to reconstruct Highway 61 to a four lane divided highway. This highway is the most traveled highway in McPherson County after I-135. In May 2000 the highway had a traffic county of 4,695 vehicles per day just south of Inman.

McPherson County maintains 280 miles of asphalt county roadways, 24 miles of concrete surfaced roadways, and 62 miles of gravel surfaced roadways.

There are two locations in McPherson County where the function of arterial roads has been degraded due to numerous access conflicts. They are the one-half mile of Highway 56 between old highway 81 Bypass and 13th Avenue and along the east side of 14th Avenue in the north half mile between Comanche Road and Dakota Road (800 block). Figure 3.1.8 is the McPherson County Road Map.

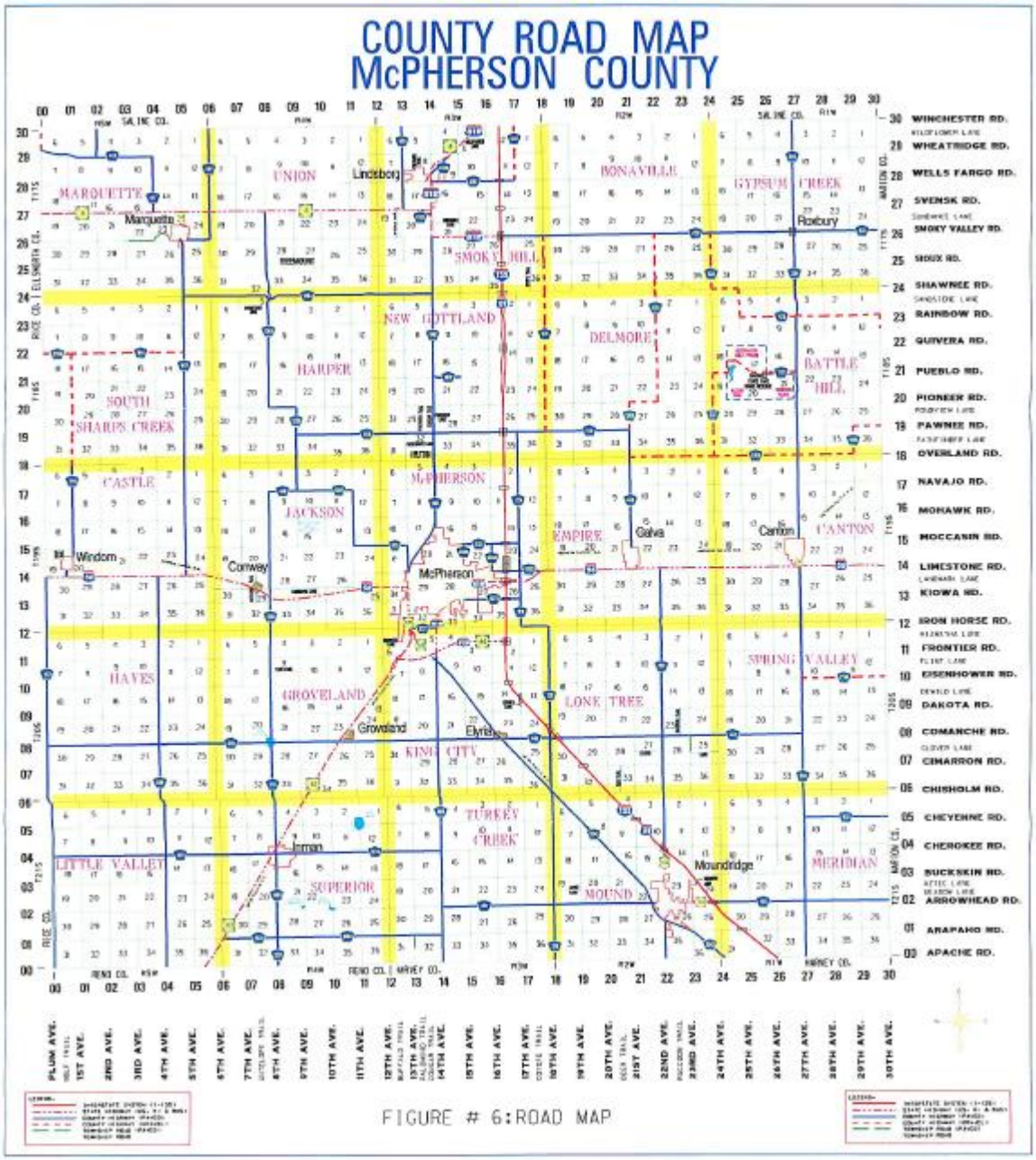
The public works department, an entity of McPherson County, has the responsibility of maintaining the county's extensive road and bridge system. It has the largest individual segment at about 34.7% of the entire county budget. This department budgets in a similar fashion to how the county does as described above, but with more emphasis given to future anticipated needs to repair, alter, or replace existing road and bridge structures.

The public works department determines the need to repair or replace roads and bridges based upon the condition of a structure and its relationship to public safety, use of the road segment or bridge structure based upon traffic counts and the amount of funding, if any, available at various times from state and federal transportation sources.

Each year, the public works department conducts inspections and traffic studies to determine the need to either repair, replace, or enhance a transportation structure or component of the county highway system. It typically plans approximately 1) five years into the future for road overlays, reconstructions and chip sealing, 2) one to two years into the future for bridge replacements, and 3) from one to four years into the future for building improvements for major equipment replacements or upgrades.

The county is undertaking the widening of the right-of-way widths of selected county roads to construct the driving lanes, shoulders and ditches with proper side slopes, as required.

Figure 3.1. 9 – McPherson County Road Map



Bridges

McPherson County maintains 450 bridges having a span of 20 feet or more and 716 bridges with spans of less than 20 feet. McPherson County has one of the largest inventories of road and bridges among all of Kansas' non-metropolitan rural counties (McPherson County).

Railroads

The Union Pacific Railroad has several main lines passing through McPherson County. The Kansas and Oklahoma Railway serves the local market providing rail linkage for the Union Pacific main line, the Burlington Northern Santa Fe Railroad and for industries located in McPherson and at the petroleum and liquid petroleum gas facilities located at Conway, west of McPherson.

Airport

The early history of and airport or flying field for McPherson dates back to the close of the World War I. Various pastures and fields in the immediate vicinity were rented and used for landing strips. A small group of McPherson business men who were interested in flying were able to talk the City Commission into spending some city funds to rent a pasture for an airport. When the oil and gas boom came in the late 1920's, pressures were exerted to have a flying field so that airplanes belonging to the larger oil companies would have a place to land.

In 1940, the aviation enthusiasts persuaded the City Commission to propose a $25,000 General Obligation Bond issue to purchase land and develop an airport (1.5% interest-10 year-dated 1-15-1941) at the General Election on November 5, 1940. Land four miles north and one half mile east of McPherson was purchased and frame hangars erected and an Airport Manager hired. The Airport went into operation on January 1, 1942. The City continued to operate the airport until after World War II.

In the meantime, Mr. Wm. H. Janssen built and developed his own airport. It was named Janssen Skytel. This airport was located on the northeast part of what is presently the McPherson Airport. It was apparently decided that the airport north of the city was too far from town, so the City Commission negotiated a deal with Janssen to purchase the Janssen Skytel (53.45 acres) for $62,000. A new bond issued 11-2-1948 was approved by the McPherson voters, the proceeds along with the proceeds of the land and buildings of the old airport north of McPherson was used to buy out Janssen. The amount of the bond issue was $25,000 (1.75% interest- 10 years) with the bonus dated November 1, 1951, and they were approved on November 2, 1948. The old airfield and hangars sold for $32,000 in 1949. A small Federal Grant was also secured.

The City continued to operate the airport by leasing it out to a manager who paid a small rent and in turn received the income from the operation of the airport and the gasoline service station. In 1964 the McPherson Chamber of Commerce began to promote Commissioners whereby in exchange for about $200,000 in tax funds to be levied over a three or four year period, the County was to be deeded an undivided one-half interest in the airport land and buildings. A maintenance and operation fund was set up on the City books, in which the County and the City contribute 50-50 to operate the airport, and the funds for the Improvement and Development fund Tax Levy of the County was used to secure Federal Matching Funds for further acquisition of land and for improvement of the runways, etc. The Federal Grants comprising a total of almost $170,000 were incorporated into three projects in 1965, 1967 and 1970; Phase #1 $56.500, Phase #2 $47,000 and Phase #3 59,600 for a total of $163,100.

In 1964, a Joint Advisory Board was appointed by the County and the City Commissioners, to assist in the operation and development of the airport. The County and City Engineers were also given instrumental parts in the operation and the planning and development of the airport.

Over the years the City and the County have been able to secure additional hangars for rental to plane owners, and also to promote additional improvements. In 1964 the City entered into a Lease-Rental Agreement with Alon, Inc. to purchase acreage on the east edge of the airport for a new airplane factory to be built with the proceeds of two Industrial Development Revenue Bond Issues totaling $135,000, payable over a period of 15 Years. In 1967 Alon sold out to Mooney Aircraft, Inc. which soon took bankruptcy. The N.C.R.A. Refinery was persuaded to take over the lease and to use the building for office space in 1968. The bonds were paid off on 9/1/1979 and the N.C.R.A. secured the title to the land and building.

The McPherson Airport is currently operated by the McPherson Airport Authority, a five member board which oversees the operation and development of the McPherson airport. They are responsible for reviewing, updating, and adopting an airport plan. The goal of the airport authority is to maintain viable airport service to the community. McPherson Airport is in the process of modernizing the other facilities that are currently present on the airfield to support all types of aircraft, including building additional hangers in the near future. The airport also has electrical hook-ups for overnight Recreational Vehicle parking.

The McPherson City/County airport is currently located on the west side of McPherson and has been recently expanded. It is located west of Kansas Highway 153 (Highway 81 Bypass) and south of Avenue A/Kiowa Road. It is a full-service airport for all business and privately owned aircraft. The airport has a 5,500 feet concrete runway able to accommodate 40,000-pound aircraft. For the more adventurous flyer, there is a well maintained 2500 foot long, 75 foot wide grass runway that is oriented east and west that allows properly equipped aircraft to return to aviation's yesteryear when the winds are favorable.

There is also a 15,000 square foot concrete apron, which will accommodate 21 aircraft tie-downs, three of which are for turbine jet aircraft. There are four hangers at the airport with a total storage area of 42,240 square feet. The airport houses a Fixed Base Operator, Mac Air Corporation, which provides air-freight service and air-charter service to the community. Avis Rent-a-Car rental service is available at the airport.

The airport has modern Global Positioning Satellite (GPS) based landing approaches that are in the forefront of air navigation technology as well as a Non-Directional Beacon radio array for the less modern equipped aircraft. The 1000 foot long, 800 foot wide concrete apron (ramp) has ample tie-down spots and plenty of room to taxi and park safely, without feeling crowded or confined. Self-Service Aviation Gasoline (100 LL) allows you to come and go as you please. A simple phone call at the field and alcohol-free 87 octane Unleaded Gasoline (auto-gas) or Type A Jet Fuel (Jet-A) are also available with no call-out fee. There is a courtesy car available for short trips or we can make arrangements for a rental car.

Endangered Species

The Endangered Species Act (ESA) established a Federal program to conserve, protect, and restore threatened or endangered plants and animals, as well as their habitats. ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened or endangered species.

Jurisdictions using funding from the Federal government cannot authorize any actions that jeopardize the existence of an endangered or threatened species, or result in the destruction of habitats for these species. Table 3.1.5 is a list of the endangered or threatened species for McPherson County.

Table 3.1. 11 – McPherson County Endangered Species

Common Name	Scientific Name	Status	Critical Habitat
Bald Eagle	Haliaeetus leucocephalus	State: Threatened Federal: Threatened	Yes
Eastern Spotted Skunk	Spilogale putorius	State: Threatened Federal: Not Applicable	No
Eskimo Curlew	Numenius Borealis	State: Endangered Federal: Endangered	No
Least Tern	Sterna antillarum	State: Endangered Federal: Endangered	No
Piping Plover	Charadrius melodus	State: Threatened Federal: Threatened	No
Snowy Plover	Charadrius alexandrinus	State: Endangered Federal: Endangered	No
Whooping Crane	Grus americana	State: Endangered Federal: Endangered	No

Species In Need of Conservation (SINC)	
Common Name	**Scientific Name**
Black Tern	Childonias niger
Ferruginous Hawk	Buteo regalis
Golden Eagle	Auila chrysaetos
Short-eared Owl	Asio Flammeus
Western Hognose Snake	Heterdon nasicus
Whip-poor-will	Camprimulgus vociferus

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. The National & State Register of Historic Places has one place listed as historical for McPherson County.

- North Gypsum Creek Truss Leg Bedstead Bridge
  Also Known As: 59-LT022
  National Register Number: 03000367
  Address: Sioux Rd, 0.2 miles of intersection with 24th Avenue, 1.0 mile south and 2.8 miles west of Roxbury
  Listed in National Register: 2003
  Owner: Local Government
  Area of Significance: Architecture/Engineering
  Period of Significance: 1900-1924
  Historic Function: Transportation, Road-Related
  Current Function: Transportation, Road-Related

Critical Facilities

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical facilities located in the County and participating jurisdictions.

The purpose of the critical facilities inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. . The facilities also include education facilities to ensure continuity of education. Table 3.1.13 identifies the critical facilities in McPherson County.

Table 3.1. 12 – McPherson County Critical Facilities

Name of Asset	Facility Type	Address	Replacement Value	Occupancy/ Capacity #
MCPHERSON COUNTY COURTHOUSE	GOVERNMENT	115 N. MAPLE, MCPHERSON	6 + Million	45
LAW ENFORCEMENT CENTER	GOVERNMENT	1177 W. WOODSIDE, MCPHERSON	6 Million	100
HEALTH DEPARTMENT	HEALTHCARE	1001 N. MAIN, MCPHERSON	500,000	12
EXTENSION OFFICE	OFFICE & ADMINISTRATION	600 W. WOODSIDE, MCPHERSON	400,000	8
PUBLIC WORKS	GOVERNMENT	1115 W. AVE. A, MCPHERSON	10 Million	45
WEED DEPARTMENT	GOVERNMENT	718 N. HICKORY, MCPHERSON	350,000	3
4-H BLDG./GROUNDS/RODEO ARENA	BLDG./GROUNDS/RODEO ARENA	710 W. WOODSIDE, MCPHERSON	500,000	0
MCPHERSON COUNTY OLD MILL	HISTORIC	130 MILL, LINDSBORG	500,000	4
COUNTY OFFICE BUILDING (BANK)	GOVERNMENT	120 W. MARLIN, MCPHERSON	4 Million	30

Local Businesses

Local businesses are vital to the economic growth in the community. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for McPherson County are identified in each municipality profile.

Community Concerns

A major concern for the unincorporated area of Conway is that the Conway Fire Station is located very near NCRA's underground product storage caverns and brine ponds. There is only one evacuation route if there were an incident. It is a concern that the fire fighters would be trapped inside the facility. The fire department has determined that there needs to be more hazardous materials training for the fire fighters in Conway.

McPherson County is also concerned about the safety and well-being of the elderly population. The McPherson county Council on Aging, Inc. (MCCOA) is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. The primary goal and mission is to lend support to seniors through a diversified service structure which is intended to strengthen their capability to remain in their own homes and respective communities for as long as possible while maintaining their dignity and self determination.

MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom. These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

MCCOA and our affiliated Senior Centers are funded primarily by County Mill Levy dollars awarded to us annually by the County Commissioners. MCCOA also secures grants and other funding on behalf of the network from the Senior Care Act, Older American's Act, Kansas Department of Transportation, United Way, and others. Each Senior Center and MCCOA itself also generates some income from fund raisers and charitable donations. Table 3.1.12 is the hazard vulnerability information for each of the senior centers.

Table 3.1. 13 – MCCOA Hazard Vulnerability Assessment for McPherson County Senior Centers

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
CANTON SENIOR CENTER 112 S. MAIN	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	FIRE STATION	NO
GALVA SENIOR CENTER 218 S. MAIN	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON AND DURING COMMUNITY FESTIVAL DAYS	NONE	NONE	NONE	YES	NO
INMAN SENIOR CENTER 103 E. GORDON	NONE	NONE	NONE	NONE	NONE	HIGH SCHOOL	NO
LINDSBORG SENIOR CENTER 116 S. MAIN	NONE	NONE	NONE	NONE	NONE	YES	NO
MARQUETTE SENIOR CENTER 102 N. WASHINGTON	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	UNKNOWN	NO
MCPHERSON SENIOR CENTER 112 E EUCLID	NONE	HEAT - OFTEN - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	YES	NO
MOUNDRIDGE SENIOR CENTER 100 N. SCHMIDT	NONE	HEAT - SOMETIMES - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	SHORT TERM SHELTER WHEN ICE SHUT DOWN SOME ELECTRICITY 2007 & 2009	YES	NO
WINDOM SENIOR CENTER 601 MAIN	YES, MILD, ON-GOING	NONE	NONE	NONE	NONE	YES	NO

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

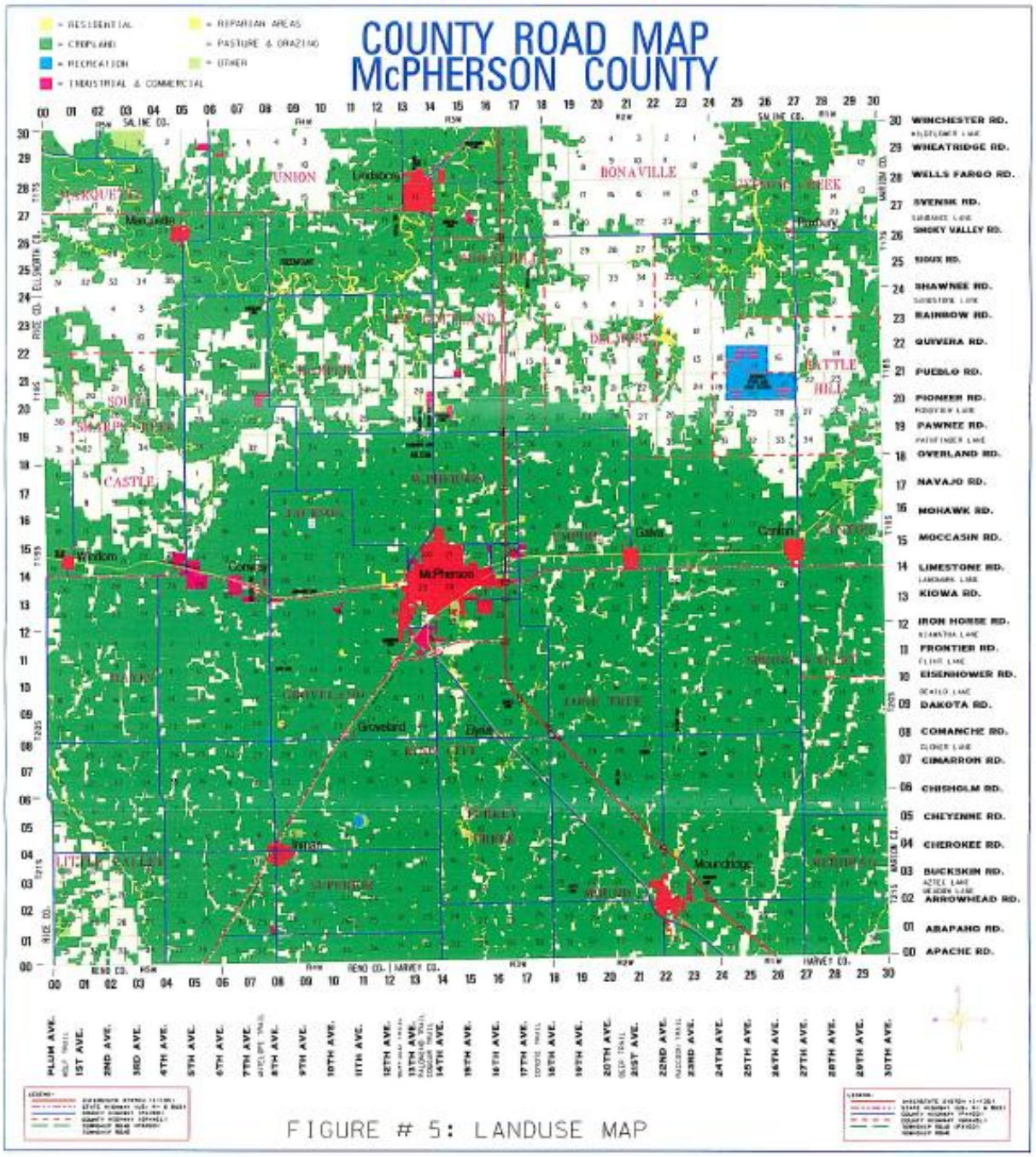
Agricultural uses include the use of land for pasture and grazing, crop land, and forest. The largest percentage of the total county land area is used for agricultural purposes. In 1999, the principal land use in rural areas of McPherson County was cultivated crop land, comprised of approximately 381,210 acres. The second principal land use was native and planted, grazing and pasture land, approximately 150,000 acres. Transportation land, meaning highways, road, and railroad rights-of-way, was the third largest land use in McPherson County (McPherson County).

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits.

Farmers either own or rent the majority of private land within McPherson County. However they make up the minority population and occupations in the county. Conversion of the land from farming to other land uses can often have an adverse impact on the farming community and economy.

Oil and natural gas extraction can have a negative impact on residential and possibly agricultural land uses. Oil and gas production frequently involves on-site storage. On-site storage is generally made up of tank batteries. The tank batteries have caught fire in the past and possibly pose as a fire hazard to nearby residences, farm structures, and farm crops. Some oil well locations may contaminate the groundwater by acting as a way for salt and oil residue to migrate to the groundwater. Figure 3.1.10 is a land use map for McPherson County. The areas in green represent cropland, red represents industrial and commercial use, yellow is residential use, and white is used for pasture and grazing.

Figure 3.1. 10 – McPherson County Land Use Map



New Development

Plans are currently under development to reconstruct Highway 61 to a four lane divided highway. This highway is the most traveled highway in McPherson County after I-135. In May 2000 the highway had a traffic county of 4,695 vehicles per day just south of Inman.

In recent years, there has been discussion of developing a by-pass route around the City of McPherson for U.S. Highway 56. There is heavy truck traffic traveling along U.S. Highway 56 (Kansas Avenue within the City of McPherson). A large portion of this truck traffic consists of cattle trucks transporting feeder cattle from the pasture land of the Flint Hills region of east-central Kansas to the large-operation cattle feedlots in western Kansas

counties. There is also hazardous materials truck traffic traveling along U.S. Highway 56. The City of McPherson has favored the building of a bypass route to the north of the city. This proposed highway 56 bypass would intersect existing highway 56 at areas both east and west of the city, would intersect with a proposed new interstate interchange with Interstate I-135 at the current location of Mohawk Road, and would expand on the right-of-way of Mohawk Road to initially accommodate a "super two" traffic lane configuration with the potential for future upgrading to a divided four-lane system at some time in the future.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions McPherson County plans to adopt.

2010 Mitigation Actions	
Lead Agency: MCPHERSON COUNTY FLOODPLAIN MANAGER	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING: • REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW; • ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS; • NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA); • ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES; • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED; • WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MCPHERSON COUNTY EMERGENCY MANGEMENT	**Project Title:** HANDHELD RADIO(S) PURCHASE
Project Description: EMERGENCY COMMUNICATION IN POTENTIAL DISASTER SITUATIONS. AVAILABILITY OF TEN (10) HANDHELD RADIOS COMPARABLE TO AND PROGRAMMED WITH THE EXISTING COUNTY COMMUNICATION SYSTEM TO MONITOR EMERGENCY TRAFFIC IN WARNINGS, ALERTS AND DISASTERS. THE DISTRICT HAS EIGHT (8) BUILDING SITES IN TWO (2) COMMUNITIES	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET	
Estimated Cost: APPROXIMATELY $30,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): SAFETY OF COUNTY EMPLOYEES & PUBLIC IN POTENTIALLY HAZARDOUS OR DISASTER EVENT(S)	**Completion Date:** UPON RECEIVING EQUIPMENT
Plan for Implementation and Administration: TRAINING FOR COUNTY PERSONNEL IN EMERGENCY COMMUNICATIONS AND EQUIP USE. PLACEMENT OF A HANDHELD AND CHARGER IN EACH FACILITY (8) AND THE LAST TWO RADIOS IN CONTROL OF THE COUNTY EMERGENCY MANAGER AND/OR COUNTY ADMINISTRATOR.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MCPHERSON COUNTY EMERGENCY MANAGEMENT	**Project Title:** MITIGATE POTENTIAL TERRORIST ATTACKS OR ACTS OF VIOLENCE
Project Description: THE PROJECT WOULD INCLUDE A G6 GPS TRACKER. IT WOULD BE UTILIZED TO TRACK DRUG DEALER, BURGLARY SUSPECTS, VIOLENT OFFENDERS AND SUSPECTED TERRORISTS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET	
Estimated Cost: $2,500	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TERRORISM/AGRI-TERRORISM/CIVIL DISTURBANCE
Benefits (Losses Avoided): SAFETY OF COUNTY LAW ENFORCEMENT, FIRST RESPONDERS, LIVES AND PROPERTY IN POTENTIAL TERROR, HAZARDOUS OR DISASTER EVENT(S)	**Completion Date:** UPON RECEIVING EQUIPMENT
Plan for Implementation and Administration: TRAINING FOR COUNTY SHERIFF AND FIRST RESPONDER PERSONNEL IN EQUIPMENT USE. PLACEMENT AND MAINTENANCE OF EQUIPMENT TO A DESIGNEE(S) OF THE SHERIFF'S DEPARTMENT. WILL BE AVAILABLE TO ALL AREA LAW ENFORCEMENT AND FIRST RESPONSE AGENCIES AS DETERMINED APPROPRIATE.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MCPHERSON COUNTY EMERGENCY MANGEMENT	**Project Title:** SPECIAL WEAPONS AND TACTICAL
Project Description: AVAILABILITY OF A (1) TCU-02 SYSTEM TACTICAL COMMUNICATIONS UNIT (THROW PHONE) FOR USE AS EMERGENCY COMMUNICATION IN A HOSTAGE / TERRORIST EVENT AND (2) A BALLISTIC BLANKET LEVEL 111A 2020 TO BE USED IN CASUALTY RECOVERY IN A HOSTAGE OR TERRORIST EVENT.	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET	
Estimated Cost: (1) APPROXIMATELY $3,325, (2) APPROXIMATELY $2,995 FOR A TOTAL OF $6,320	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): SAFETY OF LAW ENFORCEMENT, FIRST RESPONDERS & PUBLIC IN POTENTIAL HAZARDOUS OR DISASTER EVENT(S).	**Completion Date:** UPON RECEIVING EQUIPMENT
Plan for Implementation and Administration: TRAINING FOR LAW ENFORCEMENT PERSONNEL IN EMERGENCY COMMUNICATIONS AND EQUIP USE. PLACEMENT OF THE THROW PHONE AND BALLISTIC BLANKET DESIGNATED SHERIFF DEPARTMENT PERSONNEL AND BE AVAILABLE TO ALL AREA LAW ENFORCEMENT AND FIRST RESPONSE PERSONNEL AS DEEMED APPROPRIATE.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MCPHERSON COUNTY SHERIFF	**Project Title:** INCREASE MCPHERSON COUNTY COURTHOUSE SECURITY
Project Description: PROVIDE SECURE SCREENING AND PHYSICAL PROTECTION WITHIN THE COURTHOUSE IN ITS ENTIRETY, INCLUDING ALL DEPARTMENTS AND COURTROOMS.	
Type of Project: EMERGENCY SERVICES/PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: **NA**	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TERRORISM/AGRI-TERRORISM/CIVIL DISORDER
Benefits (Losses Avoided): POTENTIAL FACILITY DAMAGE AND HUMAN INJURY	**Completion Date:** ASAP
Plan for Implementation and Administration: DETERMINE SECURITY NEEDS; PROCEED WITH CONSTRUCTION, COMMIT TO ADEQUATELY ATTAINING SECURITY GOALS.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: OFFICE OF EMERGENCY MANAGEMENT	**Project Title:** LAW ENFORCEMENT CENTER EXPANSION AND UPGRADE
Project Description: EXPAND THE LAW ENFORCEMENT CENTER ADDING ADMIN AND OFFICE SPACE ALONG WITH EXPANDING THE 911 COMMUNICATIONS CENTER AND THE EMERGENCY OPERATIONS CENTER.	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET	
Estimated Cost: $300,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): PROVIDE IMPROVED SAFETY AND PERFORMANCE FOR ALL AGENCIES/ENTITIES UTILIZING THE LEC	**Completion Date:** ASAP
Plan for Implementation and Administration: DETERMINE NEEDS, PROCEED WITH CONSTRUCTION, COMMIT TO ATTAINING GOALS.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Canton	
NFIP Participation	No
Date of FEMA Maps	N/A
CRS Participation	N/A
Number of Repetitive Loss Properties	0

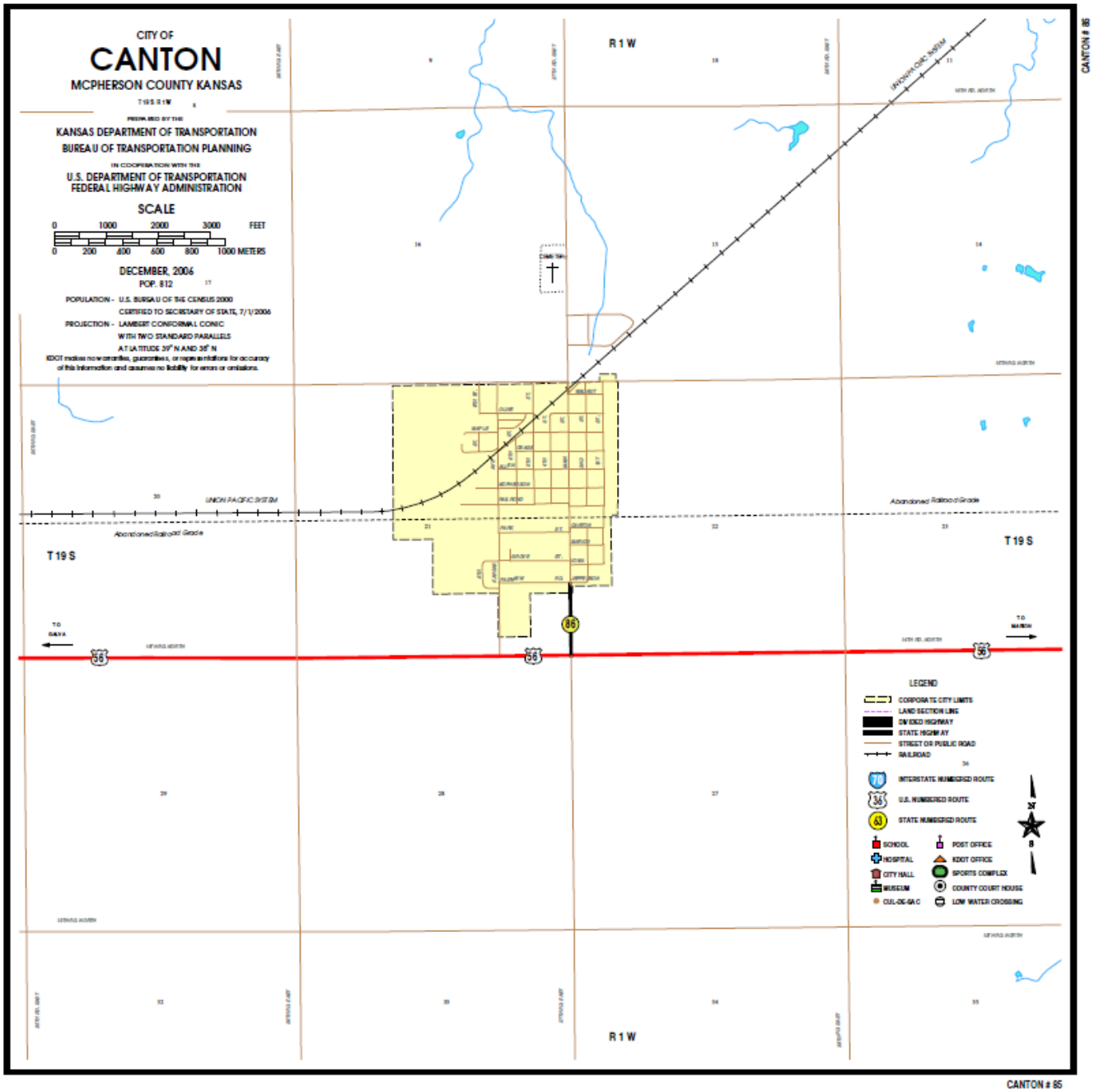
The following image is an aerial view of the City of Canton (City-Data.com).

Figure 3.2. 1 - City of Canton

Location

The City of Canton is situated along U.S. Highway 56 in south central Kansas. It has a total land area of 0.5 square miles and has an elevation of 1,591 feet. The following map is the jurisdictional boundaries for the City of Canton.

Figure 3.2. 2 - City of Canton Jurisdictional Boundary Map



History

Early pioneers heading west staked claim to property that eventually became known as the City of Canton. Squire Holmes, who came to the area from Canton, Ohio, named the township and later the city - Canton - because he loved the name.

After the Santa Fe Railroad was completed and the village had grown to over 300 inhabitants, it was incorporated as city of the third class on July 16, 1880. The first mayor and five council members were elected on August 2, 1880. Their first order of business was to pass the first city ordinance, an ordinance concerning intoxicating liquors.

In the newly organized city, the first individual to engage in business was W.H. George, M.D., who erected a building to be used as a drug store and physician's office, with J.C. Hall to assist in the care of the store. John Murphy established the first grocery in town followed by general merchandise stores, clothing stores, blacksmith shops, and other necessary suppliers. The first hotel was the old Perine house located on the present site of the Christian Church. In 1880 the first newspaper was founded in Canton by Amos Baurn and was called the Canton Monitor. Women began taking an active part in government in 1890 when Mrs. Belle Gray was elected mayor of the city (City of Canton).

Governance

The City of Canton is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

The City of Canton has the most prevalent form of city government in Kansas, the mayor-council form of government. It is used by virtually all cities of the third class. The city council is made up of five council members. The City of Canton also has the following departments:

- City Clerk
- City Attorney
- Inspections
- Municipal Judge
- Police Department
- Sanitation Department
- Streets Department
- Treasurer
- Sewer
- Water

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. Today, with a population estimated at 786, the City of Canton is ranked 486th among Kansas' incorporated cities. Table 3.2.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Canton has steadily decreased since 2000. There has been about a five percent decrease in the population.

Table 3.2. 1 – Canton Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Canton	786	784	793	793	805	811	812	815	824	829

Table 3.2.2 is the U.S. Census Bureau demographic statistics from the 2000 Census. Twenty percent of the population in Canton is over the age of 65, which is nearly seven percent higher than the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.2. 2 – Canton Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Canton	6.3	20.0	38.6	2.48	77.8	8.5

Economic Characteristics

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Canton is manufacturing. There are 113 people employed in the manufacturing industry, which is nearly 29 percent of the population. Table 3.2.3 is the 2000 census statistics for the employed civilian population 16 years and over in Canton.

Table 3.2. 3 – Canton Economic Statistics

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Manufacturing	113	28.6
Educational, Health, and Social Services	94	23.8
Retail Trade	38	9.6
Finance, Insurance, Real Estate, Rental and Leasing	32	8.1
Construction	22	5.6
Arts, Entertainment, Recreation, Accommodation, and Food Services	22	5.6
Other Services	17	4.3
Agriculture, forestry, mining, fishing and hunting	12	3.0
Professional, Scientific, Management, Administrative, and Waste Management Services	11	2.8
Transportation and Warehousing, and Utilities	10	2.5
Wholesale Trade	8	2.0
Public Administration	8	2.0
Information	8	2.0

The 2009 cost of living index is 75.7, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.2.4 is the economic characteristics for Canton, Kansas from the 2000 census (U.S. Census Bureau). Canton has a lower unemployment rate than the State of Kansas average and has about four percent fewer families below poverty level.

Table 3.2. 4 – Canton Select Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2
City of Canton	4.2	4.8	65,600	34,808	16,428	1.2	62.2

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA and the floodplain management regulations were updated at that time. The City of Canton is not located in a floodplain and therefore not required to enforce floodplain management regulations.

National Flood Insurance Program (NFIP)

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency).

The City of Canton is a not participant in the National Flood Insurance Program. There is not any information in the Federal Emergency Management Agency's Community Status Book Report. Therefore, the residents of Canton are currently unable to purchase flood Insurance through the NFIP because the community is not a participant. The City has decided not to participate in the NFIP because they are not currently located in a 100-year floodplain although it has been explained that they do not have to be in a Special Flood Hazard Area (SFHA) to participate in the program.

Table 3.2. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200214#	City of Canton	McPherson	N/A	N/A	N/A	N/A	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Canton. It is vital to ensure that proposed mitigation actions are practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.2.6 identifies the existing planning ordinances, codes, and plans for Canton.

Table 3.2. 6 – Canton Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans	
Master Plan	Disaster and Recovery Plan
Zoning ordinance	Fire department ISO rating
Municipal Code	Local emergency operations plan
Fire Prevention Code	Comprehensive Land Use Plan – Adopted in 1981
Building code	Flood insurance study or other engineering study for streams – Determined Canton is not in the Flood Plain

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Canton. It is imperative to ensure that adequate staffing and technical resources are available to the jurisdiction for implementing proposed mitigation actions. Table 3.2.7 identifies personnel resources and warning capabilities for Canton.

Table 3.2. 7 – Canton Administrative/Technical Resources

Personnel Resources	Department/Position
Full-time building official	City Building Inspector
Emergency Manager	McPherson County Emergency Manager
Grant writer	Service Provided through contract
Outdoor weather warning signals	

Financial Resources

This section will identify the financial resources available to the City of Canton. It is necessary to ensure that adequate financial resources are available to the jurisdiction for implementing proposed mitigation actions. Table 3.2.8 identifies personnel resources and warning capabilities for Canton.

Table 3.2. 8 – Canton Financial Resources

Financial Resources
Community Development Block Grants
Authority to levy taxes for specific purposes
Fees for water, sewer, gas, or electric services
Incur debt through special tax bonds
Incur debt through private activities
Withhold spending in hazard prone areas

Outdoor Siren System

The City of Canton utilizes the outdoor storm siren system to warn residents of impending severe weather. There are two outdoor storm sirens in Canton. Table 3.2.9 identifies the outdoor storm siren locations and activation method.

Table 3.2. 9 – Canton Siren Network

Location	Activation Method	Comments
411 North 4th Street	Siren in activated by McPherson County Safety Center or the City of Canton	This storm siren needs to upgraded and an addition al siren needs to be added to the system
121 Grove Street	Siren in activated by McPherson County Safety Center or the City of Canton	This storm siren needs to upgraded

Vulnerabilities

Hazards Affecting the City of Canton

History of Drought

The City of Canton reported that they periodically experience drought conditions. Nevertheless, there were not any reports of damage or injuries as a result of drought.

History of Extreme Temperatures

The City reported that extreme heat temperatures are periodically a problem during the summer months. There were not any reports of injury or property damage as a result of extreme heat.

In December of 2008, extreme cold temperatures caused freezing to occur. It caused power lines to collapse from 3-7 days.

History of Flooding

There was one historic flash flooding event in the National Climatic Data Center database.

October 4, 1998 — Severe thunderstorms producing 2-3 inches of rain caused flooding in and around Canton near the North Branch of the Cottonwood River. There were no reports of injuries or property damage.

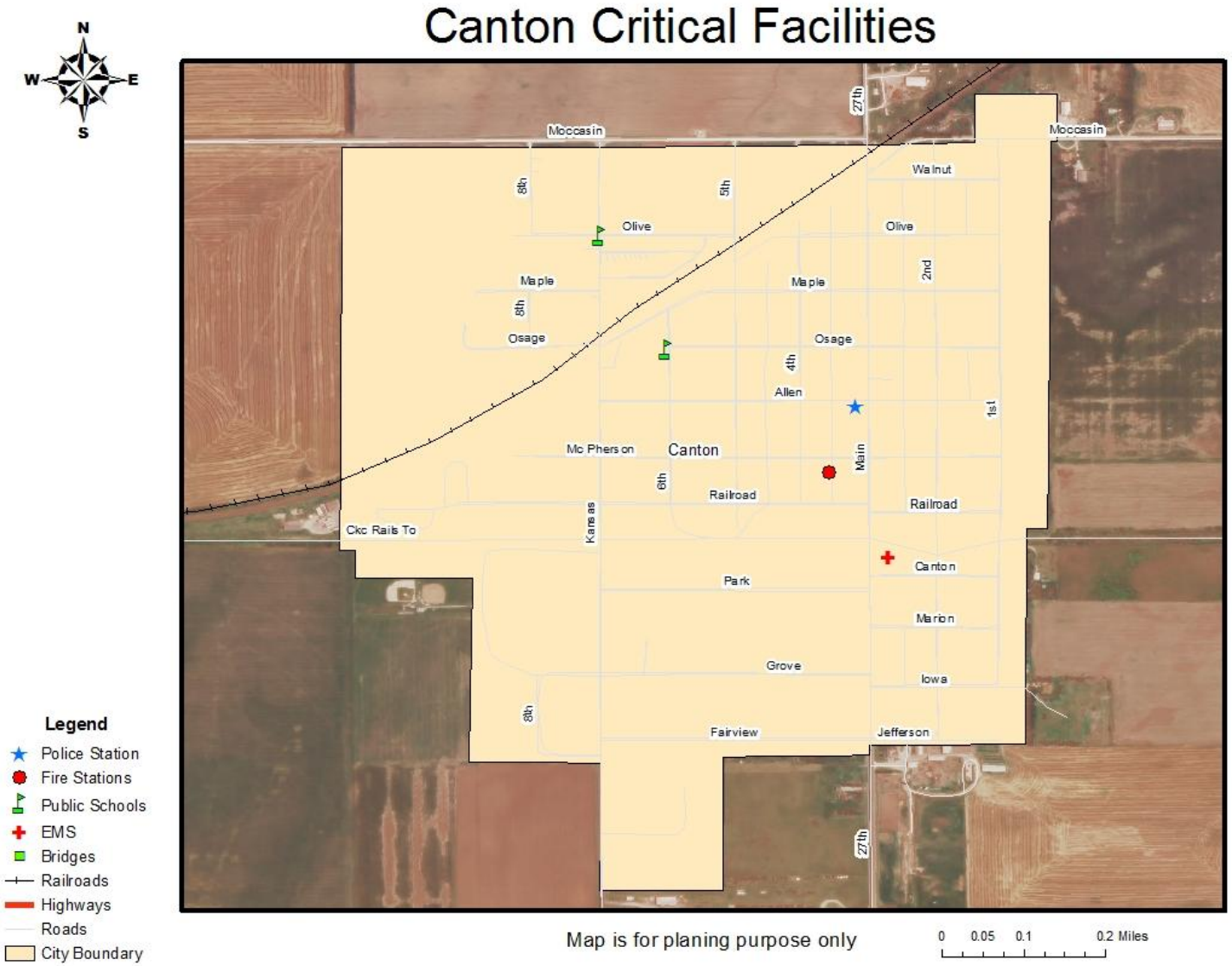
Repetitive Loss Properties

FEMA defines severe repetitive loss properties as “a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are no repetitive flood loss properties in Canton, Kansas.

HAZUS Report

A “flood” HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA’s software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.2.3 is map that identifies the location of the critical facilities in relation to the 100-year floodplain for the City of Canton. The HAZUS loss estimation model for Canton did not identify any floodplain areas.

Figure 3.2. 3 – Canton's Critical Facilities in relation to the 100-year Floodplain



History of Hailstorm Events

The following historic hailstorm events were obtained from the National Climatic Data Center database.

June 5, 1994	Pea- to golf ball-size hail fell in an area seven to eight miles north of Canton, breaking branches from trees and damaging the soon-to-be harvested wheat crop. Winds of 61 knots were reported with this storm one mile south of Canton, causing $5,000 in property damage and $5,000 in crop damage.
June 23, 1996	Three-quarter inch hail was reported one mile north of Canton. There were no reports of injury or property damage.
May 7, 1997	Hail nearly two inches in diameter was reported four miles north of Canton. There were no reports of injury or property damage.
September 22, 2000	One inch hail was reported in the City of Canton. There were no reports of injury or property damage.
July 25, 2001	Hail nearly one inch in diameter was reported four miles north of Canton. There were no reports of injury or property damage.
May 8, 2002	Hail nearly two inches in diameter was reported four miles north of Canton. There were no reports of injury or property damage.
July 12, 2003	Over one inch hail was reported in the City of Canton. There were no reports of injury or property damage.
June 12, 2004	Hail nearly one inch in diameter was reported six miles north of Canton. There were no reports of injury or property damage.
July 22, 2004	Two inch hail was reported in the City of Canton. There were no reports of injury or property damage.
May 12, 2005	Hail nearly one inch in diameter was reported five miles south of Canton. There were no reports of injury or property damage.

History of Lightning Events

The City of Canton reported that Water Well #9 was damaged by lightning in May of 2007. Damage estimates were not provided.

The City also reported a generator at the lagoon was damage by lightning in July of 2009. Damage estimates were not provided.

History of Tornado Events

The City of Canton reported they have periodic tornado warnings and alerts during the spring and summer months. There have not been any tornado events that have caused damage inside the city limits.

History of Utility/Infrastructure Failure

The City reported there were major power disruptions in May 2009, July 2009, and December 2008.

History of Wildfire

From 1999 to 2009 there have been a total of 1,799 acres burned in the Canton Fire Department Service area as the result of wildfires. The information in Table 3.2.10 was provided by the Canton Fire Department (Fire District #1). For the past 10 years, the majority of fire response calls have been wildfire calls, 38 calls were structure fire and 90 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.2. 10 – Canton Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1999	44	NA	NA	NA	NA	NA	NA	NA	NA
2000	46	NA	NA	NA	NA	NA	NA	NA	NA
2001	47	NA	NA	NA	NA	NA	NA	NA	NA
2002	40	4	14	46	0	0	0	0	0
2003	54	13	18	50	0	0	0	0	0
2004	43	3	9	10	0	0	0	0	0
2005	51	3	12	25	0	0	0	0	0
2006	50	3	14	15	0	0	0	0	0
2007	42	1	6	29	0	0	0	0	0
2008	29	8	7	1,575	0	0	0	0	0
2009	50	3	10	49	0	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 5, 1994 — A severe thunderstorm was reported one mile south of Canton. There were no reports of injuries or property damage.

June 23, 1996 — Winds of 52 knots accompanied a severe windstorm that was reported one mile north of Canton. There were no reports of injuries or property damage.

July 25, 2001 — A severe thunderstorm was reported in the City of Canton, resulting in tree damage. Property damage estimates were not available.

June 11, 2002 — A severe thunderstorm was reported in the City of Canton. There were no reports of injuries or property damage.

June 12, 2004 — Winds of 52 knots accompanied a severe windstorm that was reported six miles north of Canton. There were no reports of injuries or property damage.

July 22, 2004 — The City of Canton reported a severe thunderstorm. There were no reports of injuries or property damage.

May 12, 2005 — Winds of 52 knots accompanied a severe windstorm that was reported five miles south west of Canton. There were no reports of injuries or property damage.

August 2, 2006 — The City of Canton reported a severe thunderstorm. There were no reports of injuries or property damage.

June 15, 2009 Damaging straight line winds estimated at 80 mph took the roof off a storage shed and severely damaged another shed on a homestead six miles south of Canton, causing $45,000 in property damage.

City of Canton Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability ranking for the McPherson County HMPC. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Canton for their specific community. The City of Canton determined that flood is a low hazard for their community because they are not in a floodplain. The City does have some flash flooding from time to time. It was also determined that earthquake, landslide, dam and levee failure were hazards that posed no significant threat to the community.

Table 3.2. 11 – Canton's Hazard Planning Significance

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Canton Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	Low
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate
10	Hazardous Materials	Moderate	Moderate
11	Lightning	Moderate	Moderate
12	Expansive Soils	Moderate	Moderate
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Moderate
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Moderate
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Moderate
18	Drought	Moderate	Moderate
19	Earthquake	Low	None
20	Landslide	Low	None
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	None

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

U.S. Highway 56 links to Main Street and Kansas Avenue in town. U.S. Highway 86 links Main Street and U.S. Highway 56. Moccasin Road runs along the north boundary of Canton.

Railroads

Union Pacific Rail lines run through the north edge of Canton. The rail lines run very close to the Canton-Galva schools.

Oil and Gas Fields

There are not any oil and gas fields inside the city limits. However, there are several in the outlaying areas in all directions from the City.

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. The National & State Register of Historic Places has one place listed as historical for the City of Canton.

- Canton Township Carnegie Library
  Address: 300 North Main
  National Register Number: 87000960
  Listed in National Register: 1987
  Owner: Local Government
  Area of Significance: Architecture, Social History, Education
  Period of Significance: 1900-1924
  Historic Function: Education; Library
  Current Function: Education; Library

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. . The facilities also include education facilities to ensure continuity of education. Table 3.2.12 identifies the critical facilities in Canton.

Table 3.2. 12 – Canton Critical Facilities

Name of Asset	Facility Type	Address	Replacement Value
CITY HALL AND POLICE DEPARTMENT	GOVERNMENT/EMERGENCY SERVICES	100 SOUTH MAIN STREET	$150,000
CANTON RURAL FIRE DEPARTMENT	EMERGENCY SERVICES	125 WEST MCPHERSON	$300,000
CANTON-GALVA ELEMENTARY SCHOOL	EDUCATION	210 NORTH SIXTH STREET	$8,000,000
CANTON-GALVA HIGH SCHOOL	EDUCATION	506 SOUTH KANSAS	$10,000,000
CANTON EMS	EMERGENCY SERVICES	201 NORTH MAIN STREET	$200,000

Local Businesses

Local businesses are important to the economic development for Canton. . During a disaster loss of local businesses can have a detrimental effect on the local economy. Table 3.2.13 identifies the local businesses in the area.

Table 3.2. 13 – Canton Local Businesses

Business Name	Type of Business	Address
CANTON GROCERY	RETAIL	216 NORTH MAIN STREET
COOPERATIVE GRAIN AND SUPPLY	RETAIL	209 NORTH MAIN STREET
CASEYS GENERAL STORE	RETAIL	503 SOUTH MAIN STREET
AMERICAN ENERGIES	PIPELINE	136 MAIN STREET
CANTON CAFÉ	RESTAURANT	128 SOUTH MAIN STREET
CITIZENS STATE BANK	FINANCIAL	100 SOUTH MAIN STREET
STATE BANK OF CANTON	FINANCIAL	103 SOUTH MAIN STREET
SCHULZ WELDING	WELDING SERVICES	114 SOUTH MAIN STREET
CANTON SERVICE CENTER	AUTO REPAIR	1378 27TH AVENUE
THREE SISTERS VICTORIAN TEA & TREASURES	RETAIL	105 SOUTH MAIN STREET
KELLY'S BAR AND GRILL	RESTAURANT	121 NORTH MIAN STREET
CANTON LOCKERS	RETAIL	131 SOUTH MAIN STREET
TRENDSETTERS	RETAIL	125 SOUTH MAIN STREET
OLSON'S MORTUARY-CHAPEL	MORTUARY SERVICES	139 SOUTH MAIN STREET
MCMANNIS DUP. & FULFILLMENT	N/A	N/A
BOESKER PLUMBING	PLUMBING SERVICES	101 NORTH FIRST
BOESKER CONSTRUCTION	CONSTRUCTION	111 NORTH FIRST
ARLETA'S DÉCOR	RETAIL	402 SOUTH MAIN STREET
TE-PE OIL	OIL & GAS	1504 27TH AVENUE
SUNFLOWER WELL SERVICE	WELL SERVICE	408 NORTH 4TH STREET
KEVIN BLACKWELL TRUCKING	FREIGHT SERVICE	704 WEST RAILROAD

Business Name	Type of Business	Address
PLENERT CONCRETE	CONCRETE SERVICE	953 WEST RAILROAD
RUNDSTROM LAUER	ACCOUNTING SERVICES	122 SOUTH MAIN STREET
J&M MACHINE AND WELDING	MACHINE SHOP	HWY 56 & HWY 86
CANTON COMMUNITY CLINIC	HEALTHCARE	114 SOUTH MAIN STREET

Community Concerns

The community of Canton is concerned about the railroad lines being located within close proximity to the schools. The rail lines are positioned right behind the elementary school and within a quarter of a mile from the high school. The trains that travel along the rail lines often times carry hazardous materials. The concern is that one of those trains may derail during school hours, causing a need for evacuation of the students.

The City of Canton is also concerned about sheltering of the elderly population during a tornado. Table 3.2.14 is the hazard vulnerability information for the senior center located in Canton. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom. These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.2. 14 – Canton Senior Center Hazard Vulnerability Assessment

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
CANTON SENIOR CENTER 112 S. MAIN	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	FIRE STATION	NO

Land Use

Land use information was not provided by the City of Canton.

New Development

There is potential for new development in the northwest and southern portions of the City.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Canton plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** FEMA APPROVED COMMUNITY SAFE ROOM
Project Description: LOOK INTO FUNDING TO CONSTRUCT COMMUNITY SAFE ROOM FOR CANTON RESIDENTS TO PROTECT THEM AGAINST HAZARDOUS CONDITIONS	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $200,000-$350,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LIFE SAFETY/PROTECT RESIDENTS AGAINST THREATENING WEATHER	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING TO CONSTRUCT COMMUNITY SAFE ROOM FOR CANTON RESIDENTS TO PROTECT THEM AGAINST HAZARDOUS CONDITIONS	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** INSTALL DRAINAGE CULVERT
Project Description: INSERT DRAINAGE CLUVERT AND NECESSARY STREET REPAIR TO AID IN STREET DRAINAGE AT THE INTERSECTION OF 1ST STREET AND MOCCASIN ROAD	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): AVOID FLASH FLOODING OF THE STREETS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL INSTALL THE DRAINAGE CULVERT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** INSTALL DRAINAGE CULVERT
Project Description: INSERT DRAINAGE CLUVERT AND NECESSARY STREET REPAIR TO AID IN STREET DRAINAGE AT THE INTERSECTION OF 1ST STREET AND RAILROAD STREET	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): AVOID FLASH FLOODING OF THE STREETS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL INSTALL THE DRAINAGE CULVERT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** INSTALL DRAINAGE CULVERT
Project Description: INSERT DRAINAGE CLUVERT AND NECESSARY STREET REPAIR TO AID IN STREET DRAINAGE AT THE INTERSECTION OF CANTON STREET AND 27TH AVENUE (MAIN STREET)	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): AVOID FLASH FLOODING OF THE STREETS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL INSTALL THE DRAINAGE CULVERT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** DRAINAGE DITCH DREDGING
Project Description: DREDGE DRAINAGE DITCH AT CORNER EAST OF EAST 1ST STREET AND EAST RAILROAD STREET	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET	
Estimated Cost: $10,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): AVOID FLASH FLOODING OF THE STREETS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL COMMENCE DITCH DREDGING	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** INSTALL OUTDOOR STORM SIRENS
Project Description: PURCHASE AND INSTALL ADDITIONAL EMERGENCY ALERT SIREN TO BE LOCATED IN THE NORTHWEST PORTION OF CANTON	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $13,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL INSTALL NEW SIREN AT NORTHWEST LOCATION TO ALERT RESIDENTS IN THAT AREA OF TOWN CONCERNING IMPENDING TORNADO DANGER	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** UPGRADE OUTDOOR STORM SIRENS
Project Description: UPGRADE EMERGENCY ALERT SIREN LOCATED AT 121 GROVE STREET	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL UPGRADE SIREN WHICH WILL BECOME ANTIQUATED AND DYSFUNCTIONAL IN THE NEAR FUTURE	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** UPGRADE OUTDOOR STORM SIREN
Project Description: UPGRADE EMERGENCY ALERT SIREN LOCATED AT 411 NORTH 4TH STREET	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL UPGRADE SIREN WHICH WILL BECOME ANTIQUATED AND DYSFUNCTIONAL IN THE NEAR FUTURE	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE AND INSTALL PERMANENT GENERATOR IN COMMUNITY CENTER ROOM ALLOWING FOR ELECTRICAL POWER IN COMMAND AREA DURING CRISIS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $35,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): ALLOW COMMUNITY CENTER TO SERVE AS COMMAND POST AND PLACE FOR RESIDENTS TO COME FOR SERVICES DURING AN EMERGENCY CRISIS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL IMMEDIATELY OBTAIN THE GENERATOR AND INSTALL IT AT 100 SOUTH MCPHERSON AVENUE (LOCACTION OF THE COMMUNITY CENTER)	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE AND INSTALL EMERGENCY BACKUP GENERATOR AT WATER WELL #7 – PERMANENT 3 PHASE GENERATOR FOR EMERGENCY USE	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $30,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CONTINUE TO PROVIDE POTABLE WATER TO RESIDENTS DURING TIMES OF POWER FAILURE	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL IMMEDIATELY OBTAIN THE GENERATOR AND INSTALL IT IN THE LOCATION OF WATER WELL #7	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF CANTON	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE AND INSTALL EMERGENCY BACKUP GENERATOR AT WATER WELL #11 - PERMANENT 3 PHASE GENERATOR FOR EMERGENCY USE	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $30,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CONTINUE TO PROVIDE POTABLE WATER TO RESIDENTS DURING TIMES OF POWER FAILURE	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: FOLLOWING ACCEPTANCE OF REQUEST THE CITY WILL IMMEDIATELY OBTAIN THE GENERATOR AND INSTALL IT IN THE LOCATION OF WATER WELL #11	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Galva	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	0

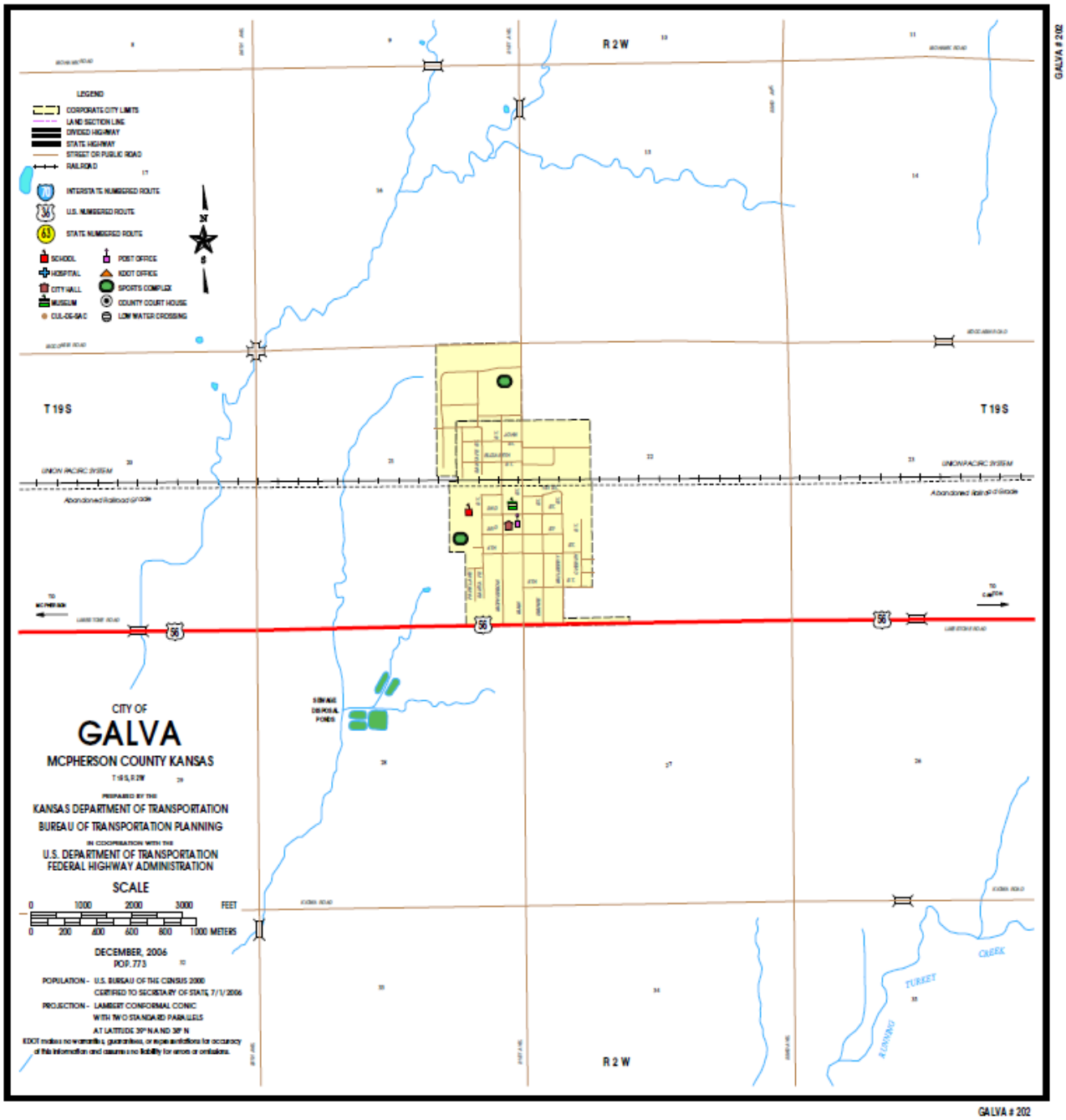
The following image is an aerial view of the City of Galva (City-Data.com).

Figure 3.3. 1 - City of Galva

Location

The City of Galva is situated on U.S. Highway 56 in McPherson County. It is located five miles east of the City of McPherson and four miles east of Interstate Highway 135. It has a total land area of 0.47 square miles and has an elevation of 1,546 feet. The following map is the jurisdictional boundaries for the City of Galva.

Figure 3.3. 2 - City of Galva Jurisdictional Boundary Map



History

The town of Galva was incorporated in 1887, even though it was the site of a railroad camp in the 1870's. The building that houses the Galva Historical Museum at Second & Main is the only original building left. At one time it had two stories and even had a skating rink on top. The buildings on the west side of the 200 block of Main were replaced after the fire of 1930 destroyed the entire block.

Galva is the successor of the town of Empire which was located a couple of miles southeast of the current site of Galva. As early as 1823, the junction of the Santa Fe Trail and the California Road served as a regular stop for the wagon trains and travelers heading west. In 1855, Charles Fuller built a "ranch" just west of Turkey Creek which was the first white settlement in the county.

In 1875 Joseph J. Colby constructed the first permanent residence which was the beginning of Empire. Any hope for a prosperous future for Empire was shattered when a branch of the AT&SF railroad was completed September 23, 1879, passing north of Empire through the present site of Galva. It didn't take long for the residents of Empire to move their buildings north to the tracks. By 1880, even the post office was closed. The beginning of Galva meant the end of Empire, a town that ran its whole course of history in under ten years.

Governance

The City of Galva is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

Galva has the most prevalent form of city government in Kansas, the mayor-council form of government. It is used by nearly all cities of the third class. The city council is made up of five council members. The City also has the following departments:

- City Clerk
- City Attorney
- Municipal Judge
- Treasurer
- Police Department
- Fire Department
- Public Works Department

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 797, the City of Galva is ranked 477th among Kansas' incorporated cities. Table 3.3.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Galva has steadily increased since the 2000 census. There has been a little over a one percent increase in the population.

Table 3.3. 1 – Galva Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Galva	797	796	791	781	765	741	725	714	714	701

Table 3.3.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Galva in comparison nationally, state, and county level. Nearly eight percent of the population in Galva is over the age of 65, which is only slightly higher than average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.3. 2 – Galva Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Galva	7.6	12.1	34.4	2.57	82.4	9.5

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Galva is manufacturing. There are 108 people employed in the manufacturing industry, which is over 27 percent of the population. Table 3.3.3 is the 2000 census statistics for the employed civilian population 16 years and over in Galva.

Table 3.3. 3 – Galva Economic Statistics

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Manufacturing	108	27.3
Educational, Health, and Social Services	51	12.9
Retail Trade	50	12.7
Finance, Insurance, Real Estate, Rental and Leasing	37	9.4
Transportation and Warehousing, and Utilities	25	6.3
Construction	23	5.8
Other Services	23	5.8
Arts, Entertainment, Recreation, Accommodation, and Food Services	21	5.3
Professional, Scientific, Management, Administrative, and Waste Management Services	17	4.3
Agriculture, forestry, mining, fishing and hunting	11	2.8
Public Administration	11	2.8
Wholesale Trade	10	2.5
Information	8	2

The 2009 cost of living index is 74.8, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.3.4 is the economic characteristics for Galva, Kansas in comparison to entire country, state, and the rest of the county (U.S. Census Bureau). Galva has a lower unemployment rate than the average for the State of Kansas and has about two percent fewer families living below poverty level.

Table 3.3. 4 – Galva Select Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2
City of Galva	6.2	6.6	74,300	42,500	18,021	1.4	79.3

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA. The floodplain management regulations were updated at that time. The City of Galva adopted Ordinance 340 approved on November 3, 2008.

National Flood Insurance Program (NFIP)

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Galva is a participant in the National Flood Insurance Program. Table 3.3.5 is information is from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for Galva.

Table 3.3. 5 – NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200497#	City of Galva	McPherson	08/15/1975	11/17/1982	1/16/2009	11/17/1982	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Galva. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.3.6 identifies the existing planning ordinances, codes, and plans for Galva.

Table 3.3. 6 – City of Galva's Existing Plans, Ordinances, and Codes

Galva's Existing Planning Ordinances, Codes, and plans	
Master Plan	Local emergency operations plan
Zoning ordinance	Flood insurance study or other engineering study for streams
Subdivision ordinance	Mutual Aid Agreements
Floodplain Management	Fire or Life Safety Code
Municipal Code	Fire department ISO rating
Fire Prevention Code	Site plan review requirements
Building code	Capital improvements plan
McPherson County has a Disaster and Recovery Plan	Economic development plan

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Galva. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.3.7 identifies personnel resources and warning capabilities for Galva.

Table 3.3. 7 – City of Galva's Administrative/Technical Resources

Galva's Personnel Resources	
Full-time building official	Grant writer
Floodplain Manager	Warning Systems/Services
McPherson County Emergency Manager	Outdoor weather warning signals

Financial Resources

This section will identify the financial resources available to the City of Galva. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.3.8 identifies the financial resources available to Galva.

Table 3.3. 8 – Galva's Financial Resources

Galva's Financial Resources	
Capital improvements project funding	Fees for water, sewer, gas, or electric services
Authority to levy taxes for specific purposes	Incur debt through general obligation bonds

Outdoor Siren System

Galva utilizes the siren network to warn residents of impending severe weather. There is one storm siren in the City. It is located at 2nd and Main and is activated by the McPherson County Safety Center.

Vulnerabilities

Hazards Affecting the City of Galva

Flood

The photograph below was taken by the Kansas Department of Agriculture, Division of Water Resources in June of 2010. It is of an area in Galva that has some permitting issues with the DWR. The matter is currently being resolved and the City has applied for appropriate permits.

History of Flooding

There were no reports of flooding in the National Climatic Data Center database for Galva. However, the City of Galva reported that the community experienced flooding in June 2010. There were no reports of damage or injuries. The City also reported that there are currently two houses located in the floodway.

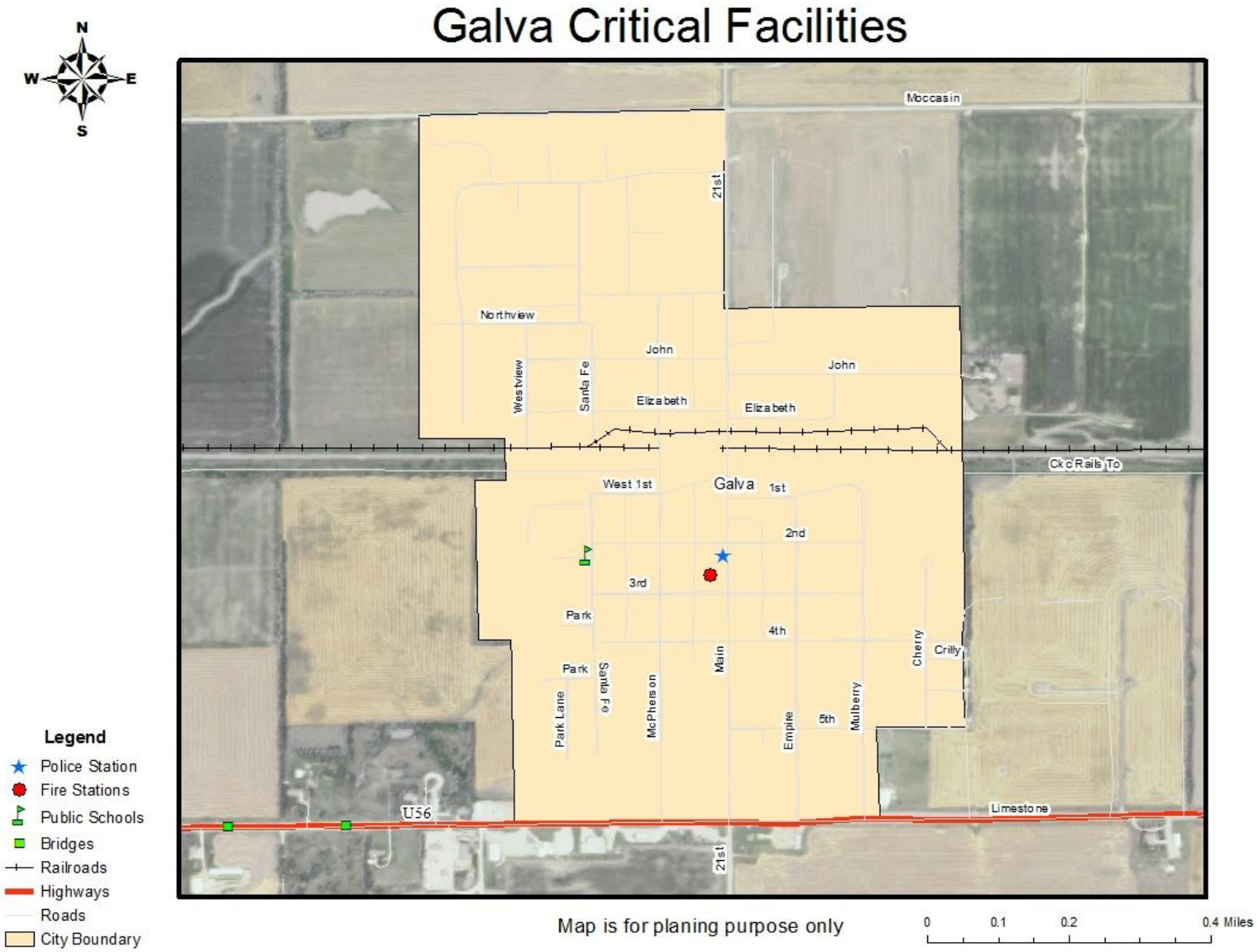
Repetitive Loss Properties

FEMA defines severe repetitive loss properties as "a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are currently not any repetitive flood loss properties in Galva, Kansas.

HAZUS Report

A "flood" HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA's software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.3.3 is map that identifies the location of the critical facilities in relation to the 100-year floodplain for the City of Galva. The HAZUS loss estimation model for Galva did not identify any floodplain areas.

Figure 3.3. 3 – Galva's Critical Facilities in relation to the 100-year Floodplain



History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 6, 2002	A storm carrying 1.75 inch hailstones was reported by the City of Galva. There were no reports of injury or property damage.
June 26, 2002	The City of Galva reported one inch hail. . There were no reports of injury or property damage.
May 4, 2003	Three-quarter inch hail was reported in the City of Galva. There were no reports of injury or property damage.
August 21, 2003	Hail nearly one inch in diameter was reported four miles south east of Galva. There were no reports of injury or property damage.
June 12, 2004	Hail one inches in diameter was reported six miles north of Galva. There were no reports of injury or property damage.
May 8, 2005	One inch hail was reported one mile south of Galva. There were no reports of injury or property damage.
May 30, 2006	Hail nearly one inch in diameter was reported two miles east of Galva. There were no reports of injury or property damage.
July 8, 2009	Elevated thunderstorms developed rapidly over portions of South Central Kansas during the evening hours of July 8th, 2009. This devastating event caused over 10,000 claims to be filed with private insurance agencies from damaged cars or roofs.
May 12, 2005	Hail nearly one inch in diameter was reported five miles south of Galva. There were no reports of injury or property damage.

History of Tornado Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 11, 1998	An F0 tornado was reported two miles south of Galva. There were no reports of injuries or property damage.

History of Wildfire

From 1995 to 2009 there have been a total of 1,917 acres burned in the Galva Fire Department service area as the result of wildfires. The information in Table 3.3.9 was provided by the Galva Fire Department (Fire District #9). For the past 14 years, the majority of fire response calls have been wildfire calls, 35 calls were structure fire and 111 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.3. 9 – Galva Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1995	72	2	11	77	0	0	0	0	0
1996	59	3	14	1,580	0	0	0	0	0
1997	70	4	5	20	0	0	0	0	0
1998	65	3	7	15	0	0	0	0	0
1999	71	1	7	17	0	0	0	0	0
2000	63	2	8	27	0	0	0	0	0
2001	69	3	9	18	0	0	0	0	0
2002	45	1	8	58	0	0	0	0	0
2003	54	1	10	12	0	0	0	0	0
2004	48	1	4	12	0	0	0	0	0
2005	63	2	5	15	0	0	0	0	0
2006	83	4	10	20	0	0	0	0	0
2007	60	4	4	16	0	0	0	0	0
2008	65	2	6	10	0	0	0	0	0
2009	61	2	3	20	0	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 25, 1997 — A severe thunderstorm was reported in the City of Galva. There were no reports of injuries or property damage.

August 22, 2001 — A severe thunderstorm with winds up to 70 mph was reported three miles north of Galva. An 8'x12' storage shed was dislodged from the foundation, resulting in $25,000 in property damage.

June 11, 2002 — A severe thunderstorm was reported one mile south of Galva, causing downed tree branches 3-5 inches in diameter. There were no reports of injuries.

July 28, 2002 — Winds of 61 knots accompanied a severe windstorm that was reported in the City of Galva. There were no reports of injuries or property damage.

June 20, 2009 — The combination of heavy rain and high winds aided in a two-vehicle fatal automobile accident on Highway 56 east of McPherson. There was one fatality and one injury associated with the accident. The McPherson Sentinel contributed to this report. Property damage was estimated at $15,000.

City of Galva Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability ranking for the City of Galva. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Galva for their specific community.

Table 3.3. 10 – The City of Galva's Hazards Vulnerability Assessment

HMPC Priority	Hazards That Threaten the Planning Area	HMPC Planning Significance	City of Galva's Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	High
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	Low
6	Wildfire	High	Low
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Low
9	Soil Erosion and Dust	Moderate	Low
10	Hazardous Materials	Moderate	Low
11	Lightning	Moderate	High
12	Expansive Soils	Moderate	Low
13	Agricultural Infestation	Moderate	Low
14	Land Subsidence - Sinkholes	Moderate	Low
15	Extreme Temperatures	Moderate	High
16	Fog	Moderate	High
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Low
18	Drought	Moderate	High
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

For purposes of this Mitigation Plan, McPherson County and the participating jurisdictions deemed critical facilities to be those buildings and structures from which essential services and functions for the continuation of public

safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. Also included in the critical facilities are the schools which are essential to the continuity of education. . The facilities also include education facilities to ensure continuity of education. Table 3.3.11 identifies the critical facilities located in Galva.

Table 3.3. 11 – Galva's Critical Facilities

Name of Facility	Facility Type	Address	Value of Structure
GALVA POLICE DEPARTMENT	EMERGENCY SERVICES	212 SOUTH MAIN STREET	$175,000
GALVA FIRE DEPARTMENT	EMERGENCY SERVICES	208 SOUTH MAIN STREET	$300,000
CANTON-GALVA MIDDLE SCHOOL	EDUCATION	116 SOUTH SANTA FE	$10,000,000

Local Businesses

Local businesses are vital to the economic growth in the community. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for the City of Galva are identified in Table 3.3.12.

Table 3.3. 12 – Galva Area Businesses

Business Name	Type of Business	Address
AUTO HOUSE COLLISION REPAIR CENTER	AUTO REPAIR	245 WEST HWY 56
AUTO HOUSE TOWING	AUTO REPAIR	245 WEST HWY 56
DENNY'S REPAIR	AUTO REPAIR	236 WEST HWY 56
EAGLE PLUMBING HEATING & AIR	RETAIL	203 SOUTH EMPIRE
KOUNTRY KAFE	RESTAURANT	220 EAST HWY 56
FARMERS STATE BANK	FINANCIAL	219 SOUTH MAIN
56 & MAIN	RESTAURANT	533 SOUTH MAIN
GALVA CABLE CO. INC.	COMMUNICATIONS	211 SOUTH MAIN
GALVA CASH SERVICES	FINANCIAL	110 WEST HWY 56
GALVA EMPORIUM	RETAIL	540 SOUTH MAIN
GALVA LUMBER, INC	RETAIL	108 WEST SECOND
GALVA PLUMBING & HEATING	RETAIL	101 WEST THIRD
GALVA TRUCK & CAR WASH	RETAIL	239 WEST HWY 56
HOME COMMUNICATIONS, INC	COMMUNICATIONS	211 SOUTH MAIN
IRON HORSE FARM SEED CO.	AGRICULTURE SUPPLY	401 EAST FIFTH
JIM'S MOTOR MACHINE	AUTO REPAIR	235 WEST HWY 56
M&M CHOPPERS	RETAIL	305 EAST HWY 56
MAIN STREET AUTO INC	AUTO	520 SOUTH MAIN
MID-KANSAS COOP ASSOCIATION	AGRICULTURE SUPPLY	101 NORTH MAIN
MID-KANSAS WINDING	AUTO	2343 WEST HWY 56
PHILLIPS MOTOR SPORTS	AUTO	102 SOUTH MAIN
VYNTAGE GYPSY PARLOUR	RETAIL	104 SOUTH MAIN
RENEE'S HAIR CARE	RETAIL	104 EAST HWY 56
THE STATION	RETAIL	105 EAST HWY 56
TRUCK INSURANCE MART	INSURANCE	245 WEST HWY 56

Business Name	Type of Business	Address
CENTRAL KANSAS CONSTRUCTION	CONSTRUCTION	2252 EISENHOWER ROAD
D&R WELL SERVICE	WELL SERVICE	1224 TWENTIETH AVE
GALVA MACHINE & OILFIELD SERVICE	SERVICE	2318 HWY 56
GALVA WELL SERVICE	WELL SERVICE	1977 MOCCASIN ROAD
K&K GRAVEL PRODUCTS	RETAIL	1944 TWENTY-SECOND AVE
NIGHTINGALE TRANSMISSIONS LLC	AUTO	2072 IRON HORSE ROAD
PROFESSIONAL REMODELING SERVICES	SERVICE	2042 FRONTIER ROAD
QUALITY PRINTING & GIFT SHOP	RETAIL	1307 TWENTY-FIRST AVE
SALON COSMO	RETAIL	2119 MOHAWK ROAD
SHEILA'S GARDEN MARKET	RETAIL	1062 TWENTIETH AVE
UNRUH AUTOMOTIVE	AUTO	1346 TWENTY-SECOND AVE
UNRUH TRUCKING	SERVICE	2124 PAWNEE ROAD
GORDON'S PLUMBING & HEATING	SERVICE	1602 TWENTY-FIRST AVE
THE CAKE LADY	RETAIL	321 WESTVIEW
HOME DEVELOPMENT	SERVICE	211 SOUTH MAIN
BANANA TRUCKING	SERVICE	1403 23RD AVE
MARCI'S ON MAIN	RETAIL	220 SOUTH MAIN

Community Concerns

The City reported that there are currently two houses located in the floodway in Galva. This is a concern because they could potentially experience repetitive losses. The City is looking into possible ways of mitigating these two houses. They are currently contracting with an engineering company to have a hydraulic study performed.

The City of Galva is also concerned about sheltering of the elderly population during hazardous events. Table 3.3.13 is the hazard vulnerability information for the senior center located in Galva. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom. These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.3. 13 – MCCOA Hazard Vulnerability Assessment for Galva Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
GALVA SENIOR CENTER 218 S. MAIN	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON AND DURING COMMUNITY FESTIVAL DAYS	NONE	NONE	NONE	YES	NO

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.3.14 identifies the current land usage for the City of Galva.

Table 3.3. 14 – Galva's Current Land Usage

Current Land Use Category	Percent of Jurisdiction
Residential	48%
Industrial	0
Developed with mixed uses	0
Commercial	25%
Agricultural	0
Parks/restricted wild land/wildlife refuge	5%
Institutional (education, health care, etc.)	2%
Transportation or utility right-of-way	15%
Vacant/unused - private ownership	5%
Vacant/unused - government ownership	0

New Development

There were not any new development plans identified for the City of Galva.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Galva plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF GALVA	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING: • REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW; • ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS; • NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA); • ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES; • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED; • WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF GALVA	**Project Title:** CONDUCT HYDROLOGY STUDY
Project Description: CONDUCT HYDROLOGY STUDY - SURVEY FLOOD CHANNEL TO DETERMINE CAPABILITY TO CARRY WATER TO A DEPTH EQUAL TO 100-YEAR STAGES	
Type of Project: PREVENTION AND PROPERTY PROTECTION	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $250,0000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): PROTECT PROPERTY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: HIRED ENGINEERING FIRM WILSON & WILSON TO CONDUCT HYDROLOGY STUDY,	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Inman	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	0

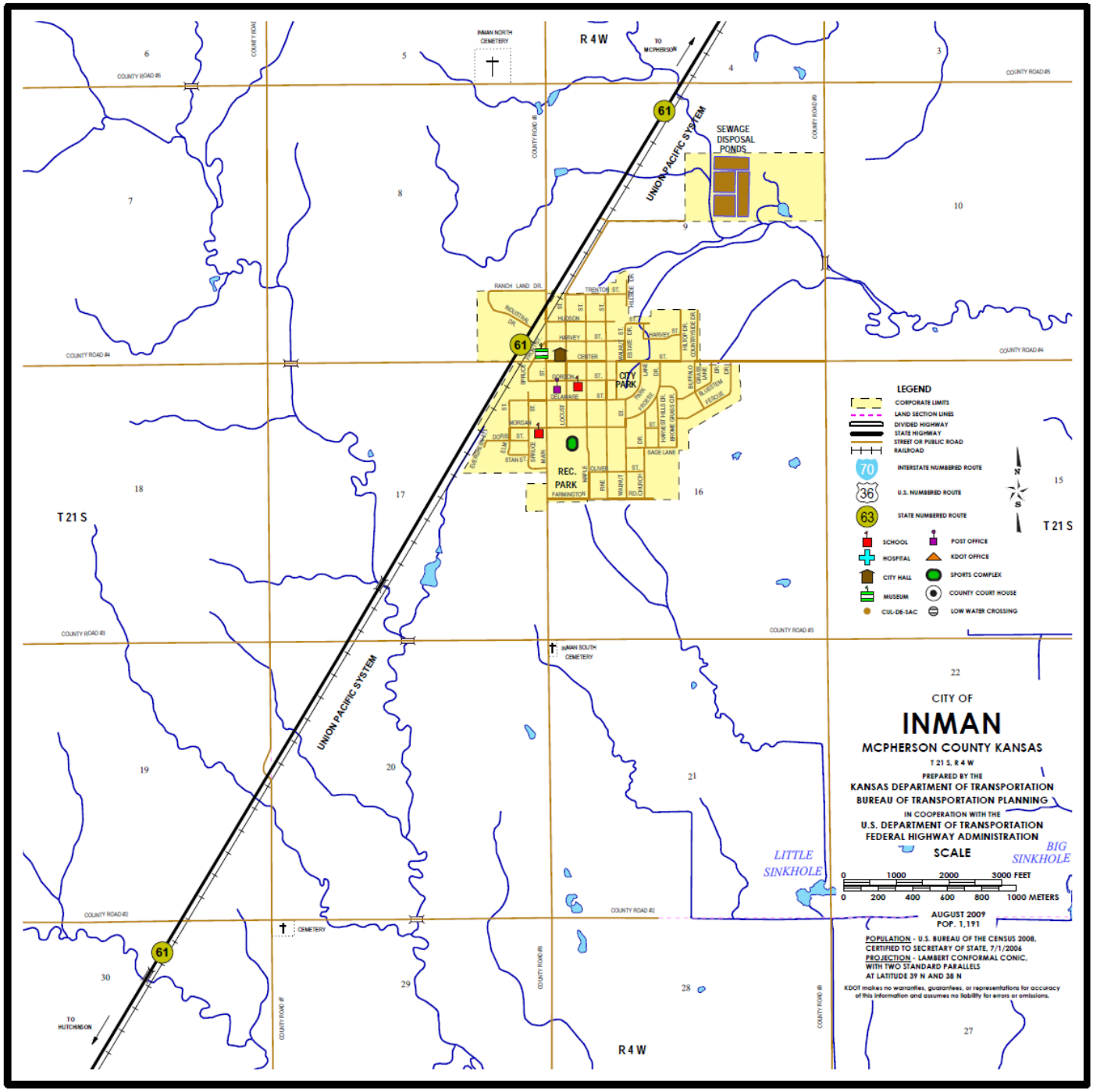
The following image is an aerial view of the City of Inman (City-Data.com).

Figure 3.4. 1 - City of Inman

Location

The City of Inman is centrally located on State Highway K-61 in McPherson County between Hutchinson and the City of McPherson. It has a total land area of 0.54 square miles and has an elevation of 1,527 feet. The following map is the jurisdictional boundaries for the City of Inman (Kansas Department of Transportation).

Figure 3.4. 2 - City of Inman Jurisdictional Boundary Map



History

The City of Inman was founded in 1887. Much of the eastern area was once covered with shallow lakes; however drainage canals emptied most of them and now are known as the Equus Beds. In its place was rich farm ground causing many to settle here and form a farming community. Lake Inman located approximately four miles east of the City, survives as the largest natural lake in Kansas. The Santa Fe Trail passed a couple of miles north of Inman bringing travelers from the east through the area. Major Henry Inman was first to describe Lake Inman while surveying the area for the Army. Originally called "Aiken" when it was platted in 1887, the town was renamed for the lake in 1889 ***(City of Inman)***.

Governance

The City of Inman is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

Inman has the most prevalent form of city government in Kansas, the mayor-council form of government. It is used by nearly all cities of the third class. The city council is made up of five council members. The City also has the following departments:

- City Clerk
- City Attorney
- Library
- Municipal Judge
- Treasurer
- Police Department
- Fire Department
- Zoning

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 1,180 in 2009, the City of Inman is ranked 330th among Kansas' incorporated cities. Table 3.4.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Inman has declined since the 2000 census. There has been a little over three percent decrease in the population.

Table 3.4. 1 – Inman Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Inman	1,180	1,176	1,183	1,177	1,181	1,182	1,187	1,193	1,213	1,222

Table 3.4.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Inman in comparison nationally, state, and county level. Nearly 30 percent of the population in Inman is over the age of 65, which is more than double the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.4. 2 – Inman Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Inman	4.6	29.3	41.5	2.31	85.2	17.4

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Inman is educational, health, and social services. There are 125 people employed in this industry, which is over 26 percent of the population. Table 3.4.3 is the 2000 census statistics for the employed civilian population 16 years and over in Inman.

Table 3.4. 3 – Inman Economic Statistics

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Educational, Health, and Social Services	125	26.3
Manufacturing	86	18.1
Retail Trade	57	12
Construction	41	8.6
Transportation and Warehousing, and Utilities	30	6.3
Other Services	27	5.7
Arts, Entertainment, Recreation, Accommodation, and Food Services	24	5
Finance, Insurance, Real Estate, Rental and Leasing	22	4.6
Professional, Scientific, Management, Administrative, and Waste Management Services	19	4
Wholesale Trade	17	3.6
Agriculture, forestry, mining, fishing and hunting	16	3.4
Information	9	1.9
Public Administration	3	0.6

The 2009 cost of living index is 78.3, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.4.4 is the economic characteristics for Inman, Kansas in comparison to entire country, state, and the rest of the county (U.S. Census Bureau). Inman has a lower unemployment rate than the average for the State of Kansas and has about five percent fewer families living below poverty level.

Table 3.4. 4 – Inman Select Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2
City of Inman	2.9	5.7	77,700	31,648	17,290	1.6	55.7

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA and the floodplain management regulations were updated at that time. The City of Inman adopted Ordinance 468 approved on October 15, 2008.

National Flood Insurance Program

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Inman is a participant in the National Flood Insurance Program. Table 3.4.5 is information from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for the City of Inman.

Table 3.4. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200509#	City of Inman	McPherson	N/A	1/16/2009	NSFHA	12/31/2008	No

NSFHA = No Special Flood Hazard Area – All Zone C

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Inman. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.4.6 identifies the existing planning ordinances, codes, and plans for Inman.

Table 3.4. 6 – Inman Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans
Master Plan
Zoning ordinance
Subdivision ordinance - ADOPTED SEPTEMBER 20, 1977 – ORDINANCE 229
Floodplain Management - ADOPTED OCTOBER 15, 2008 – ORDINANCE: 468
Municipal Code
Disaster and Recovery Plan - IN PROCESS OF DEVELOPING
Capital improvements plan
Economic development plan - IN PROCESS OF DEVELOPING
Local emergency operations plan
Comprehensive Land Use Plan
Flood insurance study or other engineering study for streams

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Inman. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.4.7 identifies personnel resources and warning capabilities for Inman.

Table 3.4. 7 – Inman Administrative/Technical Resources

Personnel Resources
Planner/Engineer with knowledge of land development/land management practices
Floodplain Manager - COUNTY
Emergency Manager - COUNTY
Grant writer
Other personnel
Warning Systems/Services - CITY OF INMAN/McPHERSON COUNTY
Reverse 911 - McPHERSON COUNTY COMMUNICATIONS
Outdoor weather warning signals - TORNADO SIRENS/AUDIO OUTDOORS

Financial Resources

This section will identify the financial resources available to the City of Inman. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.4.8 identifies the financial resources available to Inman.

Table 3.4. 8 – Inman's Financial Resources

Financial Resources
Capital improvements project funding
Fees for water and sewer
Impact fees for new development
Incur debt through general obligation bonds

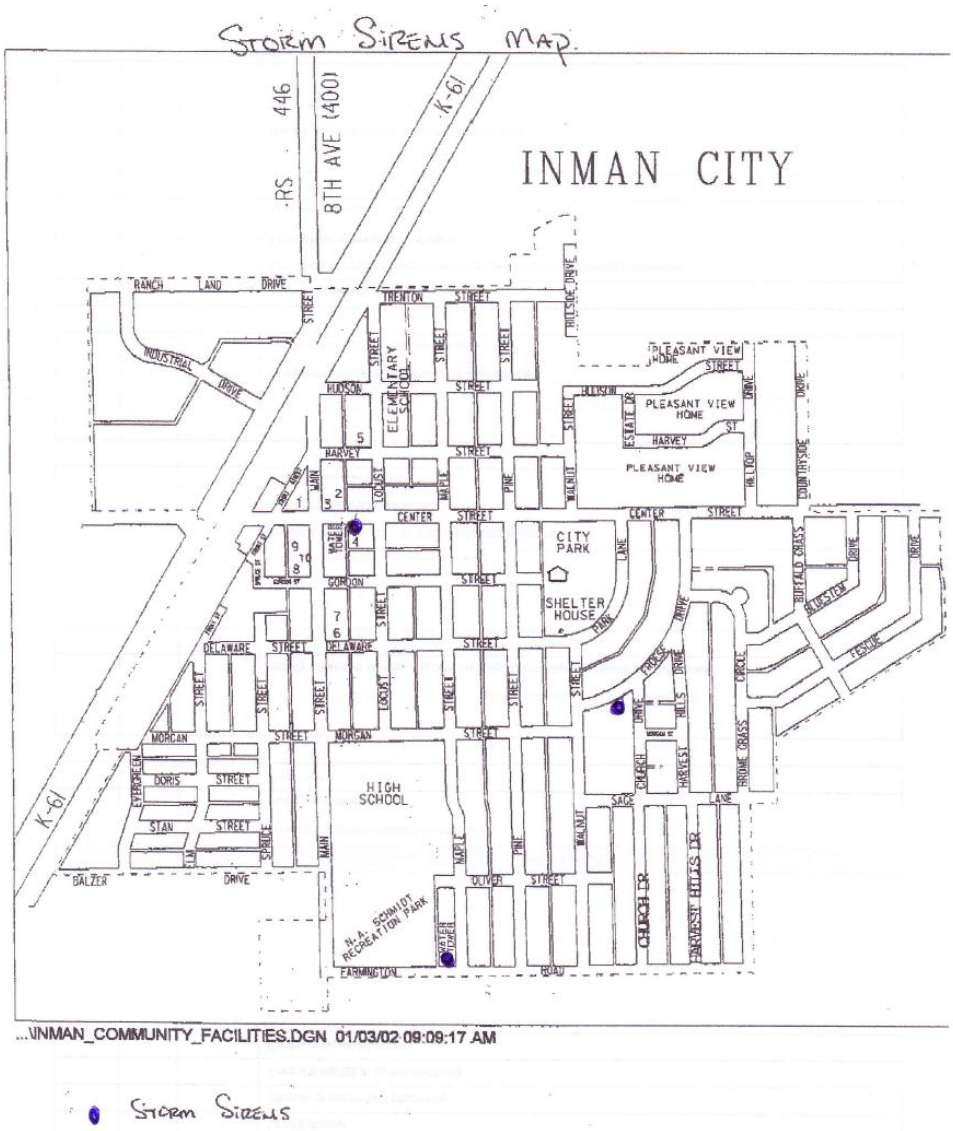
Outdoor Siren System

Inman utilizes the siren network to warn residents of impending severe weather. There are three outdoor storm sirens in Inman. Table 3.4.9 identifies the outdoor storm siren locations and activation method. Figure 3.4.3 shows the location for each storm siren.

Table 3.4. 9 – Inman Siren Network

Location	Activation Method
100 BLOCK OF EAST CENTER	ACTIVATED VIA MCPHERSON COUNTY DISPATCH OR MANUALLY IN INMAN
200 BLOCK OF EAST FARMINGTON	
CHURCH DRIVE AND FROESE DRIVE	

Figure 3.4. 3 – Inman Outdoor Storm Siren Map



Vulnerabilities

Hazards Affecting the City of Inman

History of Agricultural Infestation

The City of Inman reported that the community experienced ground water and soil contamination due to grain storage and chemical preservatives from long term use and storage in the 1940s and 1950s.

History of Flooding

According to the Inman Police Department, flooding caused waste water to flood into wells that caused contaminated water to dump into water storage towers. The City of Inman has experienced rainfall amounts of two to three inches causing Cherokee and Center Roads to flood.

The following historic flooding incidents were obtained from the National Climatic Data Center database.

May 8, 2009	A severe series of thunderstorms swept through the County, causing water to flow over 14th avenue in multiple places. County roads also flooded around Inman. Property damage was estimated at $500. There were no reports of deaths or injuries.
June 16, 2009	A significant severe weather episode developed across portions of Kansas on the evening of June 15th, 2009, into the early morning hours of June 16th. There were several reports of water covered roads six miles west south west of Inman. The flood waters flooded the basketball courts at Challenger Park in McPherson. Rainfall amounts were measured at 3.25 inches.

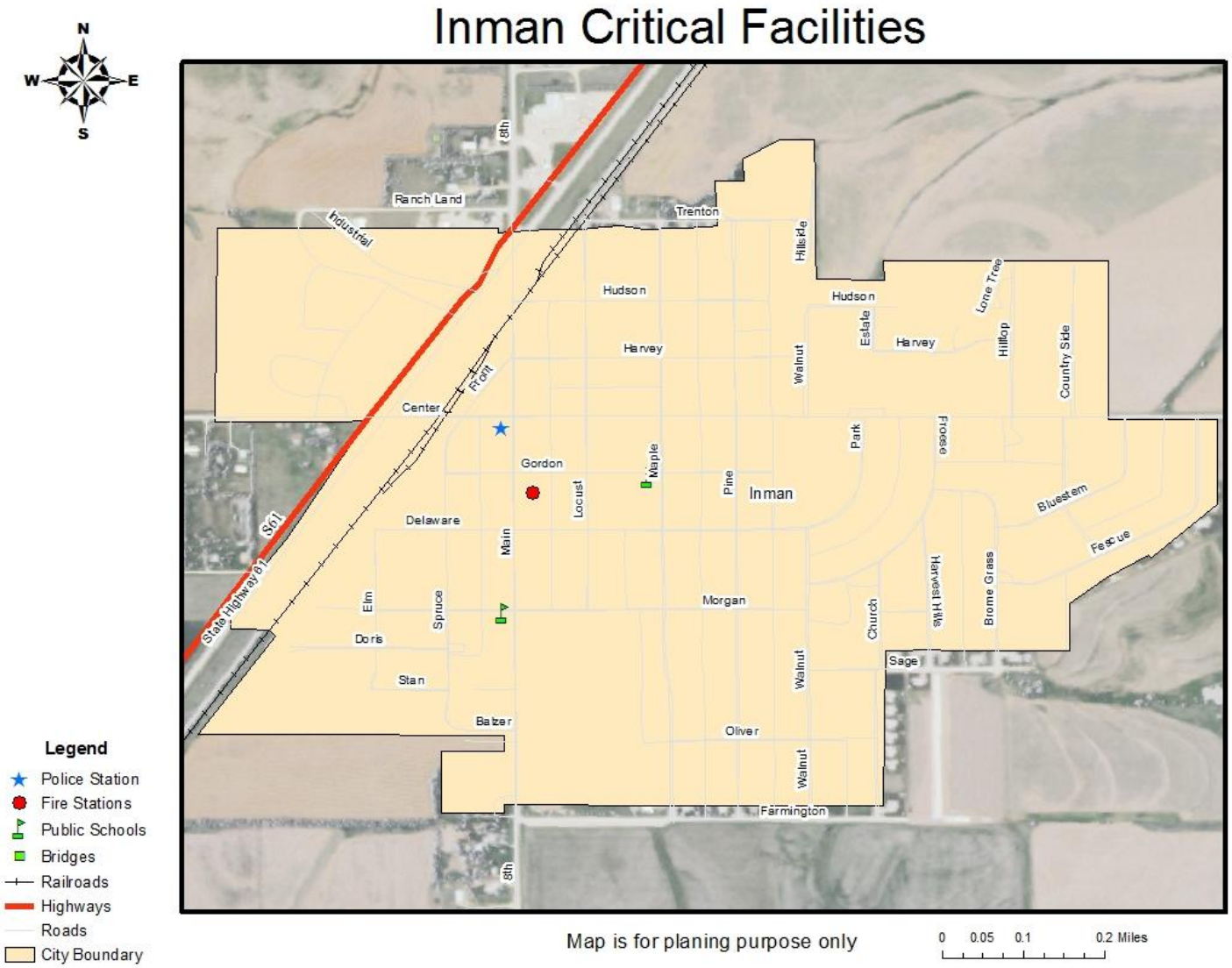
Repetitive Loss Properties

FEMA defines severe repetitive loss properties as “a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are currently not any repetitive flood loss properties in Inman, Kansas.

HAZUS Report

A “flood” HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA’s software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.4.4 is map that identifies the location of the critical facilities in relation to the 100-year floodplain for the City of Inman. The HAZUS loss estimation model for Inman did not identify any floodplain areas.

Figure 3.4. 4 – Inman's Critical Facilities in relation to the 100-year Floodplain



History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 9, 1996	A hailstorm was reported in the City of Inman. Hailstones 1.75 inches in diameter were reported. There were no reports of property damage or injuries.
May 18, 1997	A hailstorm was reported six miles south west of Inman. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
July 8, 1997	A hailstorm was reported two miles south of Inman. One inch hailstones were reported. There were no reports of property damage or injuries.
May 11, 1998	A hailstorm was reported five miles north east of Inman. Hailstones 1.75 inches in diameter were reported. There were no reports of property damage or injuries.
May 20, 1999	A hailstorm was reported three miles south west of Inman. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
June 13, 2000	A hailstorm was reported in the City of Inman. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
April 14, 2001	A hailstorm was reported three miles south of Inman, along the Reno/McPherson county line. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
August 24, 2001	A hailstorm was reported five miles north west of Inman. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
September 17, 2001	A hailstorm was reported seven miles north west of Inman. Hailstones 1.75 inches in diameter were reported. There were no reports of property damage or injuries.
June 12, 2004	A hailstorm was reported three miles south west of Inman. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
July 4, 2004	A hailstorm was reported three miles south west of Inman. Hailstones three-quarters of an inch in diameter were reported. There were no reports of property damage or injuries.
June 30, 2005	A hailstorm was reported six miles south west of Inman. Hailstones three-quarters of an inch in diameter were reported. There were no reports of property damage or injuries
July 3, 2005	A hailstorm was reported four miles north west of Inman. Hailstones four inches in diameter were reported. There were no reports of property damage or injuries
March 23, 2007	Numerous thunderstorms affected far southeast Kansas during the morning and afternoon hours of March 23rd.. Later that evening, a cluster of strong to severe thunderstorms developed across south-central and central Kansas near a stationary front, producing one inch hail in the City of Inman.

Hazardous Materials

The City of Inman reported that 8th Avenue is a motor transportation line for Mid-Kansas Coop and Williams Gas. There have been several motor accidents involving tanker trucks, resulting in hazardous materials to spill into the ground soil and standing water.

History of Lightning Events

The following lightning events were provided by the City of Inman.

September 2007 — A sewage lift station failure was the result of a lightning strike in Inman. The lift station failure caused the sewers to backup resulting in damage to several properties. Damage estimates are not available.

A lightning strike came into contact with a well house in Inman, causing pump motor damage. A new pump motor had to be purchased and installed.

History of Utility/Infrastructure Failure

The following utility and infrastructure failure information was provided by the City of Inman.

2007 — Well water became contaminated, causing the water towers to also become contaminated. Waterlines had to be flushed out. The contamination resulted in approximately three days of service interruption. The National Guard was called in for water supply.

Winter 2007 — Ice storm caused major damage to power lines. It took two to four days to fully restore the power.

2009 — Heavy snow caused transportation break down for several days due to minimal snow removal equipment.

History of Wildfire

From 2005 to 2009 there have been a total of 8,100 acres burned in the Inman Fire Department service area as the result of wildfires. The information in Table 3.4.9 was provided by the Inman Fire/Rescue (Fire District #5). For the past four years, the majority of fire response calls have been wildfire calls, 11 calls were structure fire and 87 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.4. 10 – Inman Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
2000	165	NA	NA	NA	NA	NA	NA	NA	NA
2001	149	NA	NA	NA	NA	NA	NA	NA	NA
2002	142	NA	NA	NA	NA	NA	NA	NA	NA
2003	162	NA	NA	NA	NA	NA	NA	NA	NA
2004	131	NA	NA	NA	NA	NA	NA	NA	NA
2005	133	3	19	1,600	0	0	0	0	0
2006	166	0	26	2,100	0	0	0	0	0
2007	129	2	11	800	0	0	0	0	0
2008	126	2	17	2,400	0	0	0	0	0
2009	147	4	14	1,200	0	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 25, 2000	A severe thunderstorm blew down tree limbs between four to five inches in diameter nine miles west of Inman. There were no reports of injuries or property damage.
May 16, 2002	A windstorm was reported in the City of Inman. Numerous tree limbs were blown down as a result of the storm. There were no reports of injuries or property damage.
June 15, 2002	A windstorm was reported six miles east of Inman. There were no reports of injuries or property damage.
September 22, 2003	A windstorm was reported in the City of Inman. There were no reports of injuries or property damage.
May 21, 2005	A windstorm was reported seven miles west south west of Inman. Large tree limbs were blown down as a result of the storm. There were no reports of injuries or property damage.
August 12, 2005	A windstorm was reported two miles south west of Inman. There were no reports of injuries or property damage.
June 7, 2009	The first round of storms Sunday evening June 7th, produced a swatch of severe winds. Around midnight, June 8th, a large storm developed in the City of Inman.
July 14, 2009	Abundant low level moisture streamed to the north over the top of a warm frontal boundary, leading to thunderstorms developing in Inman. The thunderstorms produced a combination of damaging winds and large hail. A fifth wheel camper was blown over, resulting in $5,000 in property damage. A tin roof was blown off a business seven miles west North West of Inman, damage was estimated at $30,000.

History of Winter Storms

The following winter storm events were provided by the City of Inman.

2007	Ice caused major damage to trees and power lines in Inman. Damage estimates were not available.
2009	Heavy snow caused transportation break down due to minimal snow removal equipment.

City of Inman Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability assessment for the City of Inman. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Inman for their specific community. The City does not have any special flood hazard areas; therefore it was determined the flood vulnerability level should be lowered to moderate.

Table 3.4. 11 – Inman Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Inman Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	Moderate
4	Winter Storm	High	High

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Inman Planning Significance
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate
10	Hazardous Materials	Moderate	Moderate
11	Lightning	Moderate	Moderate
12	Expansive Soils	Moderate	Moderate
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Moderate
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Moderate
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Low
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

State highway K61 runs through the City of Inman

Railroads

Union Pacific Rail Road has rail lines in the City.

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. Currently the National & State Register of Historic Places does not have any places listed as historical for the City of Inman. However, the Inman Public Library is in the process of becoming registered as a historic site.

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. . The facilities also include education facilities to ensure continuity of education. Table 3.4.12 identifies the critical facilities in Inman.

Table 3.4. 12 – Inman Critical Facilities

Name of Asset	Facility Type	Address	Value of Structure
PLEASANT VIEW HOME	NURSING HOME	100 BLOCK NORTH WALNUT	$1,000,000
PARTNERS IN FAMILY CARE	MEDICAL CLINIC	100 BLOCK SOUTH MAIN	$200,000
INMAN HIGH SCHOOL	EDUCATION/TORNADO SHELTER	400 SOUTH MAIN	$13,919,000
INMAN ELEMENTARY SCHOOL	EDUCATION/TORNADO SHELTER	200 BLOCK NORTH MAPLE	$7,797,000
INMAN FIRE DEPARTMENT	EMERGENCY SERVICES	200 BLOCK SOUTH MAIN	$325,000
POLICE DEPARTMENT	EMERGENCY SERVICES	100 BLOCK NORTH MAIN	$200,000
CITY HALL	GOVERNMENT	100 BLOCK NORTH MAIN	$150,000
CITY WATER DEPARTMENT	UTILITIES	VARIOUS LOCATIONS	NA
CITY SEWER	UTILITIES	VARIOUS LOCATIONS	NA

Local Businesses

Local businesses are vital to the economic growth in the community. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for the City of Inman are identified in Table 3.4.13.

Table 3.4. 13 – Inman Local Businesses

Business Name	Type of Business	Address
ALA TRANSPORT	TRANSPORTATION SERVICES	257 7TH AVENUE
AMPRIDE	CONVENIENCE STORE	111 EAST CENTER
AUTO PRIDE	AUTOMOTIVE	108 NORTH MAIN
BETHEL MENNONITE CHURCH	RELIGIOUS	256 8TH AVENUE
BROWN CONSTRUCTION	CONSTRUCTION SERVICES	305 DORIS
CHARLIE''S ELECTRIC	ELECTRICAL SERVICES	732 CHEYENNE
CHIEF'S BARBER	RETAIL	108 SOUTH MAIN
CONNIE'S SHEAR DESIGN	RETAIL	112 NORTH MAIN
COUNTRY STORE	RETAIL	104 RANCHLAND ROAD
DAVE'S AUTO REPAIR	AUTOMOTIVE	105 INDUSTRIAL DRIVE
DIESEL PICKUP SPECIALIST	AUTOMOTIVE	104 INDUSTRIAL DRIVE

Business Name	Type of Business	Address
F&F MACHINE	MACHINE SHOP	209 SOUTH MAIN
FABSOURCE	MANUFACTURING	800 EAST CENTER
FARMERS NATIONAL BANK	FINANCIAL	107 SOUTH MAIN
FRIESEN HARVESTING	AGRICULTURAL SERVICES	507 SOUTH MAIN
FUQUA CONSTRUCTION	CONSTRUCTION SERVICES	118 SOUTH MAIN
FARM SHED GOODS & GIFTS	RETAIL	1161 BUCKSKIN
FUTURE PRO	RETAIL	200 NORTH MAIN
GILL CHIROPRACTIC & ACUPUNCTURE CLINIC	HEALTHCARE	203 SOUTH MAIN
GOERTZEN HOMES	RETAIL	432 8TH AVENUE
GREENFIELD IRRIGATION	SERVICES	401 ½ TRENTON
GROVE TERMITE & PEST CONTROL	SERVICES	823 OSAGE
HAIR EXTENSION	RETAIL	106 SOUTH MAIN
HEARTLAND HAVEN	HOME HEALTHCARE	1345 CHEROKEE
HERB HOUSE	RETAIL	112 NORTH MAIN
HOFFNUNGSAU MENNONITE CHURCH	RELIGIOUS	43 13TH AVENUE
HOMETOWN FOOD STORE	RETAIL	217 SOUTH MAIN
INMAN DENTAL CENTER	HEALTHCARE	113 SOUTH MAIN
INMAN ELECTRIC	ELECTRIC SERVICES	116 SOUTH MAIN
INMAN HARVEST CAFÉ	RESTAURANT	112 SOUTH MAIN
INMAN IRRIGATION	SERVICES	892 ARAPAHO
INMAN LUMBER	BUILDING SUPPLIES	107 WEST GORDON
INMAN MENNONITE CHURCH	RELIGIOUS	304 SOUTH PINE
INMAN POST OFFICE	GOVERNMENT	210 SOUTH MAIN
INMAN RV PARK	RECREATION	206 STAN
INMAN RECREATION	RECREATION	510 SOUTH MAIN
INMAN SENIOR CENTER	ELDERLY SERVICES	103 EAST GORDON
INMAN SERVICE	AUTOMOTIVE	124 SOUTH MAIN
INMAN STORAGE	STORAGE	INDUSTRIAL PARK
INMAN WELLNESS CENTER	HEALTHCARE	510 SOUTH MAIN
J.P. PIPELINE CONSTRUCTION	CONSTRUCTION SERVICES	81 ARROWHEAD
JIM'S APPLIANCES	RETAIL	103 SOUTH MAIN
JON BROWN CONSTRUCTION/K-5 TREE FARM	CONSTRUCTION SERVICES	305 DORIS
KD ELECTRIC	ELECTRIC SERVICES	442 8TH AVENUE
KANSAS SAMPLER FOUNDATION	EDUCATION/TOURISM	978 ARAPAHO
KNACKIES CATERING & BBQ	RESTAURANT	115 SOUTH MAIN
L&R BATTERY & ALTERNATOR SERVICE	AUTOMOTIVE	645 11TH AVENUE
LARSON FLOOR COVERING	RETAIL	103 NORTH LOCUST
LOUI'S SERVICE CENTER	AUTOMOTIVE	782 CHEROKEE
MAIN STREET PIZZA CAFÉ	RESTAURANT	100 SOUTH MAIN
MARTEN'S TOOL & DIE	TOOL & DIE	100 INDUSTRIAL DRIVE

Business Name	Type of Business	Address
MID-KANSAS CO-OP	AGRICULTURAL SERVICES	NA
MID-KANSAS CO-OP GROVELAND ELEVATOR	AGRICULTURAL SERVICES	NA
NEUFELD HARVESTING	AGRICULTURAL SERVICES	94 BUCKSKIN
NEUFELDT VARIETY	RETAIL	114 SOUTH MAIN
NORMA'S PHOTOS	RETAIL	NA
OUR COUNTRY CHARMS/FINE DESIGN	RETAIL	39 8TH AVENUE
PARTNERS IN FAMILY CARE	HEALTHCARE	101 WEST GORDON
PENNER FEED & SUPPLY	AGRICULTURAL SERVICES	778 CHEROKEE
PEOPLES BANK & TRUST	FINANCIAL	215 SOUTH MAIN
PIONEER SUPPLY	BUILDING SUPPLIES	432 8TH AVENUE
PIONEER TRUCK LINE	TRANSPORTATION SERVICES	664 BUCKSKIN
PLEASANT VIEW HOME	ELDERLY HEALTHCARE	108 NORTH WALNUT
PRIMETIME	CONVENIENCE STORE	K-61 & NORTH MAIN
PRN FABRICATION	MANUFACTURING	101 INDUSTRIAL DRIVE
PROPANE CENTRAL	RETAIL	444 8TH AVENUE
R&W INSURANCE	INSURANCE	102 RANCHLAND DRIVE
SCALE STRUCTRUCTURES LTD	MANUFACTURING	103 INDUSTRIAL
SCOTTS LAWN SERVICE	SERVICE	NA
SMITH SALES & SERVICE	REPAIR	211 SOUTH MAIN
S-R TRACTOR REPAIR	REPAIR	501 EVERGREEN
ST. PETER'S UNITED CHURCH OF CHRIST	RELIGIOUS	111 NORTH PINE
STONE POST GIFT SHOP	RETAIL	71 5TH AVENUE
STORAGE TOWN	STORAGE	102 INDUSTRIAL DRIVE
STRINGS & MORE	REPAIR	512 SOUTH PINE
SUNDANCE FARM	AGRICULTURAL SERVICES	264 APACHE
SUNFLOWER SERVICE CENTER	INSURANCE	102 RANCHLAND DRIVE
SWEETWATER SPROUTS	AGRICULTURAL SERVICES	158 CHISHOLM
TEUTON CAR WASH	AUTOMOTIVE	209 SOUTH MAIN
TOWN & COUNTRY HEATING AND AIR CONDITIONING	SERVICE	473 6TH AVENUE
TREE HOUSE LEARNING CENTER	EDUCATION/CHILD CARE	43 13TH AVENUE
TRIPLE K AUCTION & REAL ESTATE	REAL ESTATE	523 4TH AVENUE
TURF SOLUTIONS	SERVICE	NA
VINE DESIGNS	RETAIL	108 WEST CENTER
WHEATLAND PEST MANAGEMENT	SERVICE	1304 CHEROKEE
ZION CHURCH	RELIGIOUS	597 6TH AVENUE
ZOAR MENNONITE BRETHREN CHURCH	RELIGIOUS	362 SOUTH WALNUT

Community Concerns

Inman has an above average elderly population, which could cause a higher need of assistance from emergency personnel. Power outages could cause several problems due to higher electronic devices needed for medical support. Over 10% of the population need skilled nursing care on a daily basis and over 30 percent of the population is over the age of 65.

Table 3.4.14 is the hazard vulnerability information for the senior center located in Inman. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.4. 14 - MCCOA Hazard Vulnerability Assessment for Inman Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
INMAN SENIOR CENTER 103 E. GORDON	NONE	NONE	NONE	NONE	NONE	HIGH SCHOOL	NO

Table 3.4.15 identifies the concerns the City of Inman has regarding the specific population groups.

Table 3.4. 15 – Inman Community Concerns

Population group:	Concerns:
School age children	School enrollment for 2009-10 school year was 443 that is 35% of Inman's population. A large population of school aged children adds to the number of people that could need emergency services with limited resources from a small community. The grade school does not have a tornado shelter.
Institutionalized populations	Nursing home has a population ranging from 220 up to 265 residents, depending on the emergency this could be a large scale evacuation of mostly disabled people with medical needs.
Low Income	A significant number of lower income housing is without adequate storm shelters.
Other	Due to the high population of elderly/institutionalized population and large school age population, the very limited staff of emergency personnel in this community wouldn't adequately provide rapid assistance.

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.4.16 identifies the current land usage for the City of Inman.

Table 3.4. 16 – Inman Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	37%
Industrial	7%
Developed with mixed uses	3%
Commercial	4%
Agricultural	1%
Parks/restricted wild land/wildlife refuge	4%
Institutional (education, health care, etc.)	8%
Transportation or utility right-of-way	33%
Vacant/unused - private ownership	1%
Vacant/unused - government ownership	1%

New Development

Currently Inman is in the process of reconstructing Highway K-61, changing it from a two lane highway to a four lane divided highway.

There is currently residential development underway in the City, along with the development of a mobile Recreational Vehicle park.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Inman plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING: • REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW; • ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS; • NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA); • ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES; • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED; • WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** DEVELOP EMERGENCY PREPAREDNESS PLAN
Project Description: DEVELOPMENT AND IMPLEMENTATION OF EMERGENCY PREPAREDNESS PLAN	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): REDUCE RESPONSE TIME DURING EMERGENCIES	**Completion Date:** WITHIN 1 YEAR
Plan for Implementation and Administration: DEVELOP AND IMPLEMENT A CITY EMERGENCY PREPAREDNESS PLAN. CITY STAFF WILL ADMINISTER THE PLAN IN CONJUNCTION WITH OTHER INVOLVED AGENCIES.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** INSTALL NEW OUTDOOR STORM SIREN(S)
Project Description: PURCHASE AND INSTALL ADDITIONAL EMERGENCY ALERT SIREN(S)	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $10,000 - $15,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: ONCE GRANT HAS BEEN OBTAINED, PURCHASE AND INSTALL NEW OUTDOOR STORM SIREN(S)	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE AND INSTALL PERMANENT EMERGENCY BACKUP GENERATOR FOR CITY BUILDING ALLOWING FOR ELECTRICAL POWER IN COMMAND AREA DURING CRISIS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $20,0000 - $35,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CONTINUITY OF GOVERNMENT	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: ONCE GRANT HAS BEEN OBTAINED, PURCHASE EMERGENCY GENERATOR AND INSTALL IT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE AND INSTALL PERMANENT EMERGENCY BACKUP GENERATOR FOR SEWER LIFT STATION	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $10,0000 - $15,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): AVOID SEWER BACKUP	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: ONCE GRANT HAS BEEN OBTAINED, PURCHASE EMERGENCY GENERATOR AND INSTALL IT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** LOOK INTO FUNDING TO CONSTRUCT FEMA APPROVED COMMUNITY SAFE ROOM
Project Description: LOOK INTO FUNDING TO CONSTRUCT COMMUNITY SAFE ROOM FOR INMAN RESIDENTS TO PROTECT THEM AGAINST HAZARDOUS CONDITIONS	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $100,000-$200,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LIFE SAFETY/PROTECT RESIDENTS AGAINST THREATENING WEATHER	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING TO CONSTRUCT COMMUNITY SAFE ROOM FOR INMAN RESIDENTS TO PROTECT THEM AGAINST HAZARDOUS CONDITIONS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** CITY WELL HOUSE ELEVATION
Project Description: CITY WELL HOUSE FLOODS DURING HEAVY RAIN AND HAS CONTAMINATED THE DRINKING WATER IN THE PAST. WELL HOUSE NEEDS TO BE ELEVATED TO PREVENT POSSIBLE FUTURE DAMAGE	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: NA	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): PROPERTY PROTECTION	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR WELL HOUSE ELEVATION	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN	**Project Title:** RADIO SYSTEM PURCHASE
Project Description: INMAN HAS NO BASE STATION AND CITY CREWS DO NOT HAVE RADIOS. LOOK INTO FUNDING FOR PURCHASE OF RADIO SYSTEM.	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: APPROXIMATELY $30,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	All Hazards
Benefits (Losses Avoided): SAFETY OF COUNTY EMPLOYEES & PUBLIC IN POTENTIALLY HAZARDOUS OR DISASTER EVENT(S)	**Completion Date:** WITHIN 5 YERAS
Plan for Implementation and Administration: ONCE FUNDING HAS BEEN ESTABLISHED, PURCHASE PORTABLE BASE STATION, PELICAN CASE MOUNTED CAR RADIO, OPERATES ON STANDALONE 12V AND 110V. PURCHASE SMALL PORTABLE ANTENNA SYSTEM. PURCHASE 12 RADIOS TO PROVIDE ALL CITY AND ADDED PERSONNEL TO COMMUNICATE DURING EMERGENCY OPERATIONS.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF INMAN POLICE DEPARTMENT	**Project Title:** EQUIP PATROL CARS WITH MOUNTABLE LAPTOPS AND WIRELESS CARDS
Project Description: LOOK INTO FUNDING TO EQUIP PATROL CARS WITH MOUNTABLE LAPTOPS AND WIRELESS INTERNET CARDS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): SAFETY OF POLICE OFFICERS	**Completion Date:** WITHIN 5 YERAS
Plan for Implementation and Administration: ONCE FUNDING HAS BEEN ESTABLISHED, PURCHASE AND INSTALL MOUNTABLE LAPTOPS WITH WIRELESS INTERNET CARDS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Lindsborg	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	Yes
Number of Repetitive Loss Properties	0

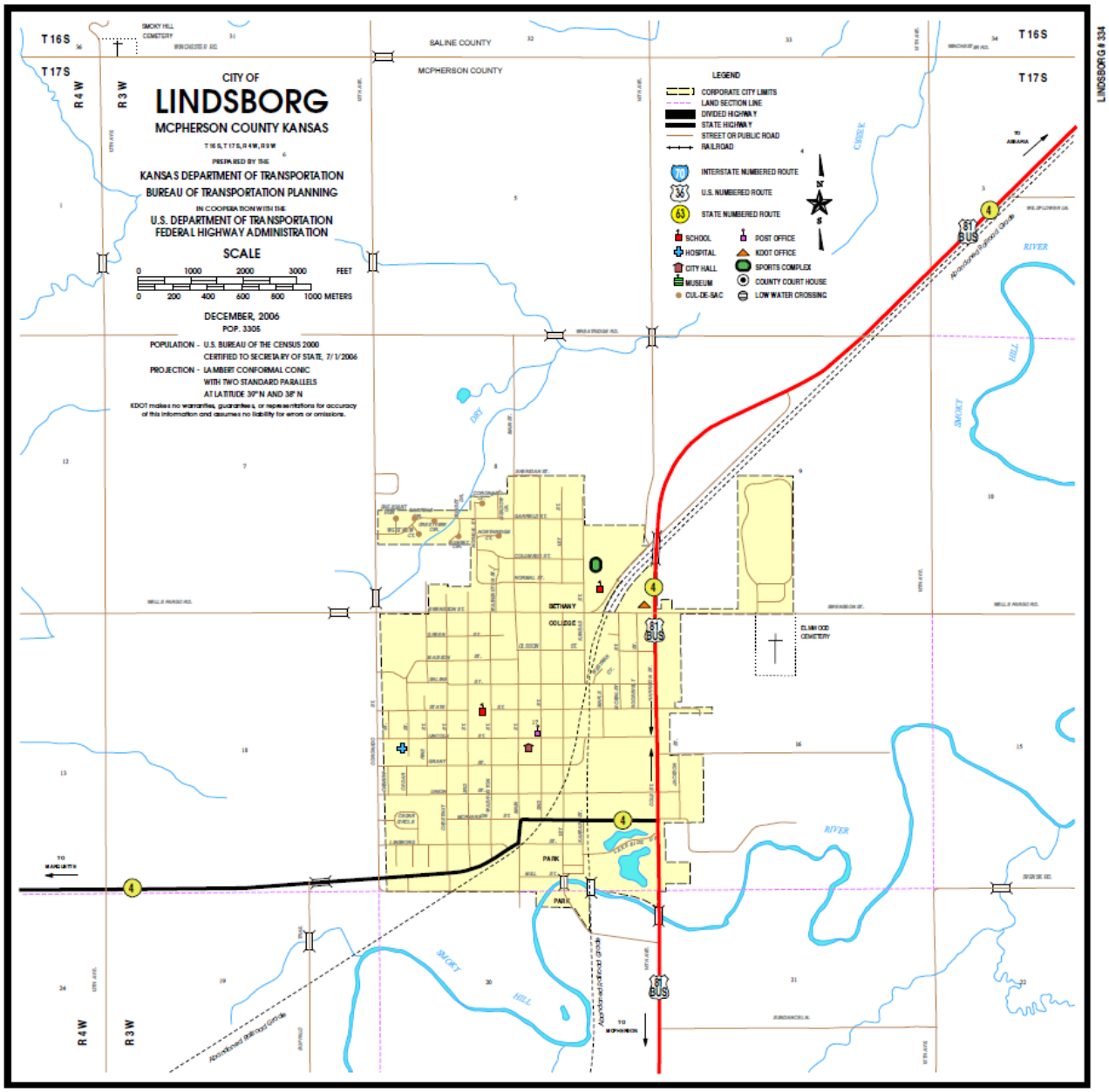
The following image is an aerial view of the City of Lindsborg (City-Data.com).

Figure 3.5. 1 - City of Lindsborg

Location

"The City of Lindsborg is located in northern McPherson County on State Highway K-4. It has a total land area of 1.8 square miles and has an elevation of 1,330 feet. The following map is the jurisdictional boundary for the City of Lindsborg (Kansas Department of Transportation)."

Figure 3.5. 2 - City of Lindsborg Jurisdictional Boundary Map



History

"The City of Lindsborg was settled in the spring of 1869 by a group of Swedish immigrants from the Värmland province of Sweden led by Pastor Olof Olsson. It had been platted and given its name 10 years earlier in Chicago.

The town is located in the Smoky Valley of Central Kansas through which the Smoky Hill River winds in a lazy ox-bow on its way to the Kansas River. Its Swedish ethnic community, however, spreads out into the surrounding hills, rolling terrain and Great Prairie which make up Saline and McPherson Counties.

In 1868, the First Swedish Agricultural Company of Chicago had bought 13, 160 acres of land from the Union Pacific Railroad. At the same time, the U.P. agreed to give 160 acres of land for church and school purposes to the company. The Lindsborg Town Company was organized in 1876 and this organization bought the present land upon which Lindsborg is located from the Swedish Agricultural Company for $10,000. Lindsborg became a city of the third class on July 8th, 1879."

Governance

The City of Lindsborg is a city of the second class. A second class city has 2,000 to 14,999 inhabitants. Lindsborg has the most prevalent form of city government in Kansas, the mayor-council form of government. In cities of the first and second class, the mayor and council members are elected by wards. There are four wards in Lindsborg and each ward is elected to council members, for a total of eight council members. The City also has the following departments:

- City Administrator
- City Clerk
- Municipal Court
- Police Department
- Fire Department
- Public Works Department
- Finance Department
- Community Development Department
- Parks and Recreation Department
- Convention and Visitors Bureau
- Planning and Zoning Commission
- Cemetery Board
- Library Board
- Board of Zoning Appeals
- Design Review Board
- Lindsborg Housing Authority
- Public Safety Advisory Board
- Tree Board
- Sister City Committee

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 3,224 in 2009, the City of Lindsborg is ranked 115th among Kansas' incorporated cities. Table 3.5.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Lindsborg has declined since the 2000 census. There has been a little over three percent decrease in the population.

Table 3.5. 1 –Lindsborg Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Lindsborg	3,224	3,220	3,244	3,245	3,274	3,280	3,278	3,280	3,323	3,321

Table 3.4.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Lindsborg in comparison nationally, state, and county level. Over 20 percent of the population in Lindsborg is over the age of 65, which is over seven percent more than the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.5. 2 – City of Lindsborg Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Lindsborg	4.8	20.7	37.0	2.26	93.0	39.1

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Lindsborg is educational, health, and social services. There are 505 people employed in this industry, which is over 33 percent of the population. Table 3.5.3 is the 2000 census statistics for the employed civilian population 16 years and over in Lindsborg.

Table 3.5. 3 – City of Lindsborg Employed Civilian Population (16 years and Over)

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Educational, Health, and Social Services	505	33.2
Manufacturing	236	15.5
Retail Trade	150	9.9
Arts, Entertainment, Recreation, Accommodation, and Food Services	144	9.5
Other Services	27	5.7
Finance, Insurance, Real Estate, Rental and Leasing	87	5.7
Construction	78	5.1
Professional, Scientific, Management, Administrative, and Waste Management Services	61	4
Information	56	3.7
Public Administration	39	2.6
Wholesale Trade	32	2.1
Transportation and Warehousing, and Utilities	30	2
Agriculture, forestry, mining, fishing and hunting	29	1.9

The 2009 cost of living index is 78.1, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.5.4 identifies the economic characteristics for Lindsborg, Kansas from the 2000 census (U.S. Census Bureau). Lindsborg has a nine percent higher unemployment rate than the average for the State of Kansas and has about four percent fewer families living below poverty level.

Table 3.5. 4 - City of Lindsborg Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2
City of Lindsborg	4.9	8.2	85,100	37,500	17,415	9.0	64.9

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

On November 3, 2008, the City of Lindsborg adopted Ordinance 4566, Incorporation of Floodplain Management Zoning Ordinance, pursuant to the provisions of K.S.A. 12-3009, 12-3010 and 12-3301, which instituted floodplain zoning regulations within the City. The ordinance was based upon and modeled after the Model Floodplain Management Ordinance as approved and recommended by the Federal Emergency Management Agency Region VII and the Kansas Department of Agriculture, Division of Water Resources, Floodplain Program. In a related action, On July 7, 2008, the City of Lindsborg adopted Ordinance 4551 which prohibits streambed dumping.

National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Lindsborg is a participant in the National Flood Insurance Program. Table 3.5.5 is information from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for Lindsborg.

Table 3.5. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200215#	City of Lindsborg	McPherson	12/17/1973	5/15/1978	1/16/2009	5/15/1978	No

Community Rating System (CRS)

In addition to being a member of the NFIP, the City of Lindsborg also participates in the Community Rating System (CRS). The CRS is a voluntary incentive program that recognized and encourages community floodplain management activities that exceed the minimum NFIP requirements (Federal Emergency Management Agency). As

a result of exceeding the requirements, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS:

1. Reduce flood losses,
2. Facilitate accurate insurance rating, and
3. Promote the awareness of flood insurance.

There are 10 CRS classes: Class 1 requires the most credit points and gives the greatest premium discount; Class 10 identifies a community that does not apply for the CRS, or does not obtain a minimum number of credit points and receives no discount.

The activities are organized under four main categories: Public Information, Mapping and Regulation, Flood Damage Reduction, and Flood Preparedness. There are 18 activities recognized as measures for eliminating exposure to floods. Credit points are assigned to each activity.

Once a community applies to the appropriate FEMA region for the CRS program and its implementation is verified, FEMA sets the CRS classification based upon the credit points. This classification determines the premium discount for policyholders. Premium discounts ranging from 5 percent to a maximum of 45 percent will be applied to every policy written in a community as recognition of the floodplain management activities instituted. The table below shows premium discounts for CRS Classes 1-10 within different flood zones. All communities begin with a Class 10 rating (which provides no discount). The CRS Premium Discounts are as follows:

CRS PREMIUM DISCOUNTS

Class	Discount	Class	Discount
1	45%	6	20%
2	40%	7	15%
3	35%	8	10%
4	30%	9	5%
5	25%	10	---

SFHA (Zones A, AE, A1-A30, V, V1-V30, AO, and AH): Discount varies depending on class.

SFHA (Zones A99, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, and AR/AO): 10% discount for Classes 1-6; 5% discount for Classes 7-9.*

Non-SFHA (Zones B, C, X, D): 10% discount for Classes 1-6; 5% discount for Classes 7-9.

*In determining CRS Premium Discounts, all AR and A99 zones are treated as non-SFHAs.

The following table is the Community Rating system for the City of Lindsborg. The current class for Lindsborg is rated 8, meaning the community receives a ten percent discount on Special Flood Hazard Areas (SFHA) and a five percent discount for Non-Special Flood Hazard Areas (Non-SFHA).

Table 3.5. 6 – Community Rating System for the City of Lindsborg

Community Rating System							
Community Number	**Community Name**	**CRS Entry Date**	**Current Effective Date**	**Current Class**	**% Discount for SFHA[1]**	**% Discount for Non-SFHA[2]**	**Status[3]**
200215	Lindsborg	10/1/1992	5/1/2009	8	10	5	C

[1]For the purpose of determining CRS discounts, all AR and A99 zones are treated as non-SFHAs.
[2]Increase in discount for Classes 1-6 effective May 1, 2001.
[3]Status: C=Current, R=Restricted

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Lindsborg. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.5.7 identifies the existing planning ordinances, codes, and plans for Lindsborg.

Table 3.5. 7 – City of Lindsborg Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans	
Master Plan	Stormwater management program
Zoning ordinance	Site plan review requirements
Subdivision ordinance	Capital improvements plan
Neighborhood Revitalization Plan	Economic development plan
Floodplain Management ADOPTED NOVEMBER 3, 2008 – ORDINANCE: 4566	Local emergency operations plan
Municipal Code	Comprehensive Land Use Plan APPROVED SEPTEMBER 1988 – UPDATED 2005
Fire Prevention Code	Flood insurance study or other engineering study for streams
Building code	Elevation certificates
Disaster and Recovery Plan	Mutual Aid Agreements
Fire department ISO rating – RATING 4	Fire or Life Safety Code

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Lindsborg. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.5.8 identifies personnel resources and warning capabilities for Lindsborg.

Table 3.5. 8 – City of Lindsborg Personnel Resources

Personnel Resources
Planner/Engineer with knowledge of land development/land management practices – SERVICE PROVIDED THROUGH CONTRACTOR
Engineer/Professional trained in construction practices related to buildings and/or infrastructure – SERVICE PROVIDED THROUGH CONTRACTOR
Personnel skilled in GIS - COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS
Full-time building official - PUBLIC WORKS DEPARTMENT
Floodplain Manager - COMMUNITY DEVELOPMENT DEPARTMENT
Emergency Manager - COUNTY LEVEL
Grant writer - SERVICE PROVIDED THROUGH CONTRACTOR
GIS Data – Hazard areas - COMMUNITY DEVELOPMENT DEPARTMENT
GIS Data - Critical facilities - COMMUNITY DEVELOPMENT DEPARTMENT
GIS Data – Land use - COMMUNITY DEVELOPMENT DEPARTMENT
GIS Data – Links to Assessor's data - COMMUNITY DEVELOPMENT DEPARTMENT
Warning Systems/Services - PUBLIC SAFETY DEPARTMENT
Cable override - PUBLIC SAFETY DEPARTMENT
Outdoor weather warning signals - PUBLIC SAFETY DEPARTMENT

Financial Resources

This section will identify the financial resources available to the City of Lindsborg. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.5.9 identifies the financial resources available to Lindsborg.

Table 3.5. 9 – City of Lindsborg Financial Resources

Financial Resources
Community Development Block Grants
Capital improvements project funding
Authority to levy taxes for specific purposes
Fees for water, sewer, or electric services
Impact fees for new development
Incur debt through general obligation bonds
Incur debt through special tax bonds
Incur debt through private activities
Withhold spending in hazard prone areas

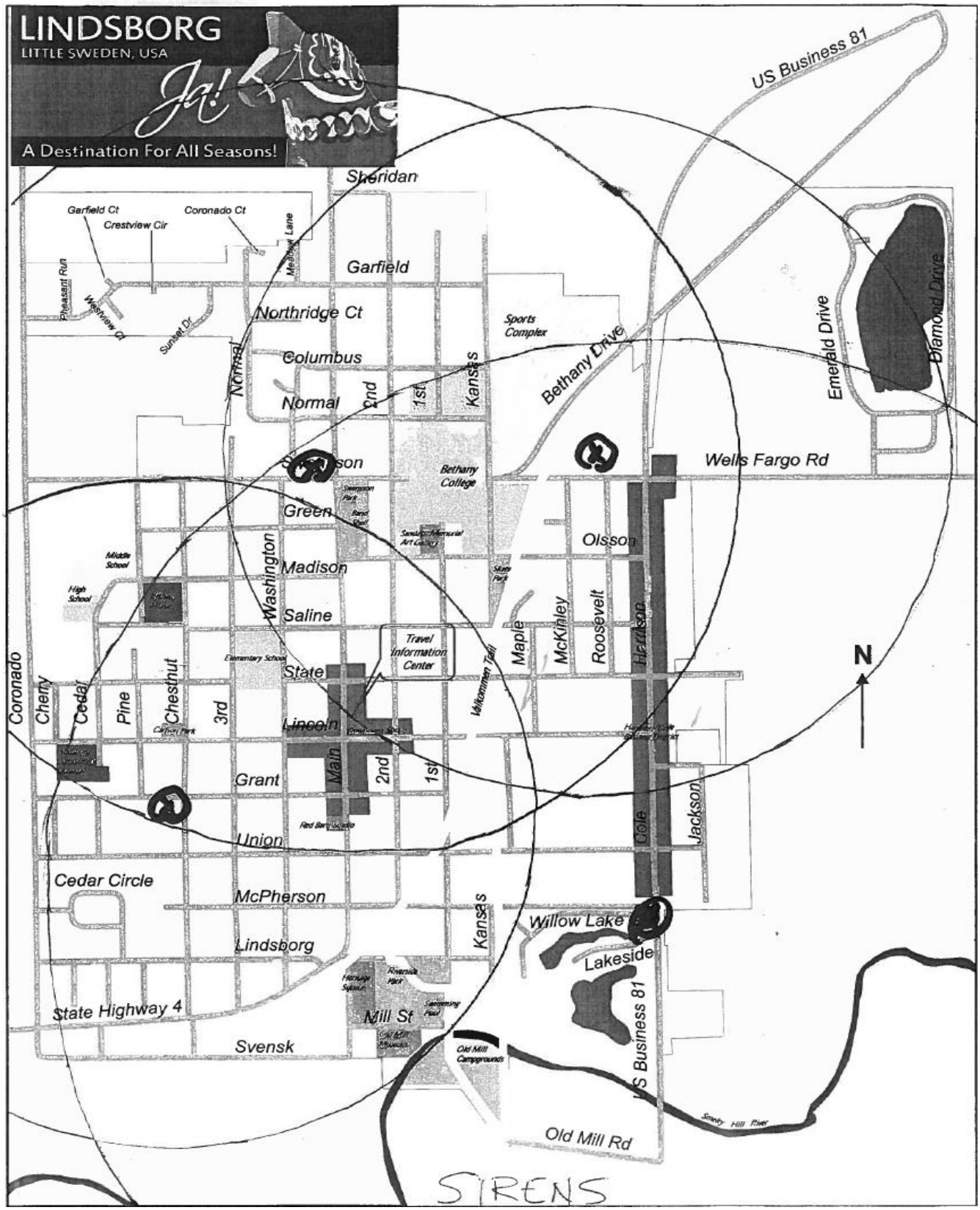
Outdoor Siren System

Lindsborg utilizes the siren network to warn residents of impending severe weather. There are four outdoor storm sirens in Lindsborg. Table 3.5.10 identifies the outdoor storm siren locations and activation method for the City of Lindsborg. Figure 3.5.3 illustrates the locations and coverage area of all storm sirens in Lindsborg.

Table 3.5. 10 – City of Lindsborg Siren Network Information

Location	Activation Method
WATER TOWER (N38.580 W-97.676)	ALL SIRENS ARE ACTIVATED BY RADIO SIGNAL
MCPHERSON/COLE (N38.569 W-97.677)	
WEST UNION (N38.570 W-97.682)	
EAST SWENSSSON (N38.580 W-97.669)	

Figure 3.5. 3 – City of Lindsborg Outdoor Siren Network



Vulnerabilities

Hazards Affecting the City of Lindsborg

Dam Failure

A dam breach of the Kanopolis Dam located in Ellsworth County on the Smoky Hill River would inundate the City of Lindsborg, which is 39.7 miles away from the dam, within six hours of a dam breach. The peak flood time would occur within 35 hours after the breach, with a peak elevation of 1,347 feet.

History of Flooding

There were not any historic flooding events listed in the National Climatic Data Center database for the City of Lindsborg.

Repetitive Loss Properties

FEMA defines severe repetitive loss properties as "a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are no repetitive flood loss properties in Lindsborg, Kansas.

HAZUS Report

A "flood" HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA's software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figures 3.5.4 through 3.5.8 are maps that identify the 100-year floodplain for the City of Lindsborg. Figure 3.5.9 identifies the critical facilities in Lindsborg in relation to the 100-year floodplain.

According to the HAZUS loss estimation model for Lindsborg, approximately 87 households would receive minor damage, 134 would receive moderate damage, and two would receive severe damage as the result of a 100-year flood event. One commercial business, the McPherson Old Country Mill, would receive severe flooding. State Highway K-4 could potentially experience minor flooding in the southwest portion of the city and U.S. Highway 81 could also potentially experience some minor flooding in the southeast.

Figure 3.5. 4 – City of Lindsborg 100-year Flood Zone

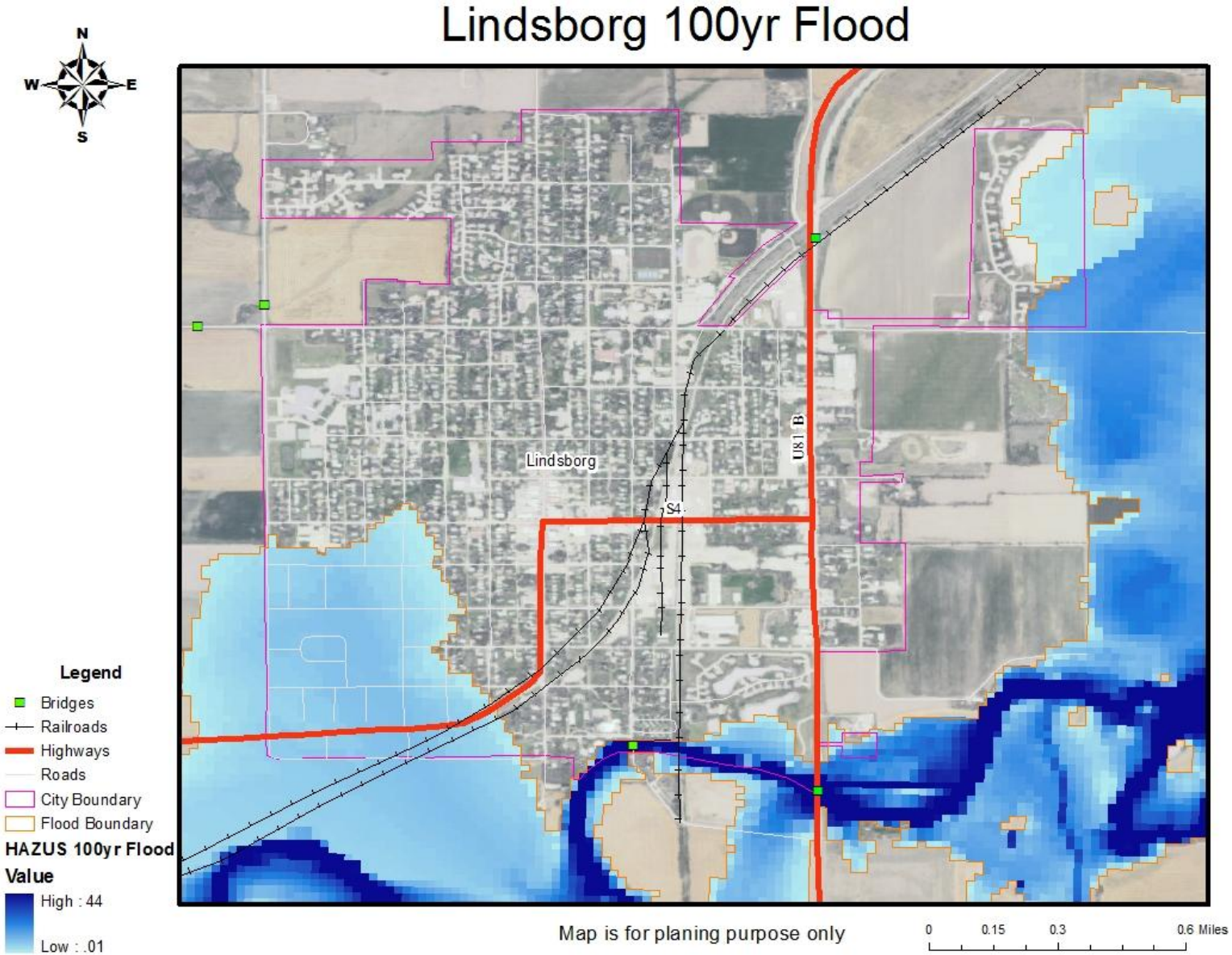


Figure 3.5. 5 – Lindsborg's 100-year Floodplain by Census Block

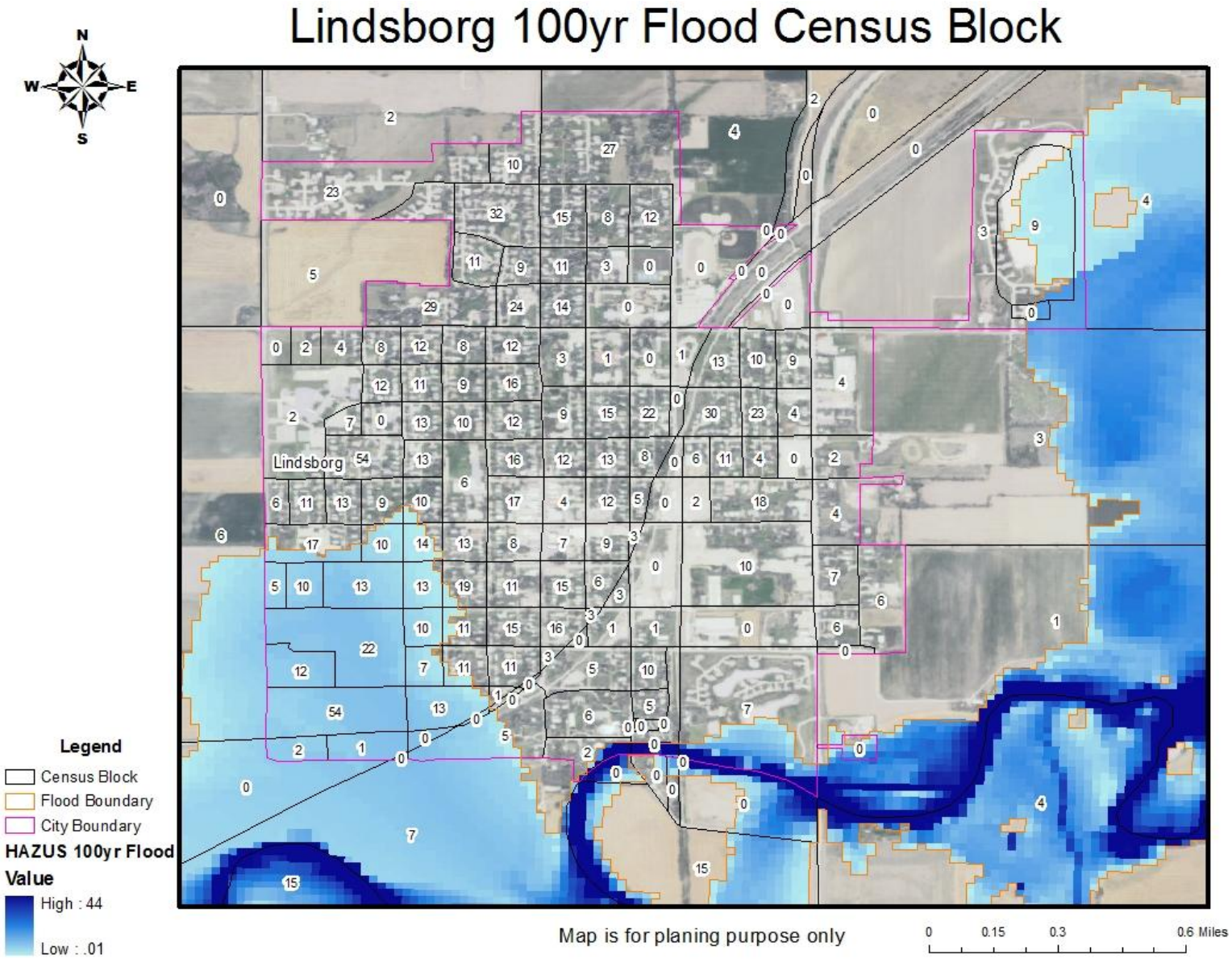


Figure 3.5. 6 - Detailed View of Lindsborg's 100-year Flood Zone – Southwest Portion of the City

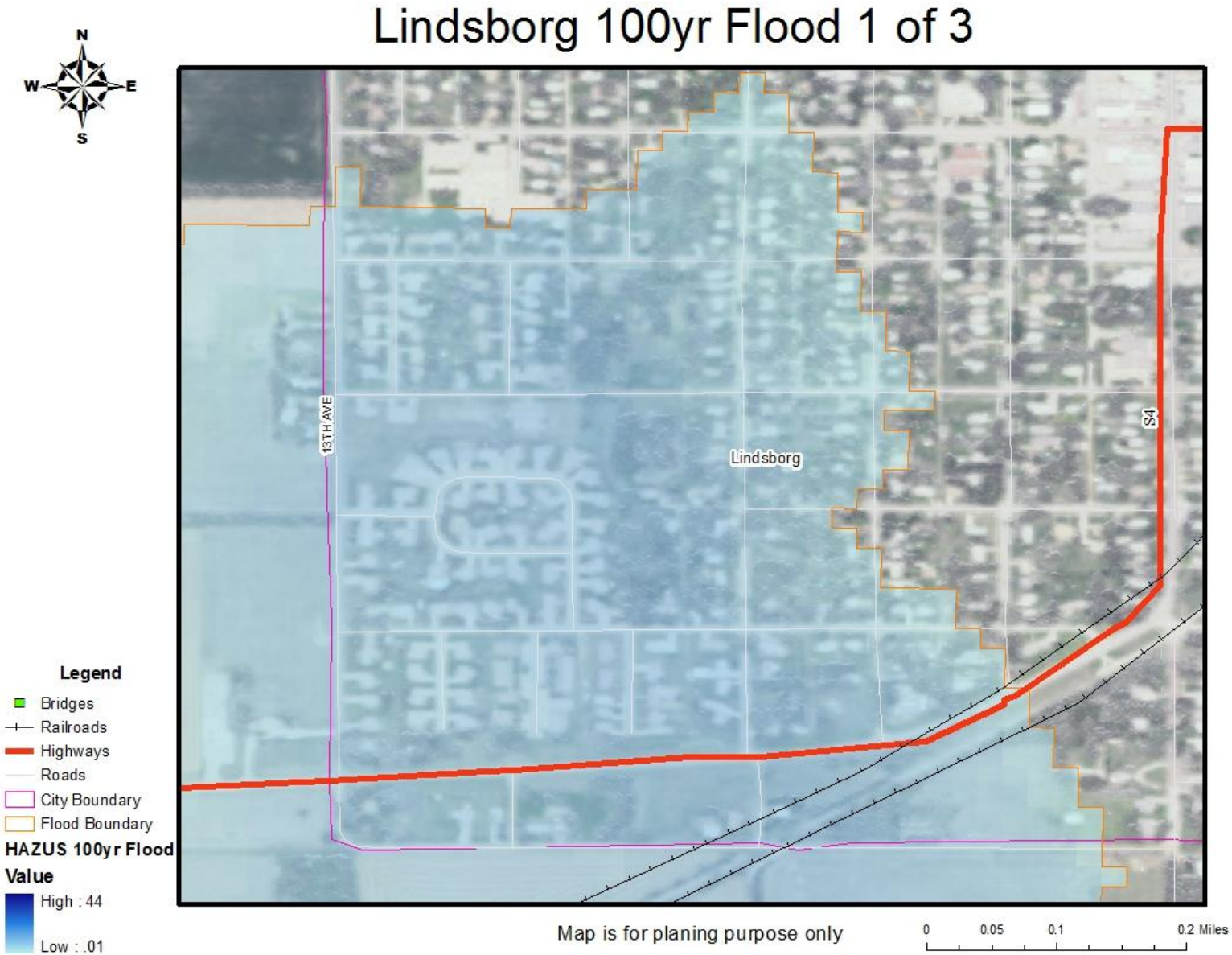


Figure 3.5. 7 - Detailed View of Lindsborg's 100-year Flood Zone – South Central Portion of the City

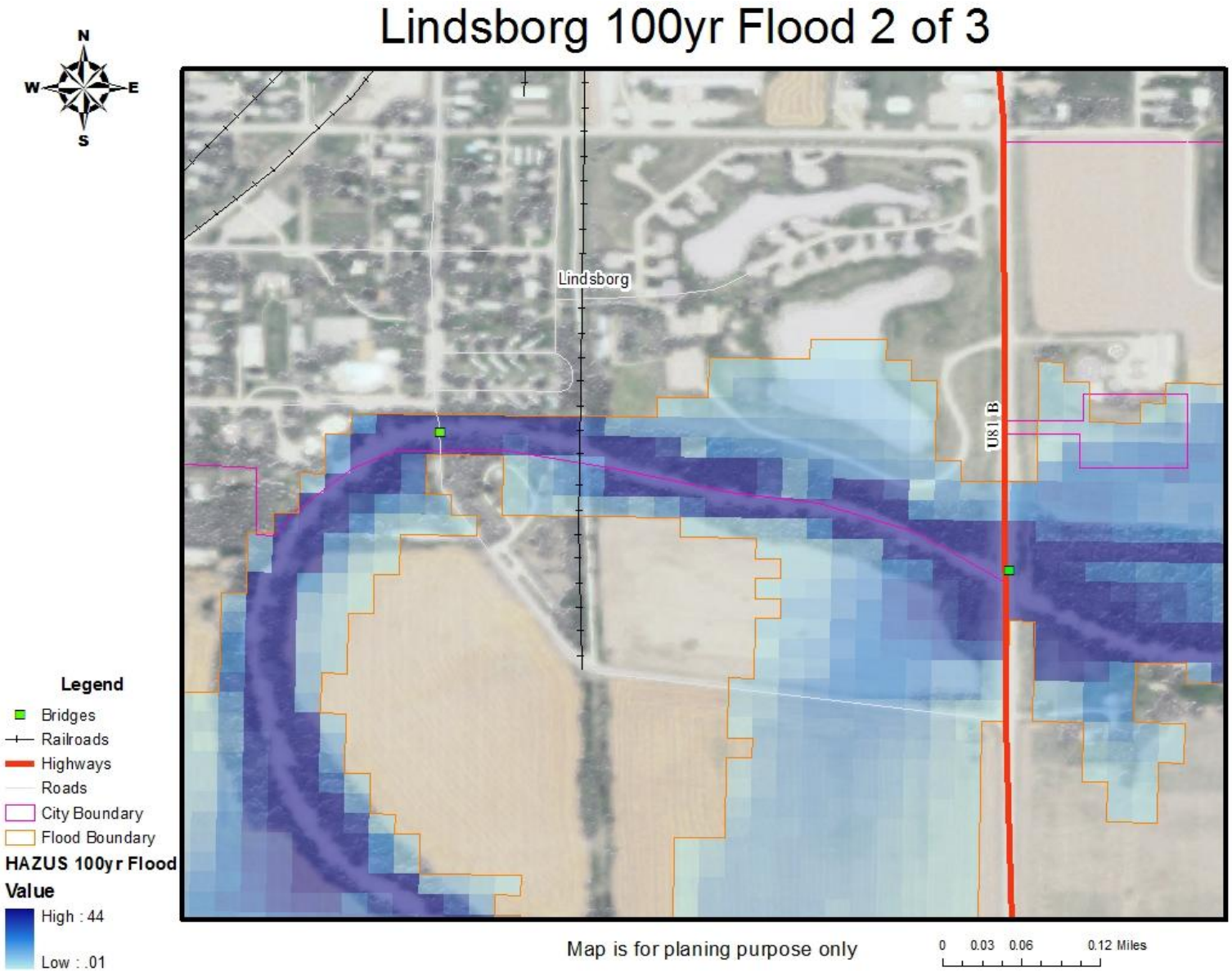


Figure 3.5. 8 – Detailed View of Lindsborg's 100-year Flood Zone – Northeast Portion of the City

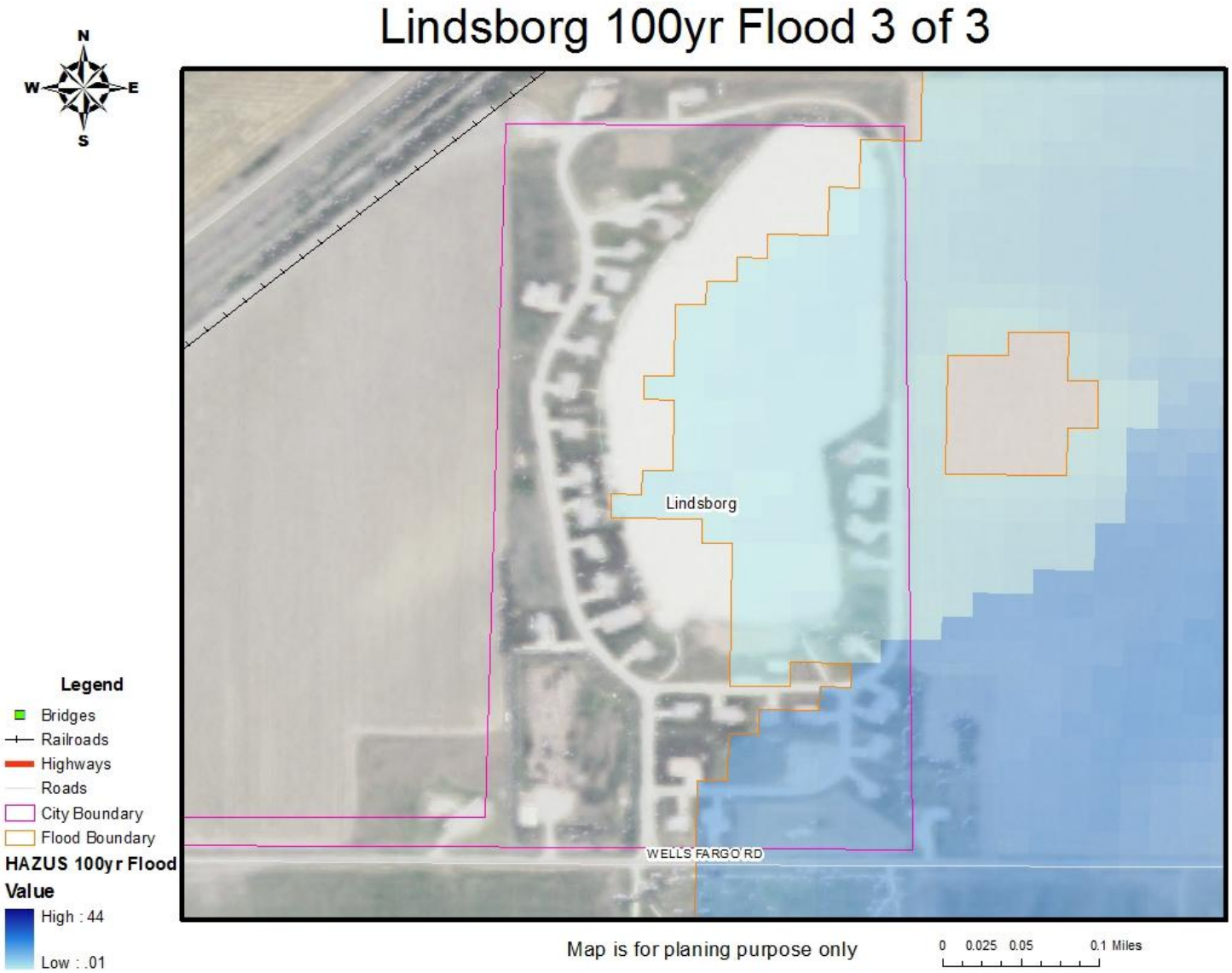
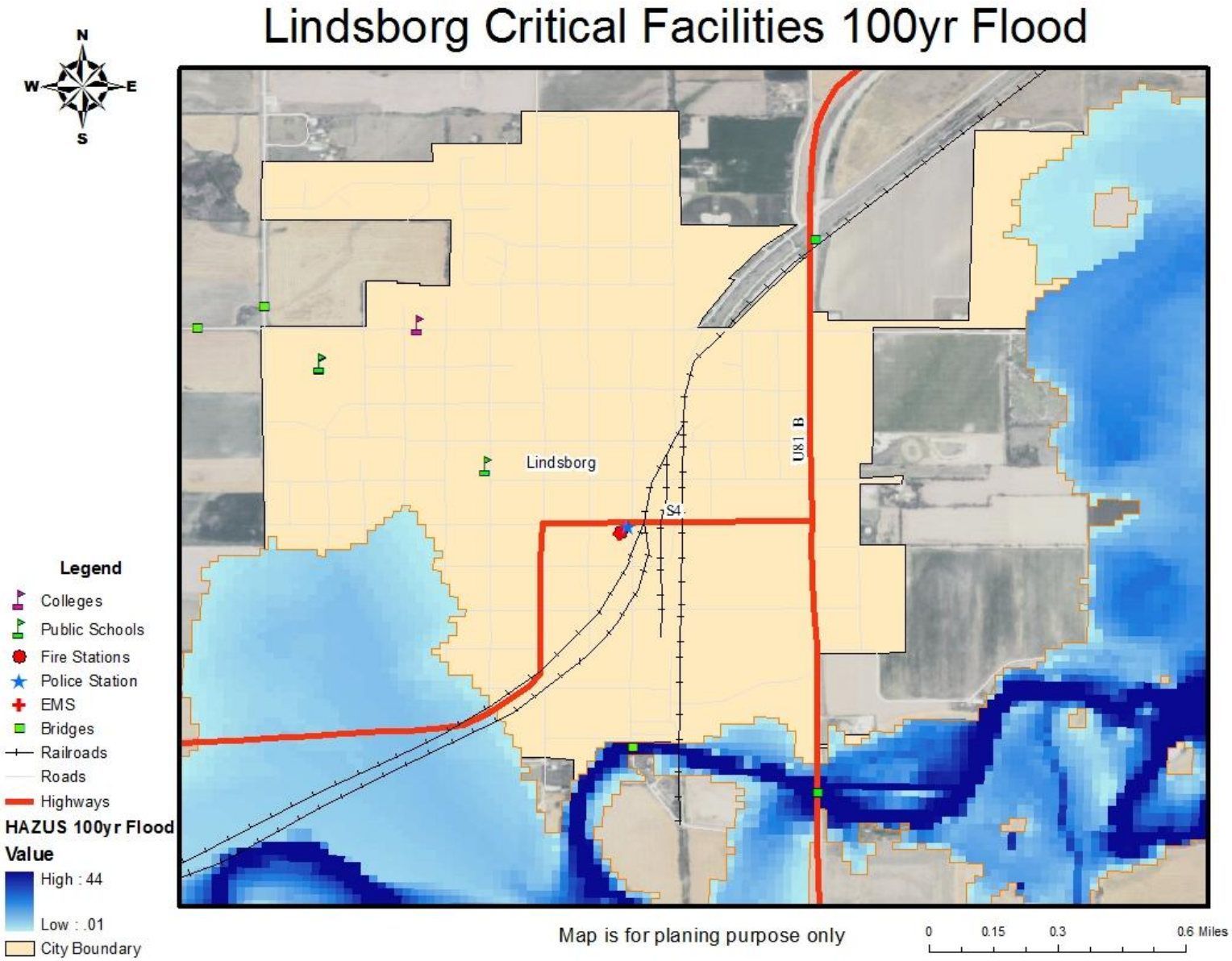


Figure 3.5. 9 – Lindsborg's Critical Facilities in Relation to the 100-year Floodplain



History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 7, 1997	A hailstorm was reported in the City of Lindsborg. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
June 29, 1997	A hailstorm was reported four miles south of Lindsborg. Hailstones 1.75 inches in diameter were reported. There were no reports of property damage or injuries.
May 24, 1998	A hailstorm was reported in the City of Lindsborg. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
September 20, 1998	A hailstorm was reported in Lindsborg. Hailstones three-quarter inch in diameter were reported. There were no reports of property damage or injuries.
April 17, 2002	A hailstorm was reported three miles south west of Lindsborg. One inch hailstones were reported. There were no reports of property damage or injuries.
June 21, 2006	A hailstorm was reported in the City of Lindsborg. One inch hailstones were reported. There were no reports of property damage or injuries.
July 13, 2006	A hailstorm was reported one mile north of Lindsborg. Hailstones 1.75 inches in diameter were reported. There were no reports of property damage or injuries.
June 11, 2008	Supercell thunderstorms erupted along a strong cold front across Central Kansas. The supercell storms produced destructive hail and damaging winds, along with tornadoes across Central, Kansas. A few strong tornadoes touched down just south of Salina, Kansas. One inch hail was reported one mile south of Lindsborg.

History of Lightning Events

The City of Lindsborg reported that property damage was sustained on East State Street in October of 2007 from a lightning strike. Another property sustained damage from lightning in June of 2009 on Northridge Court. Property damage estimates were not available. There were not any reports of deaths or injuries.

History of Utility/Infrastructure Failure

Historic hazard incidents were obtained from the National Climatic Data Center database

August 23, 2001	A windstorm was reported in the City of Lindsborg, resulting fifteen power poles and power lines were downed. The resulting power outages affected most of Lindsborg including Lindsborg Community Hospital, a retirement home, the middle school, and Smoky Valley High School. Both schools were closed the next day. Most of Lindsborg was without power for nearly two days. Just south of Lindsborg, a machine storage shed was leveled. Property damage was estimated at $150,000.
June 11, 2002	A windstorm was reported in Lindsborg. Widespread damage to roofs, trees, power lines and poles caused $125,000 in property damage. There were no reports of injuries.
July 13, 2006	A windstorm was reported in the City of Lindsborg. A power line was downed as a result of the storm, causing $1,000 in property damage. There were no reports of deaths or injuries.

The City of Lindsborg also reported in 2007 an ice storm caused utility failure throughout the region. A wind event occurred on June 13, 2009 causing power failure in the community.

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 6, 1996	A severe thunderstorm was reported in the City of Lindsborg. There were no reports of injuries or property damage.
July 13, 1996	A windstorm was reported in the City of Lindsborg resulting in extensive damage to trees. Many tree limbs were blown down as a result of the storm. There were no reports of injuries or property damage.
June 23, 2000	A windstorm was reported in Lindsborg. Numerous tree limbs were blown down. There were no reports of injuries or property damage.
August 23, 2001	A windstorm was reported in the City of Lindsborg, resulting fifteen power poles and power lines were downed. The resulting power outages affected most of Lindsborg including Lindsborg Community Hospital, a retirement home, the middle school, and Smoky Valley High School. Both schools were closed the next day. Most of Lindsborg was without power for nearly two days. Just south of Lindsborg, a machine storage shed was leveled. Property damage was estimated at $150,000.
June 11, 2002	A windstorm was reported in Lindsborg. Widespread damage to roofs, trees, power lines and poles caused $125,000 in property damage. There were no reports of injuries.
June 15, 2004	A windstorm was reported three miles west north west of Lindsborg. There were no reports of injuries or property damage.
August 12, 2005	A windstorm was reported three miles south west of Lindsborg. There were no reports of injuries or property damage
July 13, 2006	A windstorm was reported in the City of Lindsborg. A power line was downed as a result of the storm, causing $1,000 in property damage. There were no reports of deaths or injuries.
September 16, 2006	A windstorm was reported in the City of Lindsborg. There were no reports of injuries or property damage
April 17, 2008	A 68 Mph Wind gust was measured at the Lindsborg KSN-TV weather lab site. There were no reports of property damage or injuries.
July 22, 2008	Strong to severe thunderstorms developed along a weak frontal boundary one mile west south west of Lindsborg during the evening of July 22nd, ahead of a weak upper level disturbance approaching from the north.
August 30, 2008	Isolated to widely scattered thunderstorms developed across Central and South Central Kansas along a weak area of convergence. The thunderstorm was reported one mile south of Lindsborg.
June 15, 2009	A significant severe weather episode developed one mile south of Lindsborg on the evening of June 15th, 2009, into the early morning hours of June 16th. The storms eventually turned into prolific wind damage producers as the overnight continued, as the high precipitation supercells moved into Hutchinson and Wichita. Property damage estimates were not available.
July 15, 2009	A trained spotter reported the gust on a home mesonet four miles south west of Lindsborg. Property damage estimates were not available.

June 2010 A severe windstorm was reported in the City of Lindsborg. Kansas Department of Agriculture reported the roof had blown off of the school resulting in over $100,000 in damages.

History of Winter Storms

The City of Lindsborg reported a severe ice storm occurred in 2007 causing property damage in the community. Property damage estimates were not available. There were no reports of deaths or injuries.

City of Lindsborg Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability assessment for the City of Lindsborg. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to all of McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Lindsborg for their specific community.

The community determined the wildfire hazard should be lowered to moderate because there are not any major wildland urban interface areas near the city. Hazardous materials and lightning were raised to high. The vulnerability for hazardous materials was determined to be a high because of the two highways that traverse through the city. Another reason it was raised is Mid-Kansas Cooperative stores anhydrous ammonia within the City boundary. The vulnerability for lightning was determined to be high because of past events. The vulnerability level for dam and levee failure was raised to moderate because the City is downstream from Kanopolis Dam. Dam failure of the Kanopolis dam could potentially affect the entire city.

Table 3.5. 11 – Lindsborg Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Lindsborg Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	High
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	Moderate
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate
10	Hazardous Materials	Moderate	HIGH
11	Lightning	Moderate	High
12	Expansive Soils	Moderate	Moderate
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Moderate
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Moderate
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Moderate
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Lindsborg Planning Significance
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Moderate

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

There are two major highways that run through the City of Lindsborg. They are State Highway K4 and U.S. Highway 81/Interstate 135.

Bridges

There is one major bridge in the city limits of Lindsborg. It is the Old Mill Bridge located in the 600 Block of South First Street.

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. The National & State Register of Historic Places has thirteen places listed as historical in Lindsborg. They are:

1. Johnson House
   Address: 226 West Lincoln
   National Register Number: 98000251
   Listed in National Register: 1998
   Owner: Private
   Area of Significance: Architecture, Commerce
   Period of Significance: 1875-1899, 1900-1924
   Historic Function: Domestic
   Current Function: Domestic

2. Paint Creek Archeological Site
   Also Known As: 14MP1
   Address: Restricted
   National Register Number: 72001449
   Listed in National Register: 1972
   Owner: Private
   Area of Significance: Historic, Aboriginal
   Period of Significance: 1749-1500 AD
   Historic Function: Domestic, Village Sited
   Current Function: Agricultural Fields

3. Sharps Creek Archeological Site
   Also Known As: Swenson Archeological Site: 14MP301
   Address: Restricted
   National Register Number: 72001450
   Listed in National Register: 1972
   Owner: Private
   Area of Significance: Historic, Aboriginal
   Period of Significance: 1749-1500 AD
   Historic Function: Domestic, Village Sited
   Current Function: Agricultural/Subsistence

4. Smoky Valley Roller Mill
   Address: Mill Street
   National Register Number: 72001451
   Listed in National Register: 1972
   Owner: Local Government
   Area of Significance: Agriculture, Industry
   Period of Significance: 1875-1899, 1900-1924
   Historic Function: Industry, Manufacturing facility
   Current Function: Recreation and Culture, Museum

5. Swedish Pavilion
   Address: Mill Street
   National Register Number: 73002129
   Listed in National Register: 1973
   Owner: Private
   Area of Significance: Architecture, European
   Period of Significance: 1900-1924
   Historic Function: Recreation and Culture, Museum
   Current Function: Recreation and Culture, Museum

6. U.S. Post Office – Lindsborg
   Lindsborg United States Post Office
   Address: 125 East Lincoln Street
   National Register Number: 890001646
   Listed in National Register: 1989
   Owner: Federal
   Area of Significance: Event, Architecture/Engineering
   Period of Significance: 1925-1949
   Historic Function: Government, Post Office
   Current Function: Government, Post Office

7. Bergquist and Nelson Drugstore Building
   Address: 105 N Main
   National Register Number:
   Listed in National Register: 4/22/09
   Owner: Private
   Area of Significance: Commerce, Architecture
   Period of Significance: 1880 - 1959
   Historic Function: Commerce/Trade, Domestic
   Current Function: Commerce/Trade, Domestic

8. Clareen/Peterson Restaurant Building
   Address: 113 N. Main St.
   National Register Number:
   Listed in National Register: 4/22/09
   Owner: Private
   Area of Significance: Commerce, Architecture
   Period of Significance: 1899 - 1959
   Historic Function: Commerce/Trade, Dwelling
   Current Function: Commerce/Trade

9. Farmers State Bank
   Address: 101 S. Main
   National Register Number:
   Listed in National Register: 10/16/2008
   Owner: City of Lindsborg
   Area of Significance: Commerce, Agriculture, Ethnic Heritage, Women's History
   Period of Significance: 1887-1955
   Historic Function: Commerce, Domestic, Social
   Current Function: Government, Commerce

10. Hjerpe Grocery
    Address: 110 & 112 N. Main St.
    National Register Number:
    Listed in National Register: State Register 5/8/10
    Owner: Private
    Area of Significance: Commerce, Dwelling
    Period of Significance:
    Historic Function: Commerce/Dwelling
    Current Function: Commerce/Dwelling

11. Holmberg and Johnson Blacksmith Shop
    Address: 122 N. Main St.
    National Register Number:
    Listed in National Register: 4/22/09
    Owner: Private
    Area of Significance: Commerce
    Period of Significance: 1900-1954
    Historic Function: Commerce/Trade
    Current Function: Commerce/Trade

12. J.O. Sundstrom Building
    Address: 102-106 N. Main
    National Register Number:
    Listed in National Register: State Register 11/7/09
    Owner: City of Lindsborg
    Area of Significance: Architecture, Exploration/Settlement/Commerce/Ethnic Heritage
    Period of Significance: 1879-1946
    Historic Function: Commerce/Trade, Domestic, Social
    Current Function: Vacant

13. Teichgraeber-Runbeck House
    Address: 116 Mill St.
    National Register Number:
    Listed in National Register: 11/15/05
    Owner: Private
    Area of Significance: Industry, Architecture
    Period of Significance: 1906-1955
    Historic Function: Domestic, Commerce
    Current Function: Domestic, Commerce

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. . The facilities also include education facilities to ensure continuity of education. Table 3.5.12 identifies the critical facilities in Lindsborg.

Table 3.5. 12 – City of Lindsborg Critical Facilities

Name of Asset	Facility Type	Address	Value of Structure
CITY HALL	GOVERNMENT	101 SOUTH MAIN	$550,000
PUBLIC SAFETY BUILDING	EMERGENCY SERVICES	102 SOUTH FIRST	$200,000
PUBLIC WORKS BUILDING	EMERGENCY SERVICES	202 EAST LINCOLN	$225,000
KDOT	EMERGENCY SERVICES	525W EAST SWENSSON	NA
LINDSBORG COMMUNITY HOSPITAL	MEDICAL SERVICES	605 WEST LINCOLN	NA
Facilities That Could Provide Emergency Housing	**Facility Type**	**Address**	**Value of Structure**
BETHANY COLLEGE	EDUCATION	421 NORTH FIRST	NA
BETHANY HOME	NURSING HOME	321 NORTH CHESTNUT	NA
SMOKY VALLEY HIGH SCHOOL	EDUCATION	1 VIKING BLVD	$21,225,471
LINDSBORG MIDDLE SCHOOL	EDUCATION	401 NORTH CEDAR	$21,225,471
SODERSTROM ELEMENTARY	EDUCATION	227 NORTH WASHINGTON	$7,142,761

Local Businesses

Local businesses are vital to the economic growth in the community. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for the City of Lindsborg are identified in Table 3.5.13.

Table 3.5. 13 – City of Lindsborg Local Businesses

Business Name	Type of Business	Address
AMERICAN FAMILY INSURANCE	INSURANCE	109 SOUTH MAIN
AMERIPRISE FINANCIAL SERVICES	FINANCIAL	107 S MAIN
ANDERSON AUTO BODY	AUTO REPAIR	214 S COLE
ANDERSON BUTIK	RETAIL	134 N MAIN
ANDERSON SCANDANAVIAN TOURS	TRAVEL	120 W LINCOLN
APOTEK PHARMACY	RETAIL	605 W LINCOLN
AUNT AGDA'S ATTIC	RETAIL	325 S MAIN
AUTO WASH & STORAGE COMPOUND	RETAIL	402 HARRISON
BANK OF AMERICA	FINANCIAL SERVICES	118 N MAIN
BLACKSMITH COFFEE ROASTERY	RETAIL	122 N MAIN
BOLTE ELECTRIC	SERVICE	216 NORMAL DR
BOUQUET SHOPPE, INC.	RETAIL	103 N MAIN
BOYD ACCOUNTING, INC.	FINANCIAL SERVICES	122 W LINCOLN
CLOGS & SUCH	RETAIL	300 HARRISON
COLUMBIA INDUSTRIES	MANUFACTURING	429 E MCPHERSON
CORONADO MOTEL & RV PARK	LODGING	305 N HARRISON
DAUER WELDING & MACHINE, INC.	MANUFACTURING	301 E UNION
EAGLE ALIGNMENT & AUTOMOTIVE	AUTO REPAIR	210 COLE
ERIK J. PETERSON, DDS	DENTIST	101 HARRISON
FAMILY HAIR STUDIO	SALON	136 N MAIN
FARM BUREAU FINANCIAL SERVICES	FINANCIAL SERVICES	128 N MAIN
FARMERS STATE BANK	FINANCIAL SERVICES	447 HARRISON
HEMSLOJD, INC.	RETAIL	201 N MAIN
KAPS, INC.	CONVENIENCE STORE	102 COLE
LAURA MAY'S COTTAGE	RETAIL	518 E LINCOLN
LINDSBORG COMMUNITY HOSPITAL WELLNESS CENTER	HEALTHCARE	605 W LINCOLN
LINDSBORG HARDWARE	RETAIL	115 N MAIN
LINDSBORG RURAL HEALTH CLINIC	HEALTHCARE	602 W LINCOLN
LINDSBORG STATE BANK	FINANCIAL SERVICES	201 S MAIN
LINDSBORG STEEL WORKS	MANUFACTURING	301 E UNION
MID-KANSAS CO-OP	AGRICULTURE RETAILER	320 E GRANT 321 E LINCOLN
PIZZA HUT	RESTAURANT	450 HARRISON
SCOTT'S HOMETOWN FOODS	RETAIL	215 HARRISON
SPENCER SPORTING GOODS	RETAIL	131 N MAIN
SWEDISH CRAFTS	RETAIL	135 N MAIN
SWEDISH PASTRIES & EMPORIUM, INC.	RESTAURANT	101 N MAIN
SWISHER FIRESTONE & AUTO PARTS	AUTO REPAIR	102 S MAIN
THE CHILDREN'S CENTER	DAYCARE	308 N THIRD

Business Name	Type of Business	Address
THE GOLDEN PEAR	RETAIL	131 N MAIN ST.
THE LINDSBORG NEWS RECORD	MEDIA	114 S MAIN
THE SERVICE CENTER	AUTO REPAIR	321 E LINCOLN

Bethany Home

The Bethany Home Association of Lindsborg, Kansas is first and foremost a Christian Home with a Christ centered atmosphere. It is a non-profit residence for the aged and has a long history since its inception in 1911 as being an integral part of the Central States Synod of the Lutheran Church in America. Residents pay the basic day-to-day costs. Gifts and bequests, coming primarily from community and near surrounding areas, are used for capital improvements and enhancements of day-to-day operations. We are licensed as a nursing facility

Bethany Home has grown as an enriching and rewarding residential community, offering comfort and security to those in their retirement years. Board members, who come from various denominations, are elected by the Missouri-Kansas Synod and serve without pay.

Bethany Home is a licensed, intermediate adult care facility and a retirement community which has approximately 175 individuals living on our present campus. There are 10 to 18 individual/couples who live in the ten life lease townhomes, 38 to 76 individuals/couples who reside in the 38 independent living cottages and 105 to 115 individuals who reside in the skilled nursing facility.

In addition, Bethany Home has begun the process of adding a new campus in Lindsborg. It is expected that the new site eventually will provide assisted living to accommodate up to 120 individuals (8 houses). The site plan also provides for additional independent living with 12 cottages and 27 duplex units, which is enough for 78 individuals. Finally, a new skilled nursing/rehab facility capable of serving 65 individuals may be added.

Community Concerns

Lindsborg has a large population of retired citizens. Water, food, shelter, special care, transportation, and sanitation are all areas of concern during times of emergency. Table 3.5.14 is the hazard vulnerability information for the senior center located in Lindsborg. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.5. 14 - MCCOA Hazard Vulnerability Assessment for Lindsborg Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
LINDSBORG SENIOR CENTER 116 S. MAIN	NONE	NONE	NONE	NONE	NONE	YES	NO

Table 3.5.15 identifies the concerns the City of Lindsborg has regarding the specific population groups.

Table 3.5. 15 – Lindsborg Community Concerns

Population group:	Concerns:
School age children	WATER, FOOD, SHELTER, SPECIAL CARE, TRANSPORTATION, AND SANITATION ARE ALL AREAS OF CONCERN IF A DISASTEROUS EVENT WERE TO OCCUR DURING SCHOOL TIMES.
Institutionalized populations	WATER, FOOD, SHELTER, SPECIAL CARE, TRANSPORTATION, AND SANITATION ARE ALL AREAS OF CONCERN DURING TIMES OF EMERGENCY FOR THE INSTITUTIONALIZED POPULATION. BETHANY HOME AND MCDS ARE IN THE CITY OF LINDSBORG. ELECTRICITY NEEDS ARE ALSO A CONCERN FOR THE CRITICAL CARE FACILITIES DURING TIMES OF EMERGENCY.
Low Income	HOUSING AND SHELTER NEEDS ARE A CONCERN FOR THE LOW INCOME POPULATION DURING TIMES OF DISASTER.
Other	OUTREACH TO PROVIDE INFORMATION ON RESPONSE ACTION TO EMERGENCY EVENTS TO COLLEGE STUDENTS.

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.5.16 identifies the current land usage for the City of Lindsborg.

Table 3.5. 16 – City of Lindsborg Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	42.3
Industrial	4.4
Developed with mixed uses	10.7
Commercial	8.2
Agricultural	1.5
Parks/restricted wild land/wildlife refuge	1.8
Institutional (education, health care, etc.)	11.5
Transportation or utility right-of-way	19.5
Vacant/unused - private ownership	0.1
Vacant/unused - government ownership	0.1

New Development

New development or re-development is controlled by the Zoning Ordinance and Subdivision Regulation that were adopted in April of 2003.

There are 63 acres in preliminary design planning with half being residential, half assist and independent living for the elderly.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Lindsborg plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING: • REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW; • ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS; • NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA); • ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES; • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED; • WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** UPGRADE OUTDOOR STORM SIREN SYSTEM
Project Description: THIS PROJECT WOULD INCLUDE, BUT NOT BE LIMITED TO, A STUDY OF THE CURRENT SIREN LAYOUT, A GENERAL UPGRADE OF THE SIREN SYSTEM, AND THE INSTALLATION OF BATTERY BACKUP (CURRENTLY DOES NOT EXIST).	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL/GRANT	
Estimated Cost: APPROXIMATELY $15,000 PER SIREN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY OF RESIDENTS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: THIS PROJECT WOULD INCLUDE, BUT NOT BE LIMITED TO, A STUDY OF THE CURRENT SIREN LAYOUT, A GENERAL UPGRADE OF THE SIREN SYSTEM, AND THE INSTALLATION OF BATTERY BACKUP. THE STUDY WAS CONDUCTED AND INDICATED THAT ONE NEW (ADDITIONAL) SIREN BE LOCATED IN THE NORTHWEST SECTION OF TOWN IN THE WESTVIEW SUBDIVISION AND A SECOND (ADDITIONAL) SIREN BE LOCATED IN THE NORTHEAST SECTION OF TOWN IN THE AREA OF THE EMERALD LAKE SUBDIVISION.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** COW CREEK FLASH FLOODING MITIGATION
Project Description: ALTHOUGH THERE IS NO REPETITIVE FLOOD DAMAGE IN LINDSBORG, THERE IS INCREASING SEDIMENTATION OF THE STORM WATER CHANNEL KNOWN AS COW CREEK. WITH EACH PASSING YEAR, THE THREAT OF EXTENSIVE PROPERTY DAMAGE TO THIS CORRIDOR INCREASES. EARLY MITIGATION EFFORTS WILL REDUCE THIS THREAT, AND THE SOONER THEY ARE PUT INTO PLACE, THE LESS COSTLY THEY WILL BE. AN ENGINEERING STUDY IN 2005 PROJECTED COSTS OF $350,000, BUT OTHER SOLUTIONS ARE POSSIBLE WITH LESS COST.	
Type of Project: PROPERTY PROTECTION	
Funding Description: LOCAL/GRANT	
Estimated Cost: APPROXIMATELY $350,0000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): AVOID PROPERTY DAMAGE AND REDUCE FLASH FLOODING	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: STILL IN THE PLANNING STAGES - THE PLAN IS TO COME UP WITH AN ECONOMICAL SOLUTION TO REDUCE THE SEDIMENTATION DEPOSIT OF COW CREEK TO ALLOW THE WATER TO FLOW MORE EASILY	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	POSSIBLY

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** LOOK INTO FUNDING TO CONSTRUCT FEMA APPROVED COMMUNITY SAFEROOM
Project Description: CONSTRUCT PUBLIC STORM SHELTERS AT THE PUBLIC PARKS AND NORTH END RECREATIONAL FACILITY	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/GRANT	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: DEVLOP A PLAN FOR CONSTRUCTION OF PUBLIC STORM SHELTERS, OBTAIN DESIGNS AND BIDS, SECURE FUNDING, CONSTRUCT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** INCIDENT COMMAND CENTER
Project Description: FACILITATE AN INCIDENT COMMAND CENTER	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): QUICKER RESPONSE TIME TO EMERGENCY SITUATIONS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: DEVLOP A PLAN FOR FACILITATING AN INCIDENT COMMAND CENTER	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** DEVELOP HAZARDOUS MATERIALS MITIGATION PLAN
Project Description: DEVELOP A HAZARDOUS MATERIAL PLAN (MID KANSAS COOPERATIVE STORES ANHYDROUS AMMONIA WITHIN THE CITY BOUNDARY)	
Type of Project: PREVENTION	
Funding Description: LOCAL	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	HAZARDOUS MATERIALS
Benefits (Losses Avoided): QUICKER RESPONSE TIME TO EMERGENCY SITUATIONS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: DEVLOP A HAZARDOUS MATERIALS MITIGATION PLAN TO INCLUDE ANHYDROUS AMMONIA INCIDENTS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF LINDSBORG	**Project Title:** DEVELOP A HAZARDOUS MATERIAL PLAN
Project Description: DEVELOP A HAZARDOUS MATERIAL PLAN (MID KANSAS COOPERATIVE STORES ANHYDROUS AMMONIA WITHIN THE CITY BOUNDARY)	
Type of Project: PREVENTION	
Funding Description: LOCAL	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	HAZARDOUS MATERIALS
Benefits (Losses Avoided): QUICKER RESPONSE TIME TO EMERGENCY SITUATIONS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: DEVLOP A HAZARDOUS MATERIALS MITIGATION PLAN TO INCLUDE ANHYDROUS AMMONIA INCIDENTS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Marquette	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	0

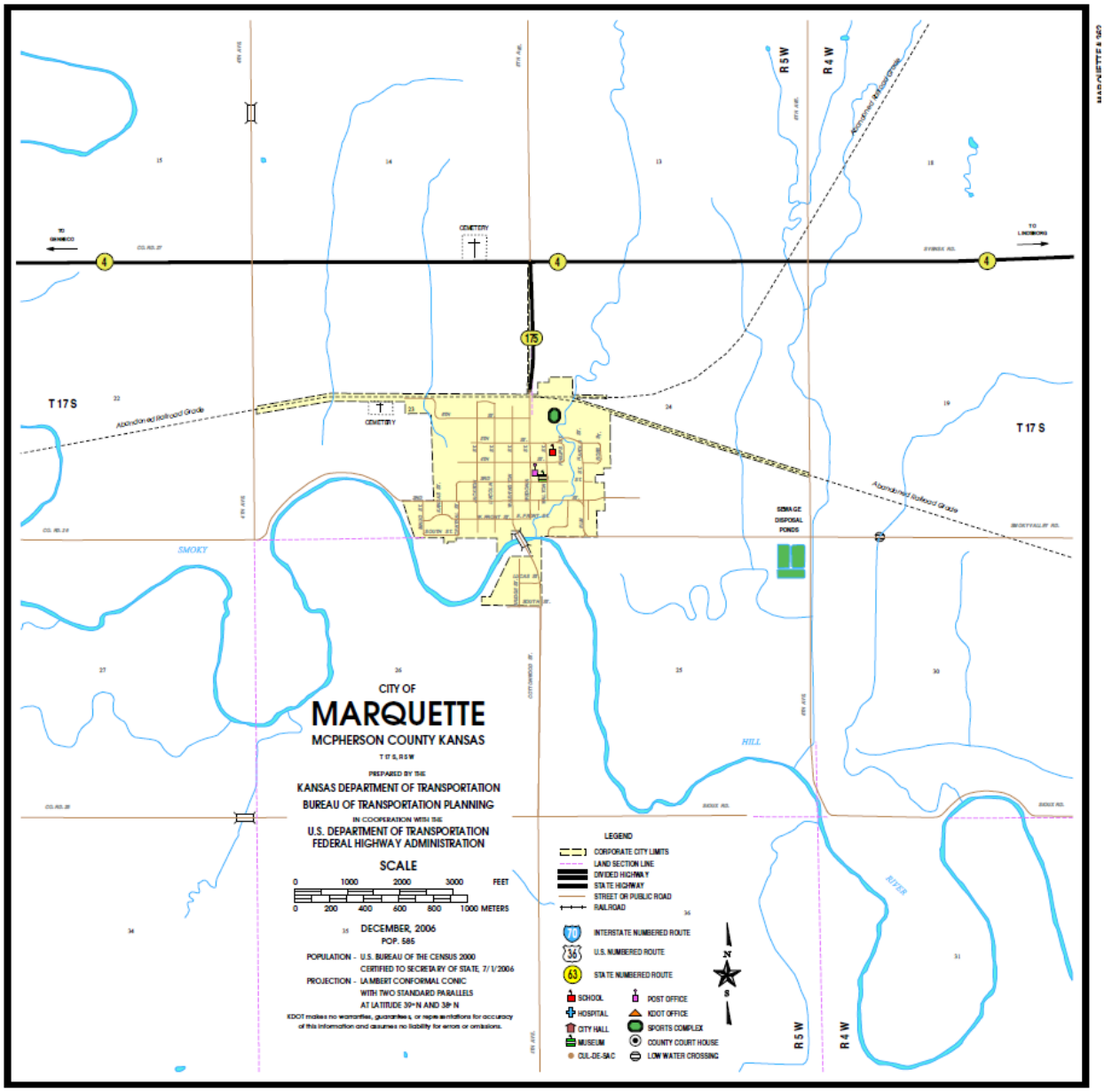
The following image is an aerial view of the City of Marquette (City-Data.com).

Figure 3.6. 1- City of Marquette

Location

The City of Marquette is located in the countryside near a metropolitan city and a major airport. It has a total land area of 0.36 square miles and has an elevation of 1,385 feet. The City of Marquette is just a short drive from the Kanopolis Lake. The following map is the jurisdictional boundaries for the City of Marquette (Kansas Department of Transportation).

Figure 3.6. 2 - City of Marquette Jurisdictional Boundary Map



History

Situated in the beautiful smoky valley in central Kansas, Marquette was settled in the 1860's and 1870's by Swedish immigrants and Civil War veterans. The town started with a flourmill on the banks of the Smoky Hill River in 1873 and by 1874, a town charter was signed, and Marquette began to grow (City of Marquette).

In 1905, a devastating tornado destroyed most of the western half of the town, killing 31 people. But the determination to survive and rebuild was very strong.

Marquette has a historic downtown of Victorian style buildings that are on the Kansas State Register of Historic Places, and have been restored to their original Swedish influence, Victorian style. The town also has many beautiful Victorian homes that survived the tornado and have been restored.

Governance

The City of Marquette is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

Marquette has the most prevalent form of city government in Kansas, the mayor-council form of government. It is used by nearly all cities of the third class. The city council is made up of four council members. The City also has the following departments:

- City Clerk
- City Attorney
- Library
- Municipal Judge
- Police Department
- Treasurer
- Fire Department
- Public Works Department

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 581 in 2009, the City of Marquette is ranked 600th among Kansas' incorporated cities. Table 3.6.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Marquette has declined since the 2000 census. There has been nearly a two percent decrease in the population.

Table 3.6. 1 – Marquette Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Marquette	581	579	586	580	579	573	569	574	587	542

Table 3.6.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Marquette in comparison nationally, state, and county level. Over 17 percent of the population in Marquette is over the age of 65, which is about four percent higher than the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.6. 2 – Marquette Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Marquette	3.7	17.7	40.6	2.23	84.4	14.4

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Marquette is educational, health, and social services. There are 81 people employed in this industry, which is 25 percent of the population. Table 3.6.3 is the 2000 census statistics for the employed civilian population 16 years and over in Marquette.

Table 3.6. 3 – Marquette Employed Civilian Population (16 years and Over)

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Educational, Health, and Social Services	81	25
Manufacturing	75	23.1
Retail Trade	28	8.6
Construction	25	7.7
Agriculture, forestry, mining, fishing and hunting	23	7.1
Transportation and Warehousing, and Utilities	20	6.2
Other Services	16	4.9
Finance, Insurance, Real Estate, Rental and Leasing	15	4.6
Wholesale Trade	13	4
Arts, Entertainment, Recreation, Accommodation, and Food Services	12	3.7
Professional, Scientific, Management, Administrative, and Waste Management Services	6	1.9
Information	6	1.9
Public Administration	4	1.2

The 2009 cost of living index is 71.6, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.6.4 identifies the economic characteristics for Marquette, Kansas from the 2000 census (U.S. Census Bureau). Marquette has no unemployment rate, meaning all people in the labor force had jobs as of the 2000 census.

Table 3.6. 4 – Marquette Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	4.2	6.6	82,700	41,138	18,921	2.8	68.2
City of Marquette	3.8	5.6	45,000	35,938	17,965	0	71.1

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA and the floodplain management regulations were updated at that time. The City of Marquette adopted Ordinance 559 approved on October 14, 2008.

National Flood Insurance Program

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Marquette is a participant in the National Flood Insurance Program. Table 3.6.5 is information from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for Marquette.

Three lots in the Westridge Addition were determined to be in the new FEMA 100-year Flood Plain Zone. The City of Marquette has taken these lots out of the land program to ensure no one can build upon them. The City is allowing them to be used for a Community Garden Program instead.

Table 3.6. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200216#	City of Marquette	McPherson	12/17/1973	8/1/1978	1/16/2009	8/1/1978	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Marquette. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.6.6 identifies the existing planning ordinances, codes, and plans for Marquette.

Table 3.6. 6 – Marquette Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans
Zoning ordinance WESTRIDGE ADDITION HAS COVENANTS
Floodplain Management ADOPTED OCTOBER 14, 2008 – ORDINANCE: 559
Disaster and Recovery Plan PART OF MCPHERSON COUNTY EMERGENCY DISASTER PLAN
Local emergency operations plan PART OF MCPHERSON COUNTY EMERGENCY DISASTER PLAN
Flood insurance study or other engineering study for streams
Mutual Aid Agreements WITH MCPHERSON COUNTY

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Marquette. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.6.7 identifies personnel resources and warning capabilities for Marquette.

Table 3.6. 7 – Marquette Personnel Resources

Personnel Resources
Planner/Engineer with knowledge of land development/land management practices
Engineer/Professional trained in construction practices related to buildings and/or infrastructure
Full-time building official - PUBLIC WORKS DIRECTOR
Emergency Manager - PUBLIC WORKS DIRECTOR
Warning Systems/Services - MARQUETTE FIRE DEPARTMENT
Outdoor weather warning signals - MARQUETTE FIRE DEPARTMENT

Financial Resources

This section will identify the financial resources available to the City of Marquette. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.6.8 identifies the financial resources available to Marquette.

Table 3.6. 8 – Marquette's Financial Resources

Financial Resources
Community Development Block Grants
Capital improvements project funding
Authority to levy taxes for specific purposes
Fees for water, sewer, gas, or electric services
Incur debt through general obligation bonds
Incur debt through special tax bonds

Outdoor Siren System

Marquette utilizes the siren network to warn residents of impending severe weather. There are five outdoor storm sirens in Marquette. Table 3.6.9 identifies the outdoor storm siren locations and activation method. Figure 3.6.3 shows the location for each storm siren. The map also identifies the location the City would like to place a new siren and relocate an old siren.

Table 3.6. 9 – Marquette Siren Network

Location	Activation Method
6TH & WASHINGTON	ALL SIRENS ARE RADIO CONTROLLED OR MANUALLY ACTIVATED
5TH & WASHINGTON	
1ST & KANSAS	
3RD & WASHINGTON	
3RD & ELM	

Figure 3.6. 3 – Marquette Storm Sirens

Vulnerabilities

Hazards Affecting the City of Marquette

Dam and Levee Failure

A dam breach of the Kanopolis Dam located in Ellsworth County on the Smoky Hill River would inundate the City of Marquette, which is a little over 11 miles southeast of the dam. The dam breach inundation map was not available for the City of Marquette. However using the calculations from the hydrology report it is estimated that Marquette would be inundated within 2.5 hours of a dam breach.

History of Flooding

Historic hazard incidents were obtained from the National Climatic Data Center database.

April 26, 2009	Heavy rainfall from numerous thunderstorms during the afternoon, evening and overnight hours on the 26th produced widespread flooding across much of McPherson county. Southeast portions of the county likely received the highest rainfall amounts. Numerous roads remained submerged and consequently closed through early on the 27th from the high water. Some street flooding occurred in McPherson and likely other communities as well. During the evening hours of the 26th, an injury accident occurred on Interstate 135 about 9 miles north of Highway 56 due to blinding heavy rainfall. Unfortunately, property and crop damage estimates are unavailable.

Repetitive Loss Properties

FEMA defines severe repetitive loss properties as “a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are no repetitive flood loss properties in Marquette, Kansas.

HAZUS Report

A “flood” HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA’s software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.6.4 identifies the 100-year floodplain, as well as the critical facilities, for the City of Marquette. Figure 3.6.9 identifies the 100-year floodplain by census block.

According to the HAZUS loss estimation model for Marquette, approximately 50 households would receive minor damage, 33 households would receive moderate damage, and 29 would receive moderate to severe as the result of a 100-year flood event. There are four commercial buildings that would receive minor damage and one that would receive severe damage. The Marquette Police Department and EMS buildings would also receive minor flooding.

Figure 3.6. 4– City of Marquette 100-year Flood Zone

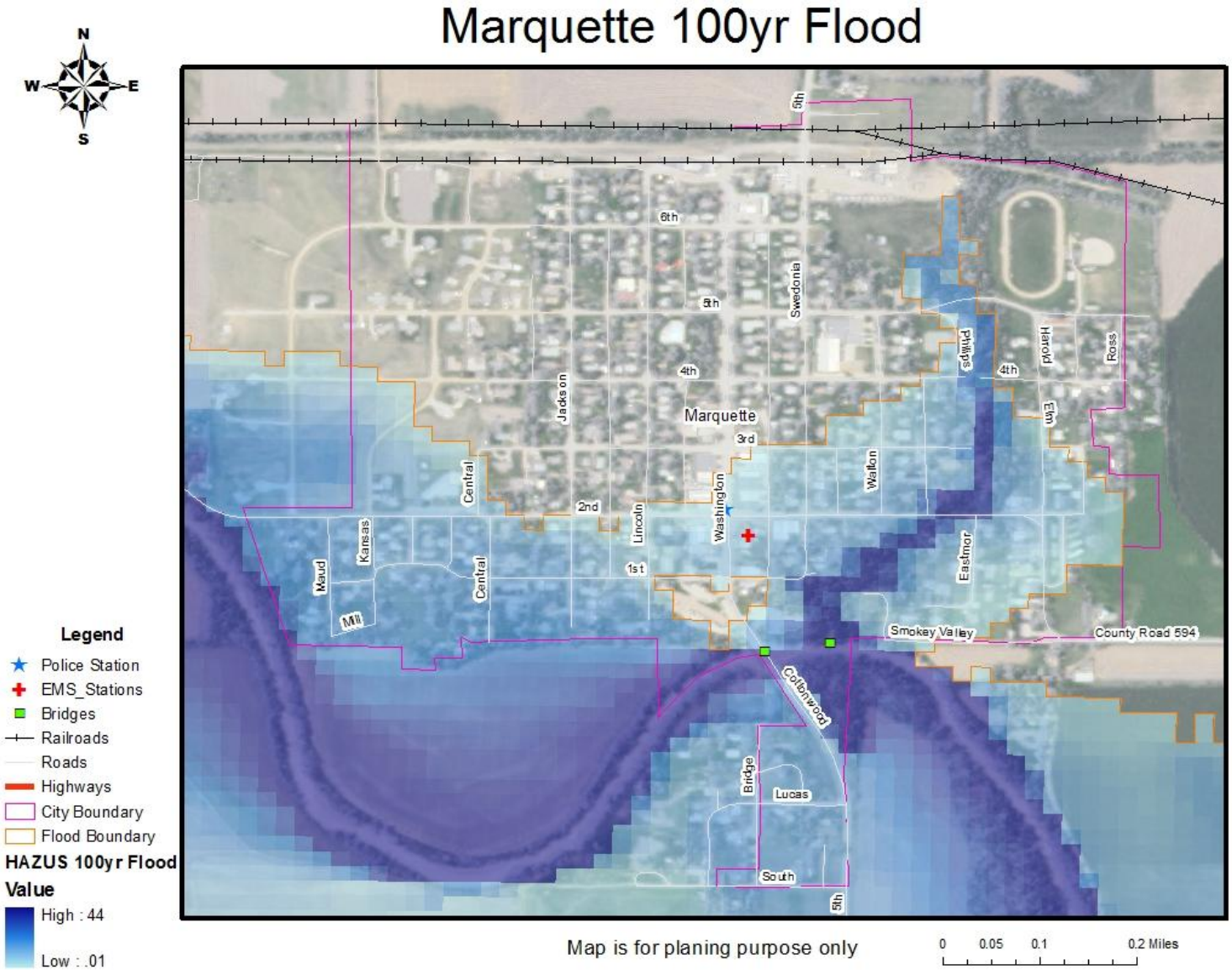
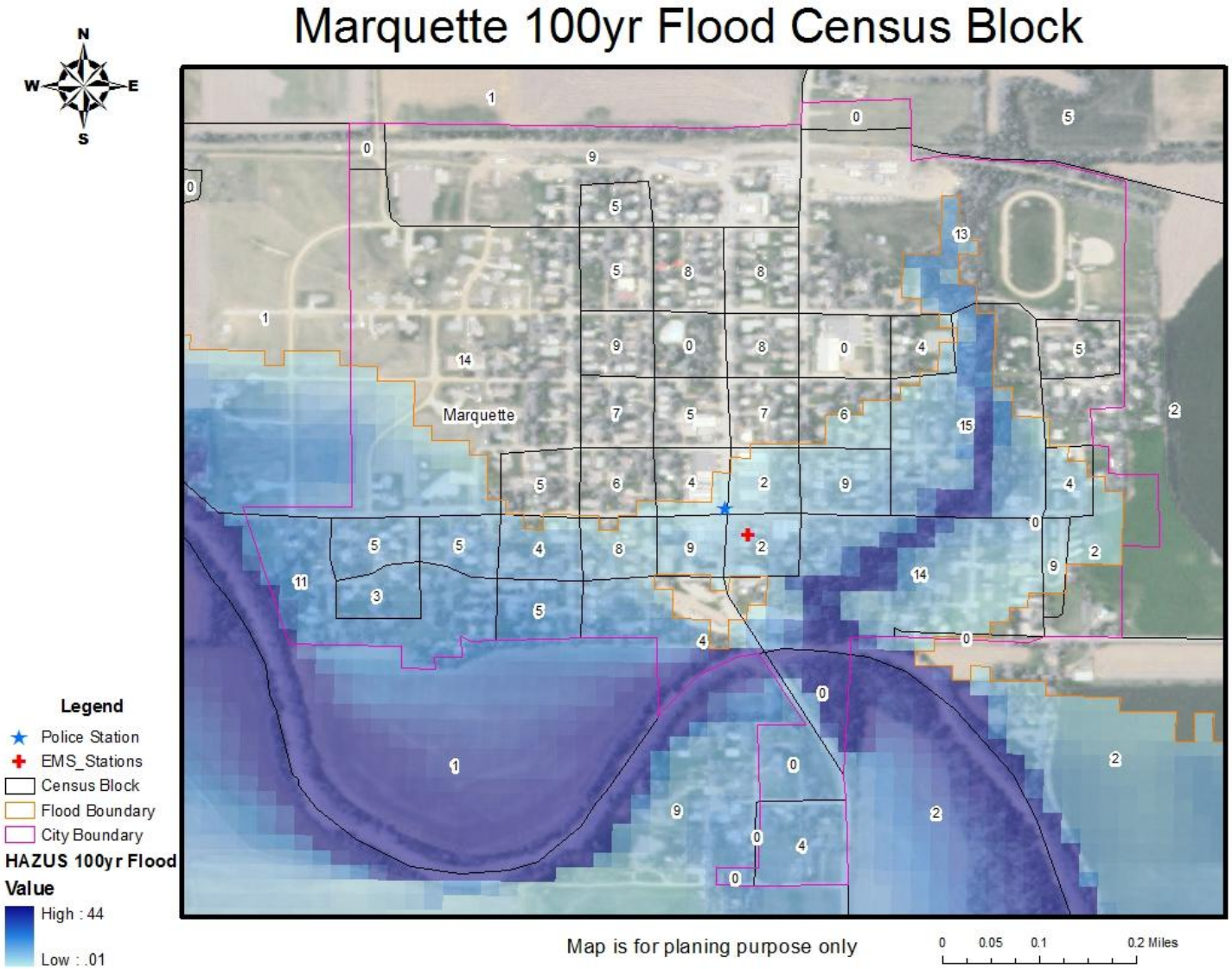


Figure 3.6. 5 – Marquette's 100-year Floodplain by Census Block



History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 17, 1996	A hailstorm was reported three miles north of Marquette. Hailstones 1.50 inches in diameter were reported. There were no reports of property damage or injuries.
June 21, 1998	A hailstorm was reported in the City of Marquette. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
April 14, 2001	A hailstorm was reported one mile south east of Marquette. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
June 16, 2001	A hailstorm was reported five miles south of Marquette. Hailstones three-quarter inch in diameter were reported. There were no reports of property damage or injuries.
August 22, 2001	A hailstorm was reported two miles west of Marquette. One inch hailstones were reported. There were no reports of property damage or injuries.
September 7, 2001	A hailstorm was reported five miles south of Marquette. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
April 17, 2002	A hailstorm was reported five miles south of Marquette. Hailstones 0.75 inches in diameter were reported. There were no reports of property damage or injuries.
May 8, 2005	A hailstorm was reported one mile north of Marquette. One inch hailstones were reported. There were no reports of property damage or injuries.
June 9, 2005	A hailstorm was reported in the City of Marquette. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.
August 19, 2005	A hailstorm was reported in the City of Marquette. Hailstones 1.75 in diameter were reported causing vinyl siding damage to numerous homes in Marquette. Property damage was estimated at $100,000. There were no reports of injuries.
August 18, 2006	A hailstorm was reported four miles west of Marquette. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.

History of Tornado Events

The City of Marquette reported the following tornado events.

In 1905, a devastating tornado destroyed most of the western half of the town, killing 31 people. But the determination to survive and rebuild was very strong.

In 1951, a possible tornado went through at tree top level, taking the steeple off of the Methodist Church.

In 1973, a tornado passed just southeast of Marquette damaging three or four farm houses. Property damage estimates were not available for any of the events.

History of Utility/Infrastructure Failure

Historic hazard incidents were obtained from the National Climatic Data Center database and the City of Marquette.

August 22, 2001	A windstorm was reported four miles south of Marquette, resulting downed power lines. Property damage was estimated at $10,000. There were no reports of injuries.

June 11, 2002 — A windstorm was reported in Marquette. Widespread damage to roofs, trees, power lines and poles caused $100,000 in property damage. There were no reports of injuries.

August 19, 2005 — The porches of two homes were destroyed; the first by a large tree that was uprooted and fell onto it. The second, a small porch, was ripped from the home and tossed onto the roof. Prior to losing the front porch, the second home was struck by a trampoline. The second home also sustained extensive water damage. Roof damage was extensive throughout the community. The damage estimate assigned is tentative, pending examination by insurance adjustors. In addition, windows and screens were blown out of many homes. Downed power lines and power poles resulted in loss of power to the entire community. Tree damage was extensive and included many that were uprooted. Property damage was estimated at $150,000.

December 10, 2007 — A severe ice/snow storm struck Marquette. Power was out for about 24 hours. There was mainly widespread damage to trees.

History of Wildfire

From 1995 to 2009 there have been a total of 4,546.15 acres burned in the Marquette Fire Department service area as the result of wildfires. The information in Table 3.6.10 was provided by the Marquette Fire Department (Fire District #2). For the past 15 years, the majority of fire response calls have been wildfire calls, 30 calls were structure fire and 165 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.6. 10 – Marquette Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1995	63	2	37	339.5	0	0	0	0	0
1996	51	5	20	121	0	0	0	0	0
1997	30	1	12	970.5	0	0	0	0	0
1998	33	4	12	123.5	0	0	0	0	0
1999	49	2	27	20	0	0	0	0	0
2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2002	43	0	7	1863	0	0	0	0	0
2003	43	3	19	927.25	0	0	0	0	0
2004	34	3	4	50	0	0	0	0	0
2005	61	3	1	0.5	0	0	0	0	0
2006	58	1	8	49.6	0	0	0	0	0
2007	42	2	1	0.5	0	0	0	0	0
2008	48	0	6	63.2	0	0	0	0	0
2009	56	4	11	17.6	0	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 21, 1996 — A severe thunderstorm was reported in the City of Marquette. There were no reports of injuries or property damage.

May 25, 1997	A windstorm was reported in the City of Marquette resulting in widespread damage to trees, destroyed animal housing, windmill blown over, part of a shed roof was torn off, a machine shed was destroyed, a irrigation system was tipped over, and another irrigation system was blown from one farm across an eight foot drainage ditch into an adjacent farm. Property damage was estimated at $50,000. There were no reports of injuries.
June 16, 2001	A windstorm was reported five miles south of Marquette. There were no reports of injuries or property damage.
August 22, 2001	A windstorm was reported four miles south of Marquette, resulting downed power lines and large tree limbs. Property damage was estimated at $10,000. There were no reports of injuries.
June 11, 2002	A windstorm was reported in Marquette. Widespread damage to roofs, trees, power lines and poles caused $100,000 in property damage. Eight miles south of Marquette, two 80-85 foot silos collapsed, destroying the office building and milling operation. A 45-by-50 foot metal pole barn was destroyed, being picked up and hurled into a field southeast of where it had been located. Numerous businesses and residences sustained roof damage and had windows blown out. Obviously, tree damage was widespread and numerous power lines and power poles were downed. Area newspapers contributed greatly to this report. The property damage was estimated at $250,000. There were no reports of injuries.
August 19, 2005	The porches of two homes were destroyed; the first by a large tree that was uprooted and fell onto it. The second, a small porch, was ripped from the home and tossed onto the roof. Prior to losing the front porch, the second home was struck by a trampoline. The second home also sustained extensive water damage. Roof damage was extensive throughout the community. The damage estimate assigned is tentative, pending examination by insurance adjustors. In addition, windows and screens were blown out of many homes. Downed power lines and power poles resulted in loss of power to the entire community. Tree damage was extensive and included many that were uprooted. Property damage was estimated at $150,000.
September 16, 2006	A windstorm was reported five miles south of Marquette. There were no reports of injuries or property damage
May 5, 2007	A windstorm was reported one mile west of Marquette. There were no reports of deaths or injuries.
June 20, 2009	At least one semi-truck blew over between Lindsborg and Marquette as the result of a Strong to severe thunderstorms ignited across portions of central, south-central and east-central Kansas during the afternoon and evening hours on the 20th. The thunderstorms became super cellular as they moved north of the warm front, producing a handful of tornadoes across portions of Barton, McPherson and Marion counties. Severe straight-line winds also slammed the community of McPherson, producing some damage across town. Property damage was estimated at $15,000.

History of Winter Storms

The City of Marquette reported a severe ice and snow storm on December 10, 2007. Power was out in the community for about 24 hours. There was mainly widespread damage to trees.

City of Marquette Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability assessment for the City of Marquette. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to all of McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Marquette for their specific community. The vulnerability for dam and levee failure was raised to moderate for Marquette because the entire city would be inundated by water if the Kanopolis Dam experienced dam failure. Vulnerability to hazardous materials, expansive soils, land subsidence, extreme temperatures, and terrorism were determined to be low for the community.

Table 3.6. 11 – Marquette Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Marquette Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	High
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate
10	Hazardous Materials	Moderate	Low
11	Lightning	Moderate	Moderate
12	Expansive Soils	Moderate	Low
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Low
15	Extreme Temperatures	Moderate	Low
16	Fog	Moderate	Moderate
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Low
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Moderate

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

The following map is the City map for Marquette. It identifies the roads in the City (City of Marquette). There are not any major highways that traverse through the city.

Figure 3.6. 6 - Marquette City Map

Bridges

There is a low water crossing/bridge in the 300 block of East 5th. This bridge crosses the Dry Creek, but is subject to flooding during hard rain scenarios.

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable

economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. The National & State Register of Historic Places has one place listed as historical for Marquette. It is:

- Hanson, Hans, House
  Address: 211 East 5th Street
  National Register Number: 82002665
  Listed in National Register: 1982
  Owner: Private
  Area of Significance: Architecture/Engineering
  Period of Significance: 1875-1899
  Historic Function: Domestic
  Current Function: Domestic

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. The facilities also include education facilities to ensure continuity of education. Table 3.6.12 identifies the critical facilities in Marquette.

Table 3.6. 12– Marquette Critical Facilities

Name of Asset	Facility Type	Address	Replacement Value	Occupancy/ Capacity #
RIVERVIEW ESTATES	HEALTHCARE/NURSING HOME	202 SOUTH WASHINGTON	$2,000,000	43 BEDS
MARQUETTE AMBULANCE	EMERGENCY SERVICES	111 SOUTH WASHINGTON	$150,000	2 BAYS
MARQUETTE FIRE DEPARTMENT	EMERGENCY SERVICES	6TH & WASHINGTON	$750,000	7 FIRE TRUCKS
MARQUETTE ELEMENTARY SCHOOL	EDUCATION	310 NORTH SWEDONIA	$4,739,802	140 STUDENTS

Local Businesses

Local businesses are vital to the economic growth in the community. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for the City of Marquette are identified in Table 3.6.13.

Table 3.6. 13 – Marquette Local Businesses

Business Name	Type of Business	Address
RIVERVIEW ESTATES	HEALTHCARE/NURSING HOME	202 SOUTH WASHINGTON
PIPERS FINE FOODS	GROCERY STORE	102 SOUTH WASHINGTON

Business Name	Type of Business	Address
MARQUETTE LUMBER & HARDWARE	RETAIL	101 NORTH WASHINGTON
BLUE SKY CABLE	COMMUNICATIONS	105 NORTH WASHINGTON
RUSTY'S BAR & GRILL	RESTAURANT	107 NORTH WASHINGTON
HORSES & HAWGS	ENTERTAINMENT	109 NORTH WASHINGTON
LAST TANGLE	RETAIL	109 1/2 NORTH WASHINGTON
GALLERY ONE ELEVEN	ART GALLERY	111 NORTH WASHINGTON
ART SPACE	ART GALLERY	115 NORTH WASHINGTON
MARQUETTE COMMUNITY LIBRARY	EDUCATION	121 NORTH WASHINGTON
SOUTHWESTERN BELL	COMMUNICATIONS	201 NORTH WASHINGTON
MARQUETTE FARMERS STATE BANK	FINANCIAL	205 NORTH WASHINGTON
MID-KANSAS COOPERATIVE GRAIN ELEVATOR	GRAIN SUPPLIER	504 NORTH WASHINGTON
AMERICAN LEGION	LEGION POST	119 NORTH WASHINGTON
US POST OFFICE	GOVERNMENT	212 NORTH WASHINGTON
KANSAS MOTORCYCLE MUSEUM	MUSUEM	120 NORTH WASHINGTON
VALLEY CAFÉ	RESTAURANT	114 NORTH WASHINGTON
MARQUETTE TRIBUNE	NEWSPAPER	112 NORTH WASHINGTON
MARQUETTE DANCE STUDIO	ENTERTAINMENT	110 NORTH WASHINGTON
MARQUETTE FINE ARTS CENTER	ENTERTAINMENT	108 NORTH WASHINGTON
BUTTERFLY PHOTOGRAPHY/BOUTIQUE	RETAIL	106 NORTH WASHINGTON
CITY SUNDRIES	RETAIL	104 NORTH WASHINGTON
MARQUETTE SENIOR CENTER	SENIOR CENTER	102 NORTH WASHINGTON
WASHINGTON STREET EMPORIUM	RETAIL	100 NORTH WASHINGTON
GAS PUMP	RETAIL	101 SOUTH WASHINGTON
GROOM'S BARBER	RETAIL	107 SOUTH WASHINGTON
RIVERVIEW VILLAS	HOUSING	207 SOUTH WASHINGTON
MARQUETTE COTTAGES	ELDERLY HOUSING	1ST & LINCOLN

Community Concerns

The Marquette Fire Department (RFD #2) reported that wildfire is a concern for the community due to the wildland-urban interface (WUI) areas. Over 50 percent of the fire district has WUI, including the northwest corner of the fire district and areas south of Marquette to McPherson.

The City of Marquette is also concerned for the mobility of the elderly/disabled population. Currently there is inadequate access to needed services, such as the grocery store, mail, doctor, etc. Table 3.6.14 is the hazard vulnerability information for the senior center located in Marquette. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health

maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.6. 14 - MCCOA Hazard Vulnerability Assessment for Marquette Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
MARQUETTE SENIOR CENTER 102 N. WASHINGTON	NONE	HEAT - ALMOST YEARLY - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	UNKNOWN	NO

Table 3.6.15 identifies concerns the City of Marquette has regarding specific population groups.

Table 3.6. 15 – Marquette Community Concerns

Population group:	Concerns:
School age children	SAFETY IS A CONCERN FOR SCHOOL AGE CHILDREN, ALONG WITH QUALITY EDUCATION AND ADEQUATE RECREATION FOR THIS POPULATION AGE GROUP.
Low Income	AFFORDABLE AND ADEQUATE HOUSING IS A CONCERN FOR THE LOW INCOME POPULATION IN MARQUETTE. HOUSING MAINTENANCE IS ALSO A CONCERN FOR THIS POPULATION GROUP.
Nursing Home Residents	PROVIDING CLEAN AND ADEQUATE HOUSING AND HEALTHCARE FOR NURSING HOME RESIDENTS DURING A DISASTER IS A CONCERN FOR MARQUETTE

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.6.15 identifies the current land usage for the City of Marquette.

Table 3.6. 16 – Marquette Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	85
Industrial	0
Developed with mixed uses	0
Commercial	5
Agricultural	2
Parks/restricted wild land/wildlife refuge	2
Institutional (education, health care, etc.)	2

Current Land Use Category	Percent of Jurisdiction
Transportation or utility right-of-way	3
Vacant/unused - private ownership	0.5
Vacant/unused - government ownership	0.5

New Development

Marquette has received 20 acres on the north side of town to develop and offer free for business development.

The community of Marquette, Kansas is offering free building lots to interested families who are looking for an extraordinary small town to call home. The building lots are located in the Westridge Addition development on the west edge of town with beautiful, open views of the evening sunset and wide-open rolling fields.

Lots are various sizes and shapes from 11,000 to 25,000 square feet. If one lot is not enough space for your needs, a second adjoining lot can be issued, allowing additional room for a larger yard, garden, garage, pool, outbuilding, etc.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Marquette plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF MARQUETTE	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING

Plan for Implementation and Administration:

CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING:

- REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW;
- ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS;
- NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA);
- ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND
- VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES;
- VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED;
- WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MARQUETTE AND MARQUETTE FIRE DEPARTMENT	**Project Title:** STORM SIREN ENHANCEMENT PROJECT
Project Description: INSTALL NEW STORM SIREN AND RELOCATE ANOTHER SIREN TO BETTER LOCATION	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $8,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES AND WINDSTORMS
Benefits (Losses Avoided): LIFE SAFETY, BETTER TORNADO/STORM WARNING CAPABILITIES	**Completion Date:** JUNE 2011
Plan for Implementation and Administration: INSTALL NEW TORNADO SIREN IN THE WEST PART OF TOWN AND RELOCATE ANOTHER EXISTING SIREN FOR BETTER WARNING RESIDENTS.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MARQUETTE FIRE DEPARTMENT	**Project Title:** FIRE EQUIPMENT UPGRADE/PURCHASE
Project Description: LOOK INTO GRANT INFORMATION ON THE PURCHASE OR UPGRADE FIRE EQUIPMENT TO INCLUDE, BUT NOT LIMITED TO, NEW 3,000 GALLON TANKER TRUCK, 5,000 WT EMERGENCY GENERATORS, PORTABLE LIGHTS, CHAIN SAWS AND RESCUE SAWS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): FIRE DEPARTMENT WOULD BE BETTER EQUIPPED TO RESPOND IN EMERGENCY SITUATIONS	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO GRANT INFORMATION ON THE PURCHASE OR UPGRADE FIRE EQUIPMENT, AFTER GRANT HAS BEEN SECURED PURCHASE EQUIPMENT, TRAIN FIREFIGHTERS ON THE USE OF NEW EQUIPMENT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of McPherson	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	0

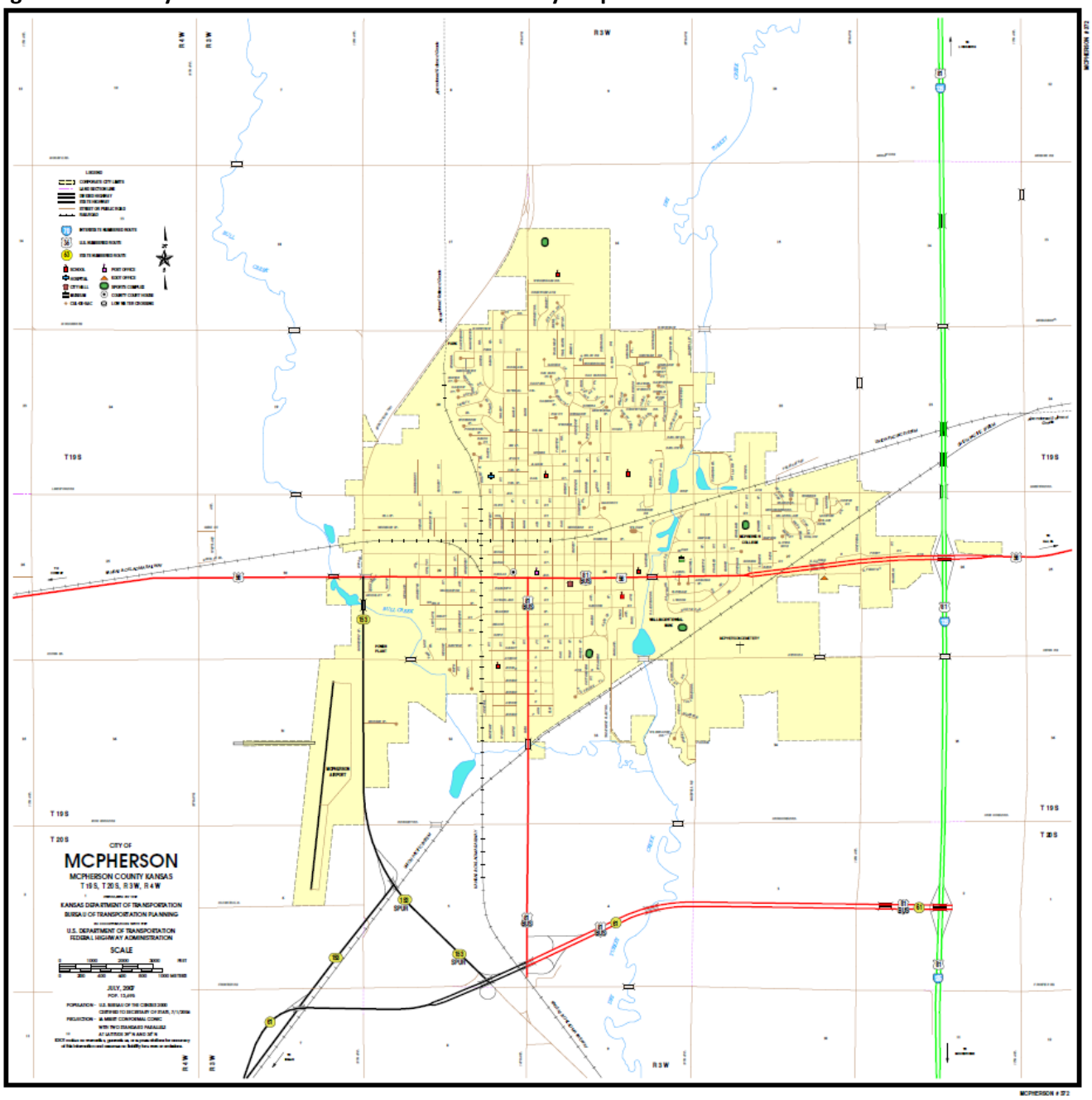
The following image is an aerial view of the City of McPherson (City-Data.com).

Figure 3.7. 1 -City of McPherson

Location

The City of McPherson is the county seat for McPherson County. It is located near the geographic center of Kansas. Interstate 135 intersects U.S. Highway 56, and Interstate 70 is just 35 miles north via I-135. It is approximately 60 miles from Wichita. The City has a total land area of 6.14 square miles and has an elevation of 1,504 feet. The following map is the jurisdictional boundaries for the City of McPherson (Kansas Department of Transportation).

Figure 3.7. 2 - City of McPherson Jurisdictional Boundary Map



History

The City of McPherson was founded in 1872. It was named after General James Birdseye McPherson, a Union General in the Civil War. General McPherson was mortally wounded in the Battle of Atlanta in 1867. A life-size bronze statue located in Memorial Park was dedicated July 4, 1917 (City of McPherson).

In 1887, the town fathers laid out 160 acres for "Capitol Hill" and made a bid to become the Kansas State Capitol; Topeka was chosen instead. The City of McPherson was conceived and laid out by the McPherson Town Company and the Articles of Incorporation signed on May 28, 1872. The original town fathers had no comprehensive plan to advise them in planning for the future of the city; however, they had considerable vision. A number of plots of ground were set aside to be used for churches, schools, and parks, as well as the two blocks where the courthouse and library are located were designated for county buildings.

There were 25 houses on the town site in 1873, and the town seemed destined to grow and become the hub of the county. In 1879 the Santa Fe and Union Pacific Railroads extended branches to McPherson. The Missouri Pacific and Rock Island Railroads reached McPherson with their lines in 1888.

A reminder of the 1880's is the Opera House Building which was one of the finest of its type in the Midwest. The courthouse was constructed in 1894 and refurbished in 1980. Both the Opera House and Court House are on the National Register of Historic Places.

They struck oil in McPherson County in the late 1920's, just in time to keep the local economy out of the "Great Depression". After World War II, as farm consolidation began, McPherson had the foresight to develop an industrial base, well before many other towns caught the drift.

Governance

The City of McPherson is a city of the second class. A second class city has 2,000 to 14,999 inhabitants. The City of McPherson is governed by an elected Mayor and two commissioners, with the assistance of an appointed City Administrator. A comprehensive city plan has been adopted and is reviewed and updated periodically (City of McPherson). City Zoning has also been adopted and provides for the orderly expansion of residential property, commercial, and industrial zones. The city is served well with a full complement of municipal services:

- City Clerk
- City Administrator
- City Attorney
- Fire Department
  - 18 Full-time Fire Department Personnel
  - 14 Volunteer Fire Department Personnel
- Police Department
  - 30 Full-time Police Personnel
  - 6 Part-time Police Personnel (reserves)
- Finance Director
- Inspections Department
- Library
- Municipal Judge
- Parks and Recreation
- Sanitation
- Streets Department
- Treasurer
- Electric
- Sewer
- Water
- Zoning
- Swimming Pool
- Housing Authority
- Public Works
- Economic Development

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 13,323 in 2009, the City of McPherson is ranked 29th among Kansas' incorporated cities. Table 3.7.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of McPherson has declined since the 2000 census. There has been over a three percent decrease in the population.

Table 3.7. 1 – City of McPherson Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of McPherson	13,323	13,296	13,414	13,423	13,568	13,579	13,621	13,661	13,709	13,770

Table 3.7.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for McPherson in comparison nationally, state, and county demographics. Nearly sixteen percent of the population in McPherson is over the age of 65, which is two percent higher than the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.7. 2 – City of McPherson Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of McPherson	6.4	15.7	36.3	2.43	90.2	23.9

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of McPherson is manufacturing. There are 2,034 people employed in this industry, which is over 28 percent of the population. Table 3.7.3 is the 2000 census statistics for the employed civilian population 16 years and over in McPherson.

McPherson has a diversified industrial and manufacturing base. Many of the manufacturers are supporting industries of other local manufacturers. For years, McPherson has been known as one of the largest plastics manufacturing centers in the entire United States. With such diversified manufacturers as pharmaceuticals, fiberglass insulation, plastics injection and extrusion molding, and others, McPherson is truly a multi-industry community.

Table 3.7. 3 – City of McPherson Employed Civilian Population (16 years & older)

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Manufacturing	2,034	28.7
Educational, Health, and Social Services	1,624	22.9
Retail Trade	617	8.7
Arts, Entertainment, Recreation, Accommodation, and Food Services	525	7.4
Other Services	423	6
Finance, Insurance, Real Estate, Rental and Leasing	422	6

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Construction	397	5.6
Professional, Scientific, Management, Administrative, and Waste Management Services	288	4.1
Transportation and Warehousing, and Utilities	218	3.1
Public Administration	181	2.6
Wholesale Trade	158	2.2
Information	102	1.4
Agriculture, forestry, mining, fishing and hunting	93	1.3

The December 2009 cost of living index is 77.9, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.7.4 identifies the economic characteristics for McPherson, Kansas from the 2000 census (U.S. Census Bureau). The City of McPherson has fewer individuals and families living below poverty level than the average for the State of Kansas. The unemployment rate is also significantly lower than the national average.

Table 3.7. 4 – City of McPherson Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	3.8	5.6	45,000	35,938	17,965	2.8	68.2
City of McPherson	4.9	8.2	85,100	37,500	17,415	2.5	69.1

Small Business Development Association

The McPherson County Small Business Development Association (SBDA) is a non-profit organization that was created in 1981 for the purpose of helping McPherson County in the area of economic development. Members of SBDA represent various segments of business in McPherson County including finance, manufacturing, retail and government.

SBDA prepares and packages several types of loans for businesses and serves as a clearinghouse of economic development information in McPherson County. SBDA has been able to assist in the growth and expansion of small business in McPherson County through performance grants that were funded through the Kansas Department of Commerce & Housing. SBDA is a member of the Kansas Association of Certified Development Companies (KACDC). SBDA has an existing affiliation with South Central Kansas Economic Development District (SCKEDD).

Convention & Visitors Bureau

The Convention & Visitors Bureau is a not-for-profit umbrella organization which represents the city of McPherson in the solicitation and serving of all types of visitors to the area... whether they are attending a convention, touring or visiting. The goal is to promote economic growth and build visitor traffic to the McPherson area.

The McPherson Convention and Visitors Bureau has marketing grants available for non-profit organizations interested in marketing an event or attraction. Each organization is required to match the grant money received. The money can only be used to market events and attractions through brochures, posters, newspaper ads, radio spots, television commercials or mail outs. Grants are awarded twice a year in March and July.

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

The City of McPherson adopted Flood Plain Management as part of Zoning Regulations on December 8, 2008 based on and approved by the Kansas Department of Agriculture acting under the NFIP regulation on November 8, 2008.

National Flood Insurance Program

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of McPherson is a participant in the National Flood Insurance Program. Table 3.7.5 is information from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for the community.

Table 3.7. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200217#	City of McPherson	McPherson	3/15/1974	3/16/1983	1/16/2009	3/16/1983	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of McPherson. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.7.6 identifies the existing planning ordinances, codes, and plans for McPherson.

Table 3.7. 6 – City of McPherson Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans
Master Plan COMPREHENSIVE DEVELOPMENT PLAN
Zoning ordinance ORDINANCE NO. 2976
Subdivision ordinance CURRENTLY BEING UPDATED
Floodplain Management
Municipal Code
Fire Prevention Code USE AS STANDARD FOR REFERNCE, BUT HAVEN'T FORMALLY ADOPTED. USE 2010 EDITION
Building code

Planning ordinances, codes, plans
Fire department ISO rating Rating: 4/9
Erosion or sediment control program
Stormwater management program
Site plan review requirements
Capital improvements plan CURRENTLY WORKING ON DEVELOPING A COMPREHENSIVE LONG-TERM CAPITAL IMPROVEMENT PLAN
Local emergency operations plan
Comprehensive Land Use Plan APPROVED NOVEMBER 9, 1998
Flood insurance study or other engineering study for streams PART OF ADOPTED FLOODPLAIN REGULATIONS
Elevation certificates PART OF ADOPTED FLOODPLAIN REGULATIONS
Mutual Aid Agreements WITHIN COUNTY AND USE STATE MUTUAL AID
Fire or Life Safety Code 2003 EDITION OF INTERNATION FIRE CODE

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of McPherson. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.7.7 identifies personnel resources and warning capabilities for the community.

Table 3.7. 7 – City of McPherson Personnel Resources

Personnel Resources
Planner/Engineer with knowledge of land development/land management practices - PLANNING/ZONING DIRECTOR
Engineer/Professional trained in construction practices related to buildings and/or infrastructure - CITY ENGINEER
Personnel skilled in GIS
Full-time building official - BUILDING INSPECTOR
Floodplain Manager - PLANNING ZONING ADMINISTRATOR
Emergency Manager - COUNTY WIDE
Grant writer - CITY ADMINISTRATOR
GIS Data – Links to Assessor's data
Warning Systems/Services
Cable override
Outdoor weather warning signals

Financial Resources

This section will identify the financial resources available to the City of McPherson. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.7.8 identifies the financial resources available to the community.

Table 3.7. 8 – City of McPherson Financial Resources

Financial Resources	
Authority to levy taxes for specific purposes	Impact fees for new development

Financial Resources	
Fees for water, sewer, gas, or electric services	Incur debt through general obligation bonds

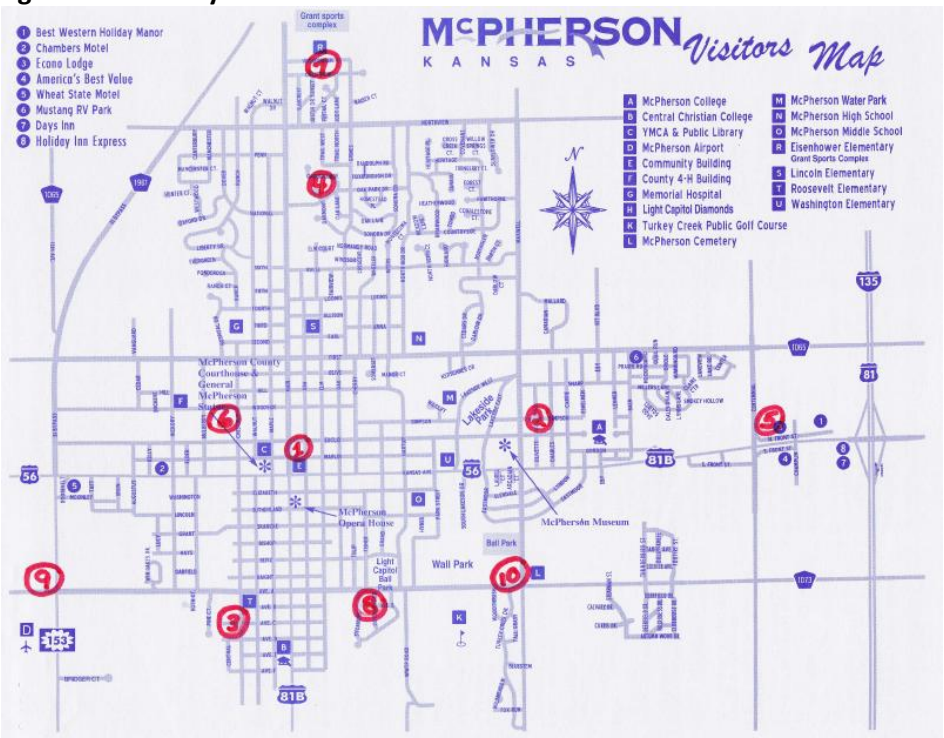
Outdoor Siren System

McPherson utilizes the outdoor siren network to warn residents of impending severe weather. There are ten outdoor storm sirens in the City of McPherson. Table 3.7.9 identifies the outdoor storm siren locations and activation method. Figure 3.7.3 shows the location for each storm siren. The numbers from the table below correspond with the locations on the map.

Table 3.7. 9 – City of McPherson Siren Network

Location	Activation Method
1. MARLIN & ASH	ALL SIRENS IN THE CITY OF MCPHERSON ARE ACTIVATED BY THE 911 COMMUNICATIONSOFFICE
2. SIMPSON & OLIVETTE	
3. AVENUE C & CHESTNUT	
4. GARDEN LANE	
5. KANSAS AVENUE & CENTENNIAL	
6. MULBERRY & SIMPSON	
7. EISENHOWER SCHOOL & WICKERSHAM DRIVE	
8. AVENUE A & SYCAMORE PLACE	
9. AVENUE A & BYPASS	
10. AVENUE A & MAXWELL	

Figure 3.7. 3 – City of McPherson Storm Siren Locations



Vulnerabilities

Hazards Affecting the City of McPherson

History of Drought

The City of McPherson reported there have been a few problems with drought in the past. However, it has affected most of the agricultural areas surrounding the city and not inside the city limits. Property damage estimates were not available.

History of Expansive Soils

There is a high content of clay in the soils in the City of McPherson, which tends to cause expansion, but it has not created any major hazards at this point.

History of Extreme Temperatures

Heat related deaths have occurred in the City of McPherson, as well as extreme occurrences of cold weather. No details of either event were provided.

History of Flooding

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 11, 2002	The City of McPherson reported widespread street flooding with flood depths of 1-2 feet. There were no reports of property damage or injuries.
October 15, 2008	Minor street flooding was reported three miles west of McPherson. Heavy rains brought about minor flooding to portions of central Kansas. A few roads were covered by water to only prove to be a nuisance to travelers.

Repetitive Loss Properties

FEMA defines severe repetitive loss properties as “a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. Currently, there are not any repetitive flood loss properties in the City of McPherson.

HAZUS Report

A “flood” HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA’s software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figures 3.7.4 through 3.7.13 are maps that identify the 100-year floodplain for the City of McPherson. Figure 3.7.14 identifies the critical facilities in McPherson in relation to the 100-year floodplain.

According to the HAZUS loss estimation model for the City of McPherson, approximately 272 households would receive minor, 38 houses would receive minor to moderate damage, and two houses would receive moderate damage as the result of a 100-year flood event. Three churches, eight commercial facilities, five industrial buildings, one police station, Washington Elementary School, McPherson High School, and the public works facility would receive minor flooding.

Figure 3.7. 4 – City of McPherson's 100-year Floodplain

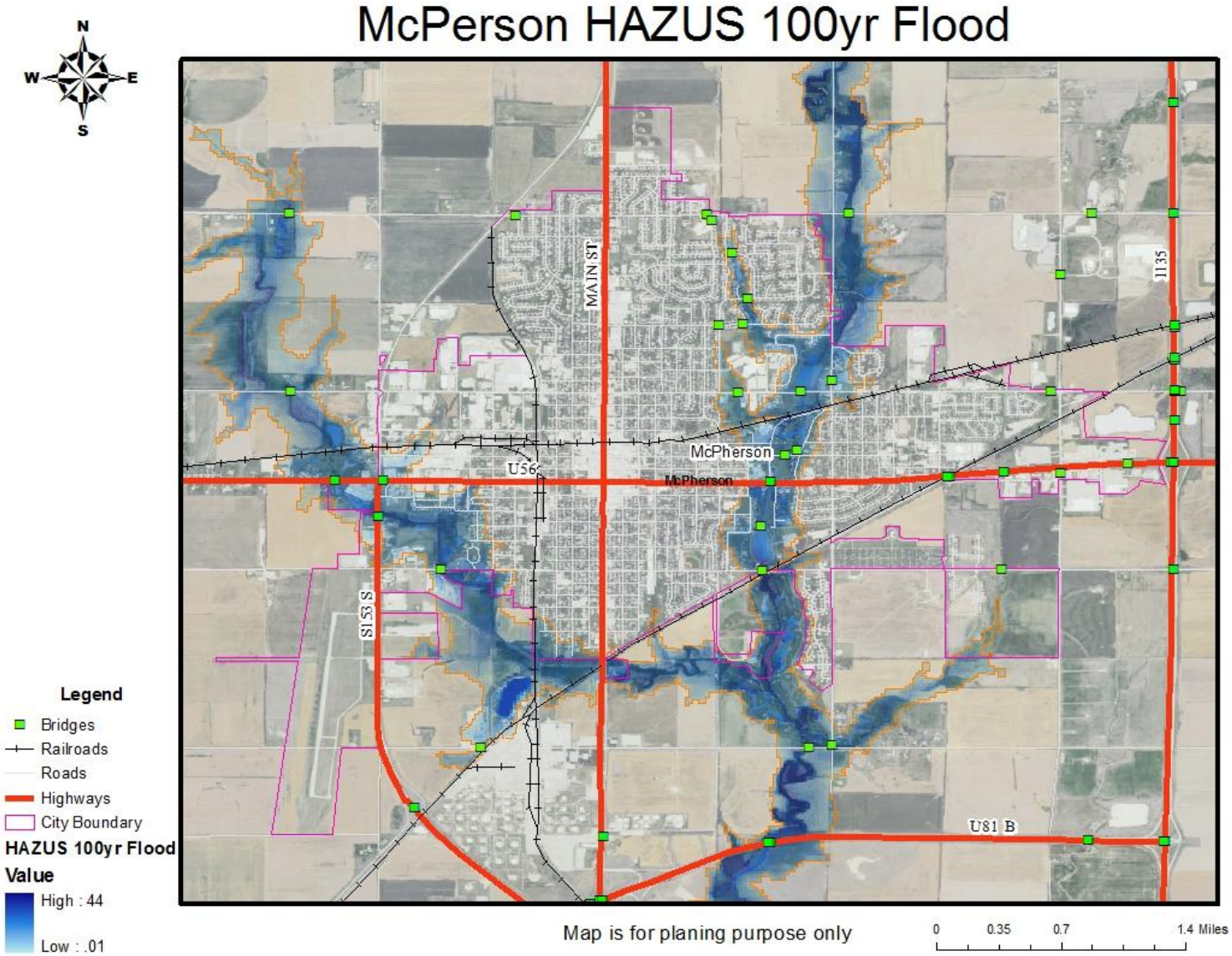


Figure 3.7. 5 – City of McPherson's 100-year Floodplain by Census Block

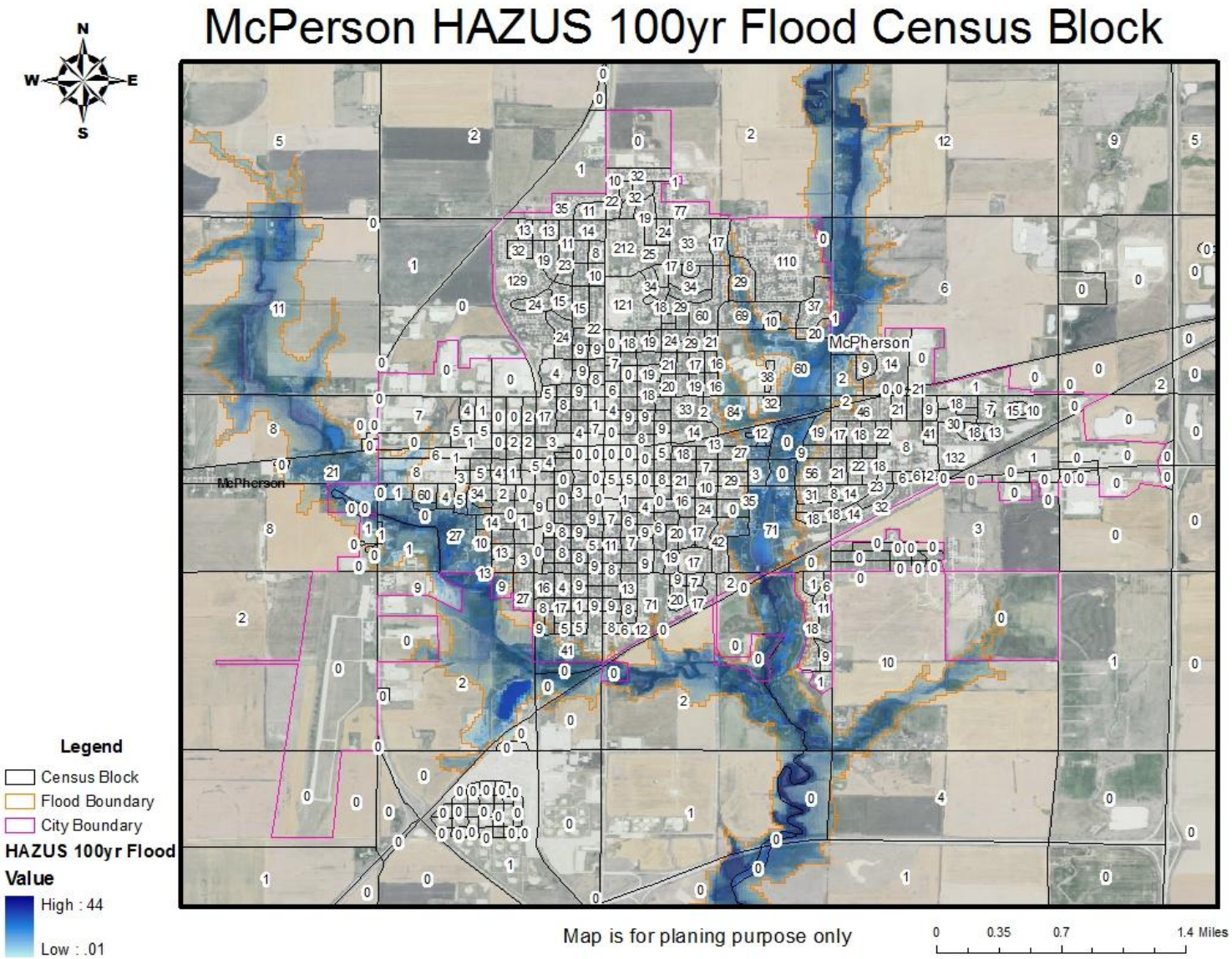


Figure 3.7. 6 - Detailed View of McPherson's 100-year Flood Zone – Southwest Portion of the City

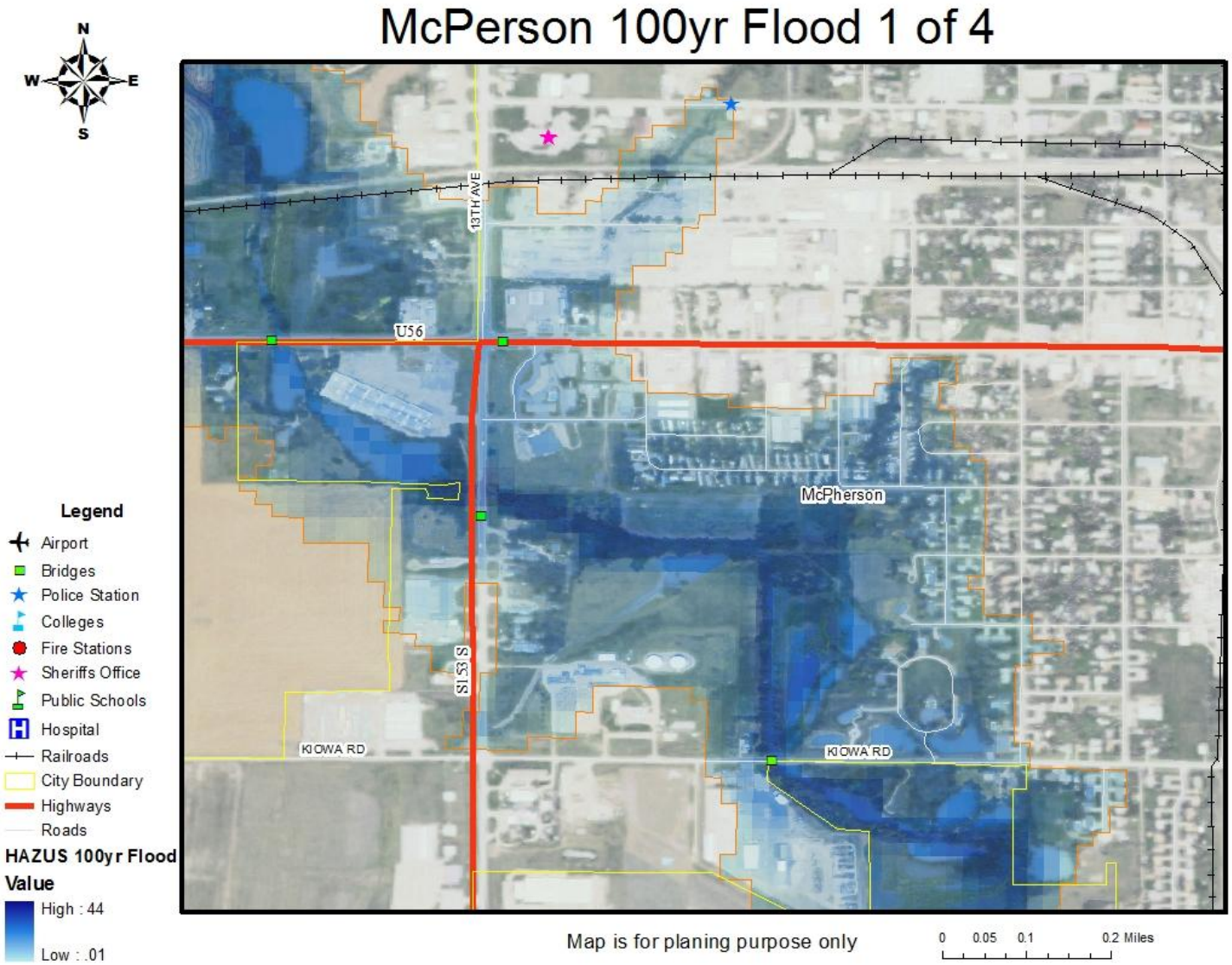


Figure 3.7. 7 - Detailed View of McPherson's 100-year Flood Zone – South Central Portion of the City

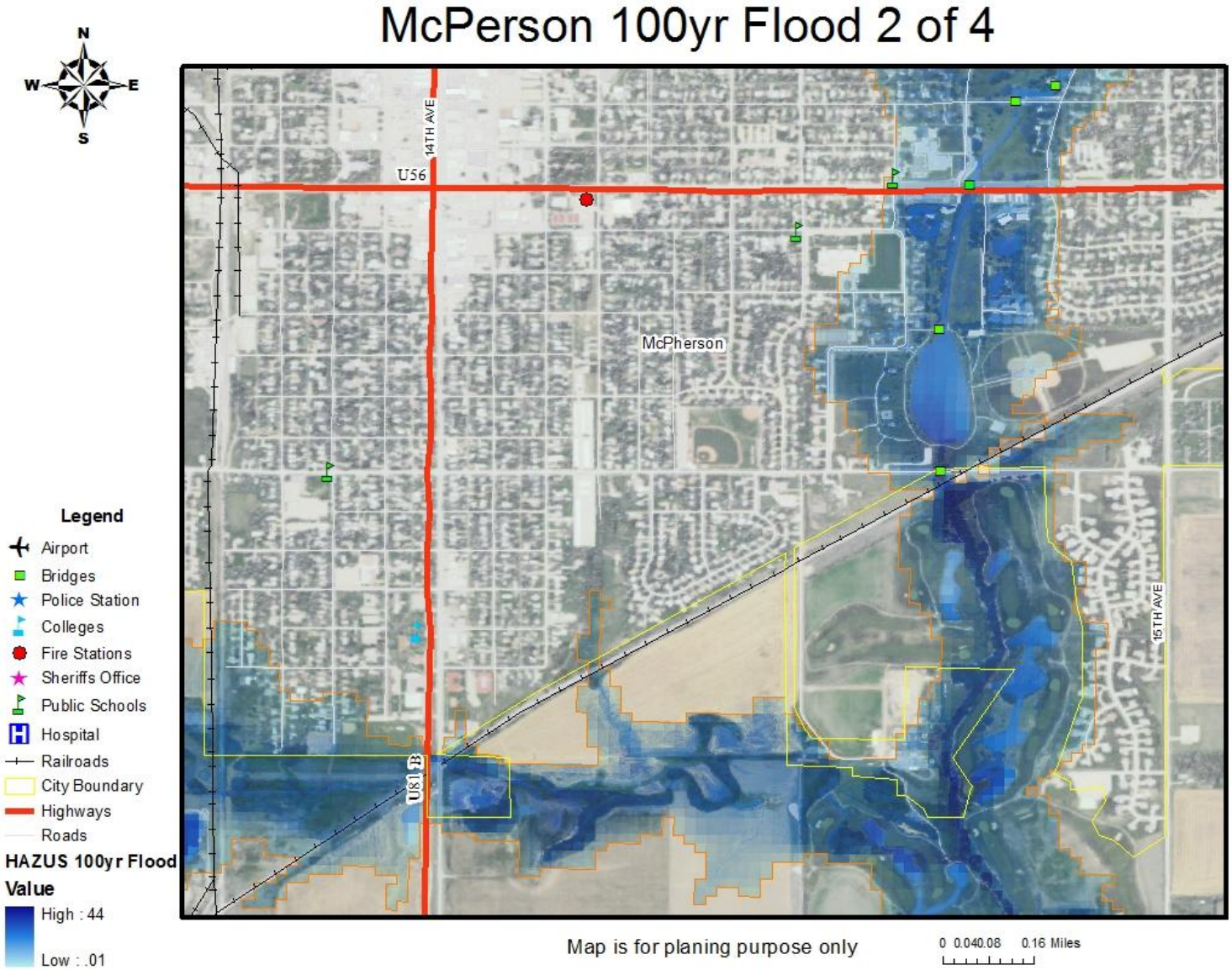


Figure 3.7. 8 - Detailed View of McPherson's 100-year Flood Zone – Northeast Portion of the City

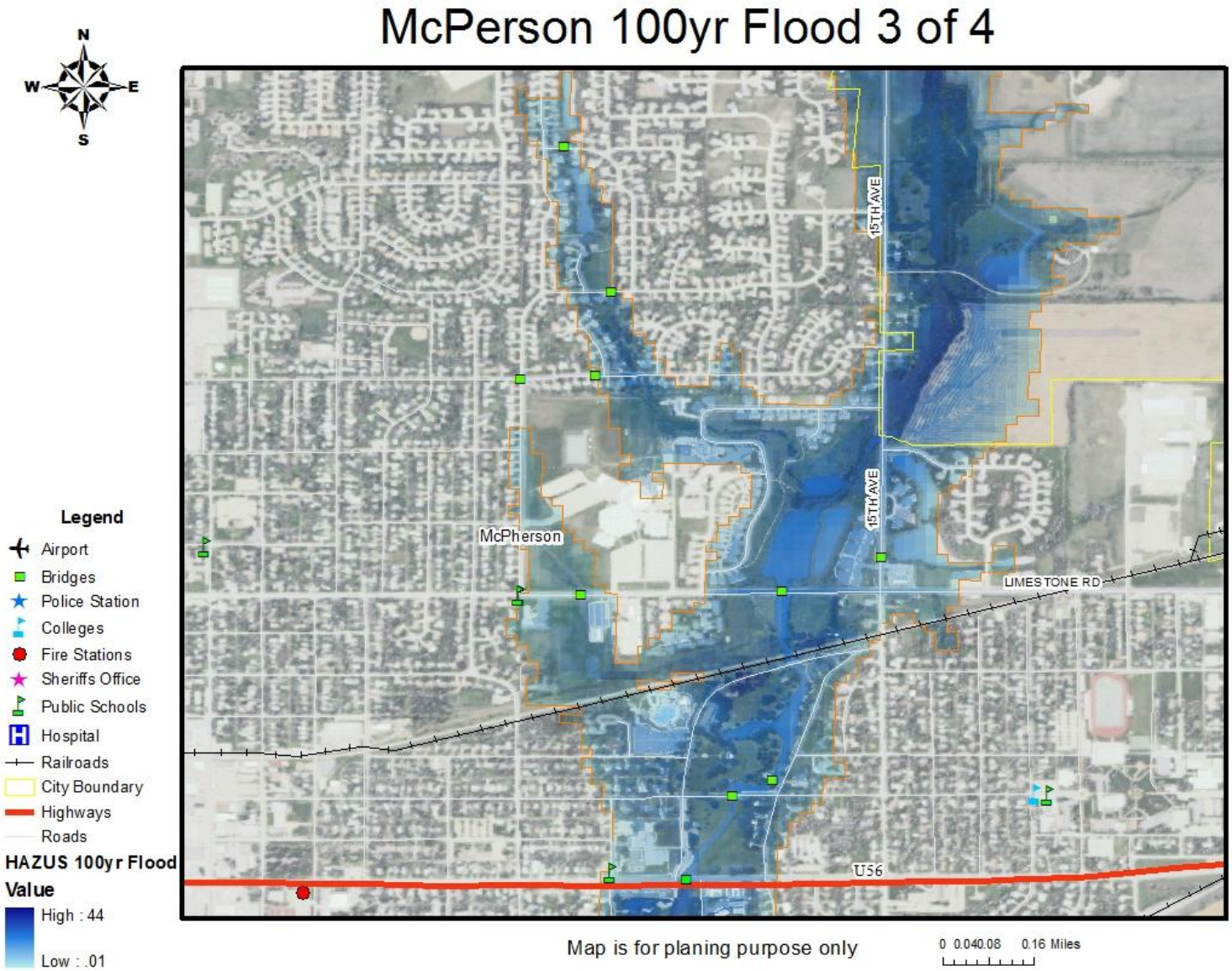


Figure 3.7. 9 - Detailed View of McPherson's 100-year Flood Zone – Southeast Portion of the City

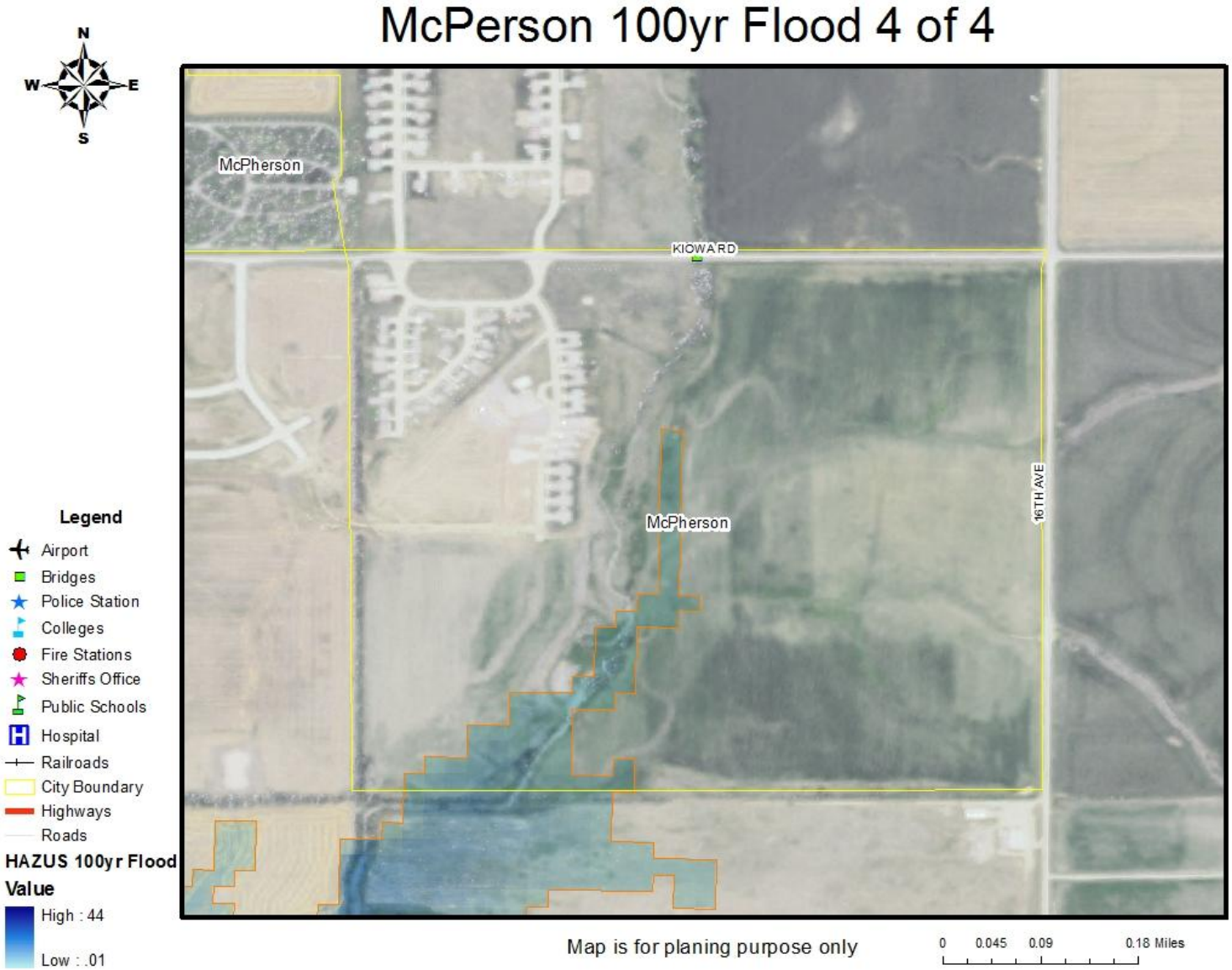


Figure 3.7. 10 - Detailed View of McPherson's 100-year Floodplain by Census Block – Southwest Portion of the City

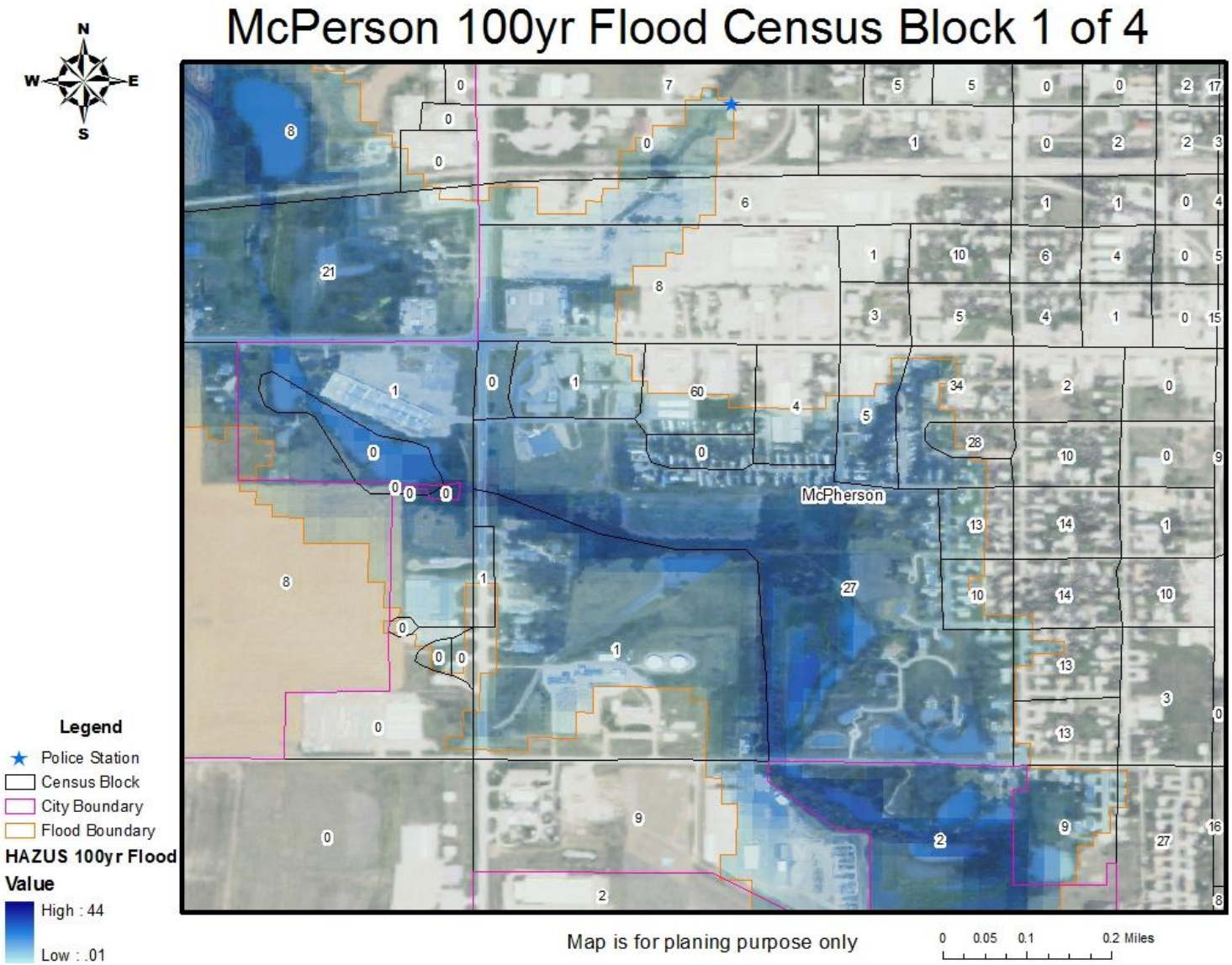


Figure 3.7. 11 - Detailed View of McPherson's 100-year Floodplain by Census Block – South Central Portion of the City

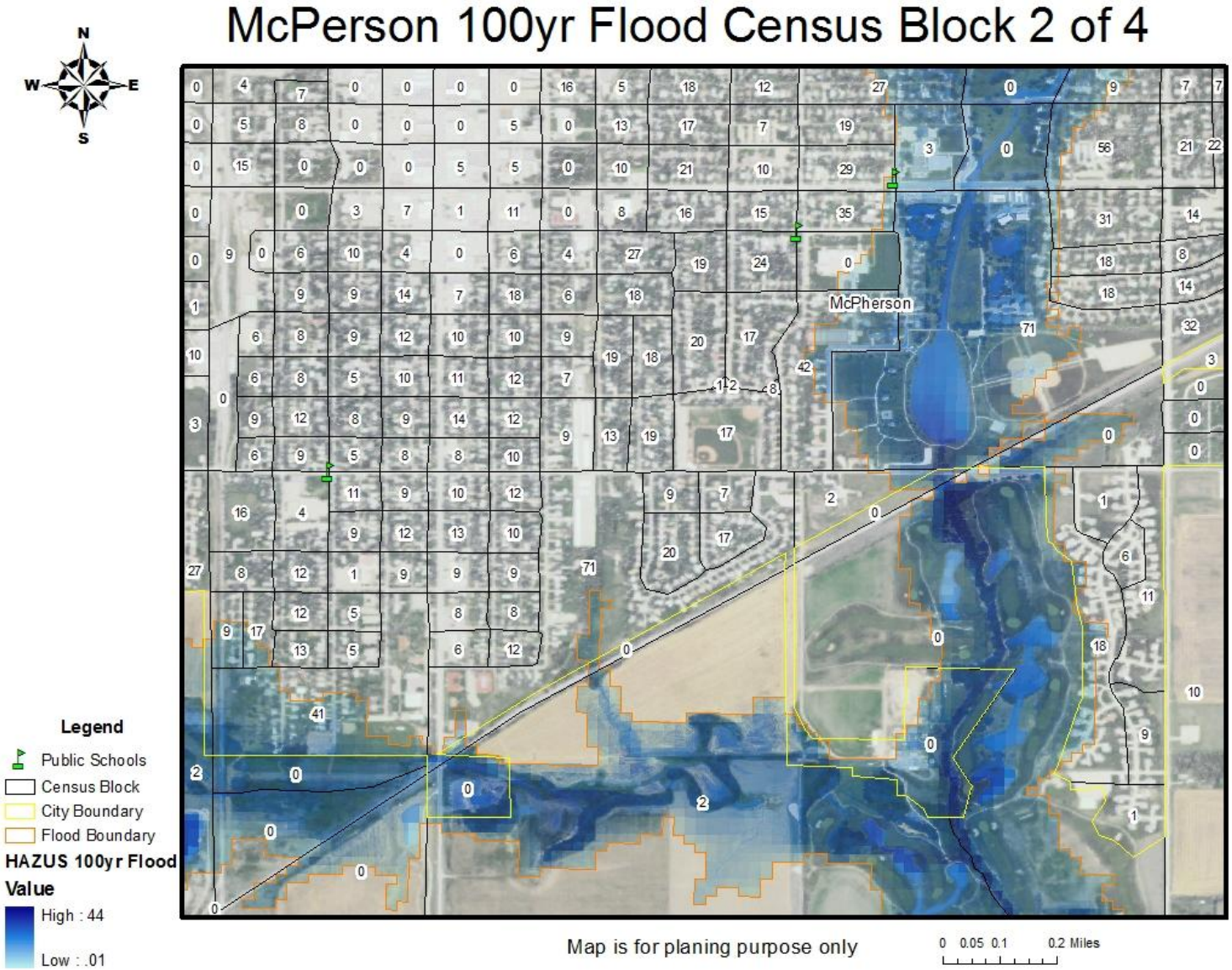


Figure 3.7. 12 - Detailed View of McPherson's 100-year Floodplain by Census Block - Northeast Portion of the City

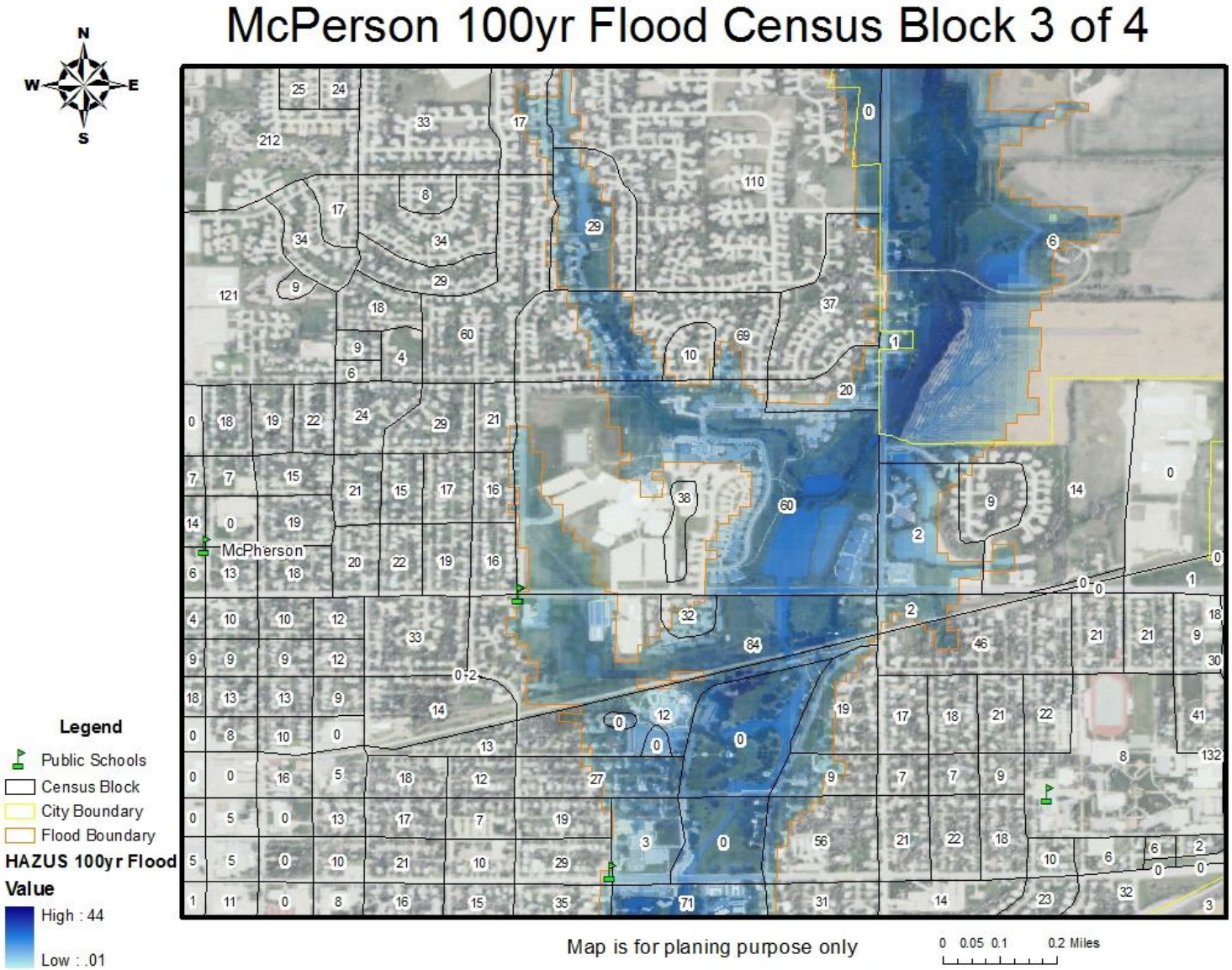


Figure 3.7. 13 - Detailed View of McPherson's 100-year Floodplain by Census Block - Southeast Portion of the City

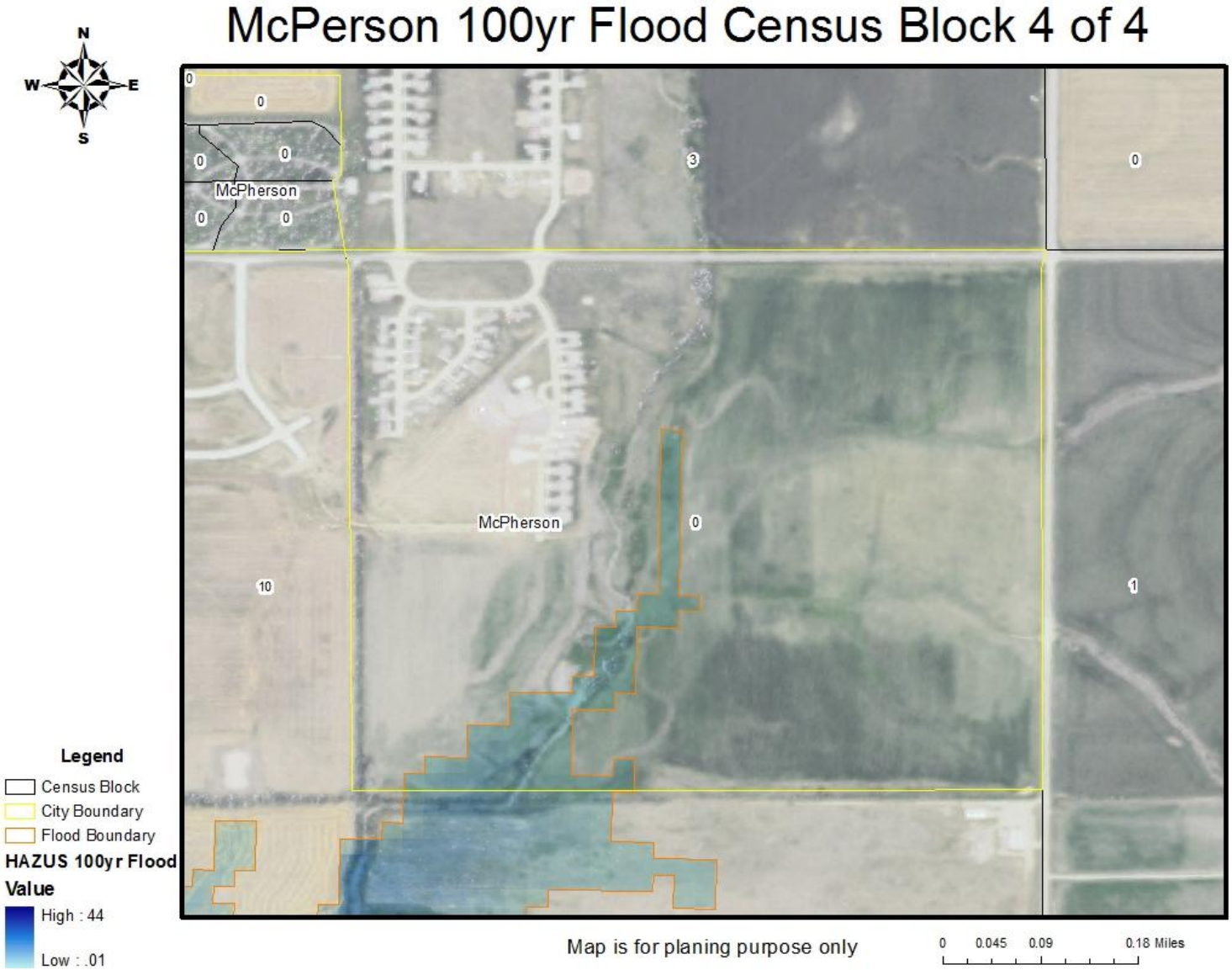
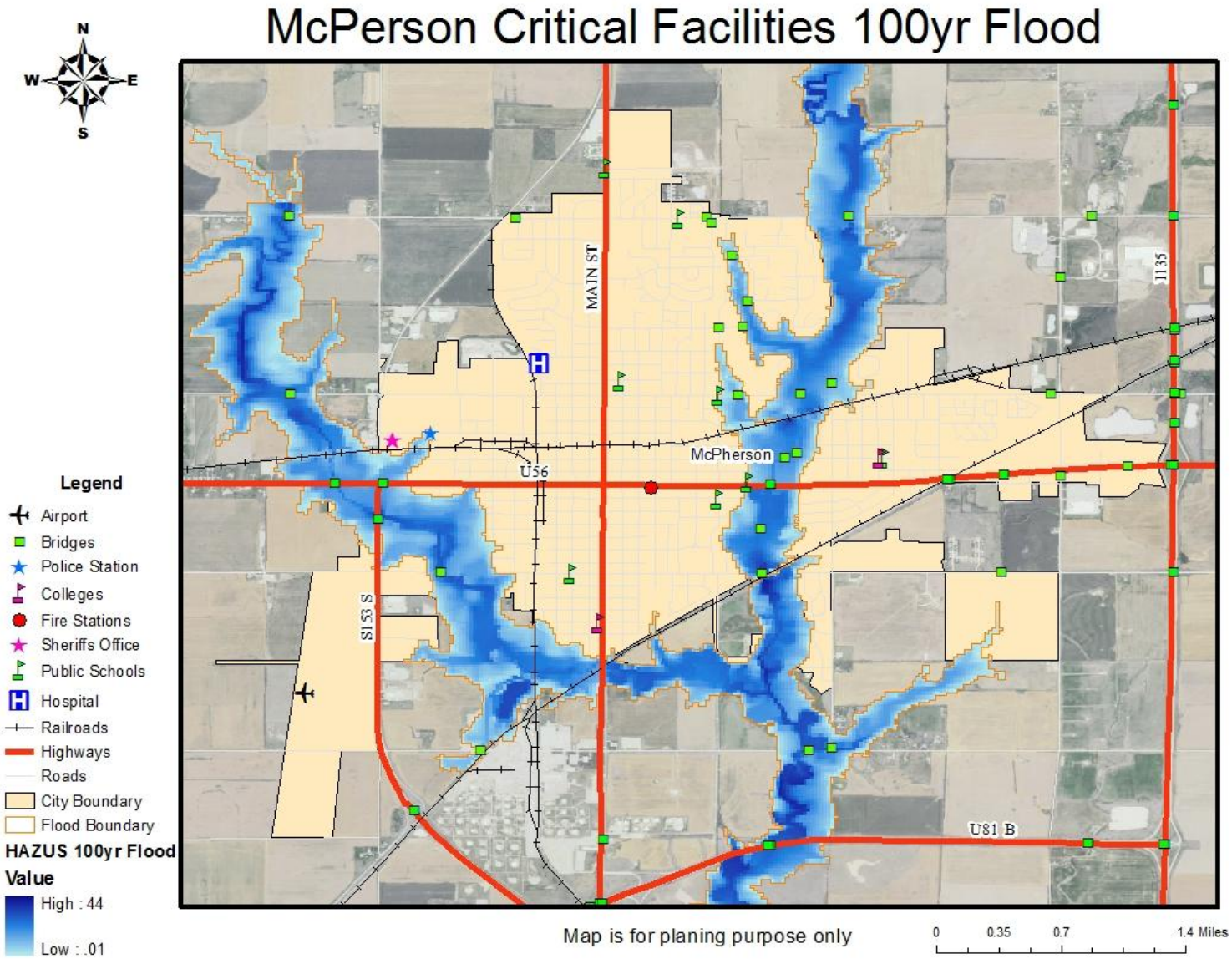


Figure 3.7. 14 – McPherson's Critical Facilities in Relation to the 100-year Floodplain



History of Fog Events

The City of McPherson reported that from time to time there are major fog events but there have not been any major incidents as a result.

History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 17, 1995	A hailstorm was reported in the City of McPherson. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
July 25, 1995	A hailstorm was reported in the City of McPherson. Hailstones three-quarter inch in diameter were reported. There were no reports of property damage or injuries.
May 7, 1997	A hailstorm was reported in the City of McPherson. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
May 11, 1998	A hailstorm was reported in McPherson. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.
May 4, 1999	A hailstorm was reported in McPherson. One and a quarter inch hailstones were reported. There were no reports of property damage or injuries.
September 22, 2000	A hailstorm was reported two miles west of McPherson. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
June 1, 2001	A hailstorm was reported in McPherson. One inch hailstones were reported. There were no reports of property damage or injuries.
August 22, 2001	A hailstorm was reported two miles east of McPherson. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.
June 15, 2004	A hailstorm was reported one mile west of McPherson. Hailstones 0.75 in diameter were reported. There were no reports of injuries.
March 12, 2006	A hailstorm was reported in McPherson. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.

History of Land Subsidence

There are not any areas of land subsidence inside the city limits of McPherson.

History of Lightning Events

The City reported that there have been several fires in the community as a result of lightning. There were no details provided on those events.

History of Hazardous Materials Incidents

There have been several incidents in which hazardous contaminations have occurred including gasoline spills and other hazardous materials. Fire Department carries out hazardous materials functions.

History of Major Disease Outbreak

The City of Salina has not had any major disease outbreaks other than basic flu outbreaks.

History of Soil Erosion and Dust

Soil and erosion has not been a major hazard but it has been known to occur in the city.

History of Tornado Events

There was a major tornado event that occurred that occurred in 1993. Details were not provided.

History of Utility/Infrastructure Failure

Historic hazard incidents were obtained from the National Climatic Data Center database

Utility/Infrastructure failure includes power and telephone lines, water supply facilities, wastewater facilities and communication towers.

July 1, 1994	Over 60 mile an hour winds from Windom to McPherson downed tree limbs and power poles. Some businesses in McPherson had their storefront windows blown out. Property damage was estimated at $5,000.
June 20, 2009	Straight-line winds estimated around 75 mph downed large trees and power poles across McPherson. Some roof damage occurred as well. A tree fell on a residence. Nine power poles just west of town were downed. Metal awnings on Main Street McPherson businesses were blown down.

History of Wildfire

From 1995 to 2009 there have been a total of 1,073 acres burned in the McPherson Fire Department service area as the result of wildfires. The information in Table 3.7.10 was provided by the McPherson Fire Department. In the past 15 years the majority of fire response calls have been wildfire calls, 348 calls were structure fire and 422 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.7. 10 – McPherson Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1995	599	25	26	N/A	0	0	0	0	0
1996	708	18	28	N/A	0	0	0	0	0
1997	665	20	32	N/A	0	0	0	0	0
1998	707	23	36	N/A	0	0	0	0	0
1999	747	33	17	12	0	0	0	0	0
2000	779	30	30	100	0	0	0	0	0
2001	741	25	24	9	0	0	0	0	0
2002	779	25	20	49	0	0	0	0	0
2003	713	16	21	133	0	0	0	0	0
2004	689	23	17	11	0	0	0	0	0
2005	802	17	34	192	0	0	0	0	0
2006	691	28	39	66	1	0	0	0	0
2007	806	24	33	167	1	0	0	0	0
2008	698	24	31	331	0	0	0	0	0
2009	677	17	34	3	0	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

July 1, 1994	Over 60 mile an hour winds from Windom to McPherson downed tree limbs and power poles. Some businesses in McPherson had their storefront windows blown out. Property damage was estimated at $5,000.
June 6, 1996	A windstorm was reported in the City of McPherson resulting in widespread damage to trees. Property damage was estimated at $5,000. There were no reports of injuries.
May 25, 1997	A windstorm was reported in McPherson. A canopy was blown off a Conoco Service Station and into the street. Property damage estimates were not available. There were no reports of injuries.
June 21, 1998	A windstorm was reported in McPherson. There were no reports of injuries.
June 11, 2002	A windstorm was reported three miles south west of McPherson. Widespread damage to roofs, trees, power lines and poles caused $125,000 in property damage.
June 15, 2004	A severe windstorm was reported one mile west of McPherson, causing several large limbs to be blown down. There were no reports of property damage or injuries.
June 21, 2006	A windstorm was reported in McPherson. Sporadic tree damage occurred throughout town. Little if any structural damage occurred. There were no reports of injuries or property damage.
May 6, 2007	A windstorm was reported one mile east of McPherson. There were no reports of deaths or injuries.
April 17, 2008	Thunderstorm winds caused damage to a small outbuilding. One to one and a half inch thick tree branches were also blown down. Nickel size hail also accompanied the strong winds. Property damage was estimated at $1,000.
June 15, 2009	A significant severe weather episode developed across portions of Kansas on the evening of June 15th, 2009, into the early morning hours of June 16th. Several large trees were down with one over the road. Property damage was estimated at $15,000.
June 20, 2009	Straight-line winds estimated around 75 mph downed large trees and power poles across McPherson. Some roof damage occurred as well. A tree fell on a residence. Nine power poles just west of town were downed. Metal awnings on Main Street McPherson businesses were blown down. Property damage estimates were not available.

History of Winter Storms

According to the City of McPherson severe winter storms are experienced nearly every year. On December 11, 2007 a major ice storm caused considerable damage to electrical infrastructure both in the City of McPherson and in the rural areas of McPherson County. Property damage estimates were not available. There were no reports of deaths or injuries.

City of McPherson Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability assessment for the City of McPherson. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to all of McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of McPherson for their specific community. Vulnerability to hazardous materials and lightning were determined to be high for the community based on past events.

Table 3.7. 11 - Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of McPherson Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	High
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Moderate - low
10	Hazardous Materials	Moderate	High
11	Lightning	Moderate	High
12	Expansive Soils	Moderate	Low
13	Agricultural Infestation	Moderate	Low
14	Land Subsidence - Sinkholes	Moderate	Low
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Low
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Low
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

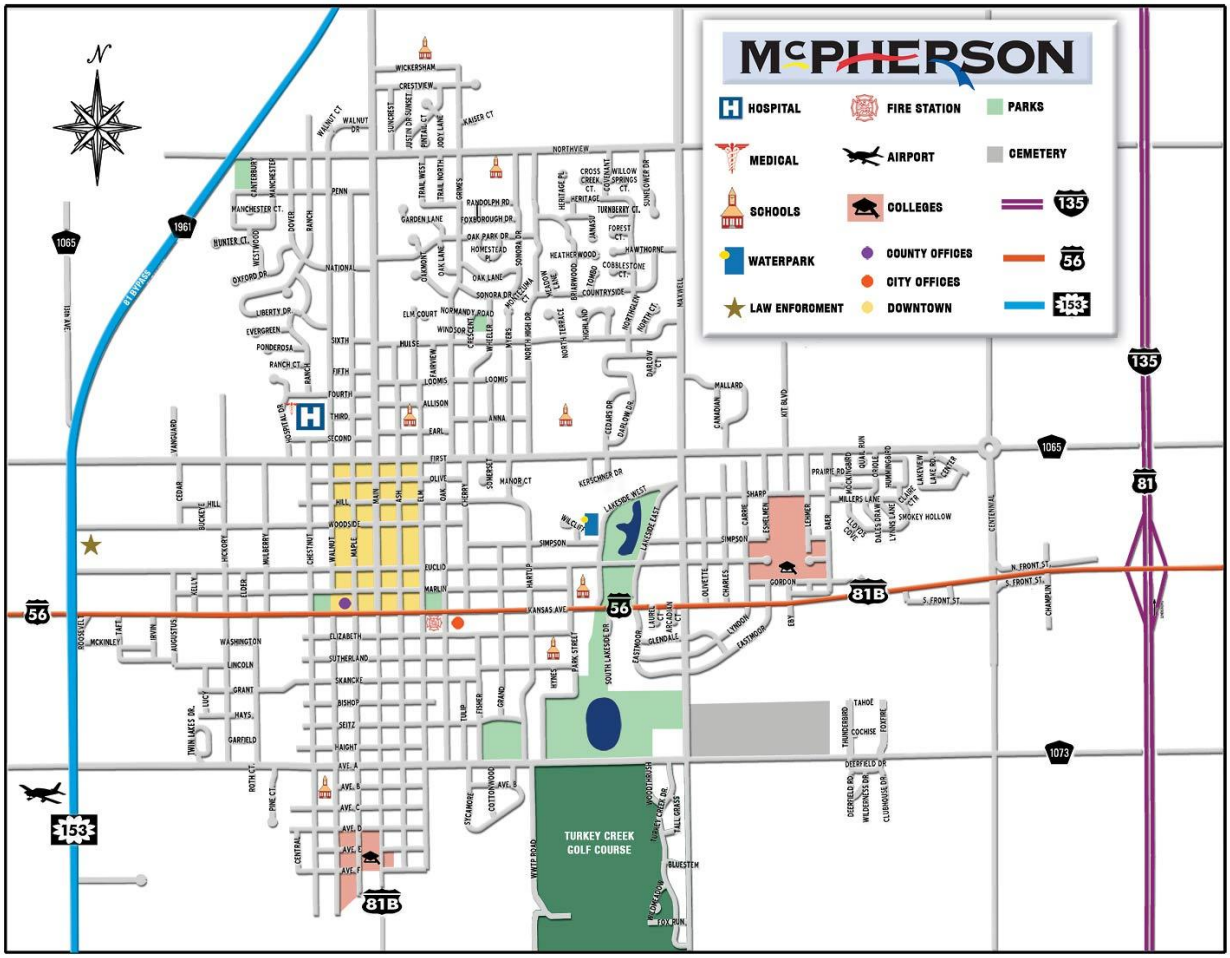
An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

There are several major highways that run through McPherson. They are Interstate 135, U.S. Highways 81, State Highway K153, and U.S. Highway 56. Figure 3.7.15 identifies the highways and roads, as well as the critical facilities located in the City (City of McPherson).

Figure 3.7. 15 – City of McPherson



Airports

McPherson Airport is located on South Highway 81 Bypass. The airport has a 5,500 x 100 foot concrete lighted runway with 13,000 pounds SWG. The taxiways are asphalt and lit. There are nine buildings located on the airport premises, making up the terminal and hangars. The buildings provide storage area for 36 to 40 aircraft and space for the FBO maintenance shop, office and pilot lounge.

Railroads

There are two railroads in operation in the City of McPherson. They are K&O Railroad (short line) and Union Pacific (main line).

Scour Bridges

Bridge scour is the removal of sediment such as sand and rocks from the area around bridge abutments or piers. Scour is caused by swiftly moving water that can hollow out out scour holes. The scour holes compromise the reliability of the bridge. According to the U.S. Geological Survey bridge scour is the most common cause of highway bridge failure in the United States.

Generally bridge examinations are conducted by hydrologists and hydrologic technicians, which involve a review of historical engineering information about the bridge, followed by a visual inspection. Information is recorded about the type of rock or sediment carried by the river, and the angle at which the river flows toward and away from the bridge. The area under the bridge is also inspected for holes and other evidence of scour. Table 3.7.12 is a list of scour bridges located in the City of McPherson. There are plans in place to replace the bridges.

Table 3.7. 12 – City of McPherson Scour Bridges

BRIDGE ID	INSPECTION DATE	FACILITY CARRIED	FEATURE INTERSECTED	OWNER	MAINTENANCE RESPONSIBILITY	YEAR BUILT
417450594000527	March-10	Avenue A	Bull Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1984
417450594000530	March-10	Avenue A	Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1986
417450594002531	March-10	Euclid S.	Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1980
417450594006522	March-10	First Street	Tributary to Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1970
417450594006533	March-10	First Street	Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1950
417450594006534	March-10	First Street	Tributary to Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1979
417450594008539	March-10	North High & Hulse	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1966
417450594008541	March-10	Hulse Street	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1968
417450594010536	March-10	Northview Road	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1978
417450594010537	March-10	Northview Road	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1977
417450594013538	March-10	Maxwell Avenue	Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1978
417450594017789	March-10	Centennial Drive	Tributary to Dry Turkey Creek	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1979
517450590000535	March-10	U.S. 56 South Front	Cow Pass, Turkey Creek Tributary	County Hwy Agency	County Hwy Agency	1968
517450590000540	March-10	Sonora Street	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1978
517450590000542	March-10	Countryside Drive	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1971

BRIDGE ID	INSPECTION DATE	FACILITY CARRIED	FEATURE INTERSECTED	OWNER	MAINTENANCE RESPONSIBILITY	YEAR BUILT
517450590000543	March-10	Briarwood Street	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1978
517450590000544	March-10	Path in Park	Pond in Wall Park	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1979
517450590000545	March-10	North High Drive	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	1978
517450590000546	March-10	Darlow Drive	Tributary	City/Municipal Hwy Agency	City/Municipal Hwy Agency	2006

Historic Sites

Historic buildings and structures and documents are often irreplaceable, and may forever be lost in a disaster if not considered in the mitigation planning process. Historic properties and cultural resources are also valuable economic assets that increase property value, while attracting businesses and tourists. Preservation of these assets is often an important method for economic development.

Historic preservation planning protects historic properties and cultural resources before they are threatened with demolition. Hazard mitigation planning protects life and property from damage caused by natural and manmade hazards. Integrating these two planning processes helps ensure the future growth of safe and sustainable historic communities.

Historic preservation is the process of identifying, evaluating, protecting, preserving, and using historic properties. A historic property is any prehistoric or historic district, site, building, structure, or object included in the National Register of Historic Places maintained by the Secretary of the Interior. These properties are legally recognized as historically significant in American history, architecture, archeology, engineering and culture. Typically these properties are at least 50 years old. The National register is a planning tool that highlights the importance of properties worthy of preservation. The National & State Register of Historic Places has three places listed as historical for the City of McPherson. They are:

- McPherson County Courthouse
  Address: Maple and Kansas Avenue
  National Register Number: 76002264
  Listed in National Register: 1976
  Owner: Local Government
  Area of Significance: Architecture/Engineering
  Period of Significance: 1875-1899
  Historic Function: Government, Courthouse
  Current Function: Government, Courthouse

- McPherson Opera House
  Address: 221 South Main Street
  National Register Number: 72001452
  Listed in National Register: 1972
  Owner: Private
  Area of Significance: Architecture/Engineering
  Period of Significance: 1875-1899
  Historic Function: Recreation and Culture, Theater
  Current Function: Domestic, Multiple Dwelling

- John R. Wright House
  Address: 322 West Marlin Street
  National Register Number: 02000427
  Listed in National Register: 2002
  Owner: Private
  Area of Significance: Architecture/Engineering Person
  Period of Significance: 1875-1899, 1900-1924
  Historic Function: Domestic, Single Dwelling
  Current Function: Domestic, Single Dwelling

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. The facilities also include education facilities to ensure continuity of education. Tables 3.7.13 and 3.7.14 identify the critical facilities in McPherson.

Table 3.7. 13 – City of McPherson Health Care Information

Health					
Number of Hospital Beds	Number of Outpatient Clinics	Number of Medical Doctors	Number of Dentists	Number of Registered Nurses	Number Practitioning Nurses
1,170	7	17	9	64	8

Table 3.7. 14 – City of McPherson Critical Facilities

Name of Asset	Facility Type	Address	Estimated Replacement Value
MCPHERSON MEMORIAL HOSPITAL	HEALTHCARE	1000 HOSPITAL DRIVE	N/A
MCPHERSON FIRE STATION	EMERGENCY SERVICES	312EAST KANSAS	$5.5 MILLION
MUNICIPAL CENTER	GOVERNMENT	400 EAST KANSAS	$1,978,200
POWER PLANT #2	GOVERNMENT/UTILITIES	N/A	N/A
POWER PLANT #3	GOVERNMENT/UTILITIES	N/A	N/A
VOC AIR STRIPPING FACILITIES	GOVERNMENT	N/A	N/A
WATER BLEND PLANT	GOVERNMENT	N/A	N/A
WATER TOWERS	GOVERNMENT	N/A	N/A
ELECTRICAL SUBSTATIONS	GOVERNMENT	N/A	N/A
BPU WAREHOUSE FACILITY	GOVERNMENT	N/A	N/A
MCPHERSON POLICE DEPARTMENT	EMERGENCY SERVICES	1177 WEST WOODSIDE STREET	$2 MILLION
EARLY CHILDHOOD CENTER	EDUCATION	128 NORTH PARK	$51,345
EISENHOWER ELEMENTARY	EDUCATION	301 EAST WICKERSHAM DRIVE	$6,908,700
LINCOLN ELEMENTARY	EDUCATION	900 NORTH ASH	$5,971,800
ROOSEVELT ELEMENTARY	EDUCATION	800 SOUTH WALNUT	$5,365,800
WASHINGTON ELEMENTARY	EDUCATION	128 NORTH PARK	$7,161,700
MCPHERSON MIDDLE SCHOOL	EDUCATION	700 EAST ELIZABETH	$13,841,800
MCPHERSON HIGH	EDUCATION	801 EAST FIRST STREET	$20,624,500

Name of Asset	Facility Type	Address	Estimated Replacement Value
MCPHERSON COLLEGE	EDUCATION	1600 EAST EUCLID	$50,000,000
MCPHERSON ANIMAL SHELTER	GOVERNMENT	1115 WEST WOODSIDE STREET	$150,000

Local Businesses

Local businesses are important to the economic development for McPherson. During a disaster loss of local businesses can have a detrimental effect on the local economy. Some of the major employers for the City of McPherson are identified in Table 3.7.15.

Located just northeast of McPherson, is the McPherson BPU Industrial Park. It includes over 100 acres of development-ready flat surface. The lots have been platted in a variety of sizes to accommodate future expansion. A small man-made, attractively-landscaped lake graces the northwest corner of the park. Bridge access and street specifications have been engineered to handle industrial-sized loads.

Table 3.7. 15 – City of McPherson Local Businesses

Business Name	Type of Business	Address	Number of Employees
HOSPIRA	INDUSTRIAL	1776 CENTENNIAL DRIVE	865
NATIONAL COOPERATIVE REFINERY ASSOCIATION	INDUSTRIAL	2000 SOUTH MAIN	590
NATIONAL PIZZA PRODUCTS	INDUSTRIAL	1144 BRIDGER COURT	300
VIEGA, LLC	INDUSTRIAL	2211 VIEGA AVENUE	240
JOHNS MANVILLE CORPORATION	INDUSTRIAL	1465 17TH AVENUE	255
MULTI COMMUNITY DIVERSIFIED SERVICES	INDUSTRIAL	2107 INDUSTRIAL DRIVE	163
CENTRAL PLASTICS, INC	INDUSTRIAL	811 WEST 1ST STREET	150
FERGUSON PRODUCTION, INC	INDUSTRIAL	2130 INDUSTRIAL DRIVE	120
CERTAINTEED CORPORATION (MOLDED PRODUCTS PLANT)	INDUSTRIAL	873 &843 NORTH HICKORY	120
WEAR TECHNOLOGY	INDUSTRIAL	2085 EAST 1ST STREET	74
FEMCO, INC	INDUSTRIAL	500 NORTH HWY 81 BYPASS	60
PIPING TECHNOLOGY	INDUSTRIAL	1331 NORTH HWY 81 BYPASS	80
BOARD OF PUBLIC UTILITIES	INDUSTRIAL	400 EAST KANSAS AVENUE	69
AMERICAN MAPLAN CORPORATION	INDUSTRIAL	823 SOUTH HWY 81 BYPASS	76
MID WEST INDUSTRIES & DEVELOPMENT, LTD	INDUSTRIAL	1125 WEST 1ST STREET	60
MCPHERSON CONCRETE PRODUCTS	INDUSTRIAL	116 NORTH AUGUSTUS	60
PRECISION INDUSTRIES, INC	INDUSTRIAL	533 NORTH BAER STREET	60
ATP (AERO TRANSPORTATION PRODUCTS):	INDUSTRIAL	1330 NORTH HWY 81 BYPASS	40
CERTAINTEED CORPORATION (EXTRUSION PLANT):	INDUSTRIAL	500 WEST 1ST STREET	78
WILLIAMS ENERGY SERVICES	INDUSTRIAL	1372 7TH AVENUE	50
UNIFIED SCHOOL DISTRICT 418 (INCLUDING SUB. TEACHERS)	NON-INDUSTRIAL	514 NORTH MAIN	558
FARMERS ALLIANCE MUTUAL INSURANCE COMPANIES (MCPHERSON AREA ONLY)	NON-INDUSTRIAL	1122 NORTH MAIN STREET	294
MCPHERSON MEMORIAL HOSPITAL	NON-INDUSTRIAL	1000 HOSPITAL DRIVE	233
THE CEDARS (ASSISTED LIVING FACILITY)	NON-INDUSTRIAL	1021 CEDARS DRIVE	194
WAL-MART (FULL TIME)	NON-INDUSTRIAL	205 SOUTH CENTENNIAL DRIVE	192

Business Name	Type of Business	Address	Number of Employees
MCPHERSON COLLEGE	NON-INDUSTRIAL	1600 EAST EUCLID STREET	143
CENTRAL CHRISTIAN COLLEGE	NON-INDUSTRIAL	1200 SOUTH MAIN	76
BANK OF AMERICA	FINANCIAL INSTITUTIONS	122 WEST MARLIN	N/A
FARMERS STATE BANK	FINANCIAL INSTITUTIONS	2074 EAST KANSAS AVENUE	N/A
FIRST BANK KANSAS	FINANCIAL INSTITUTIONS	1301 NORTH MAIN	N/A
HOME STATE BANK & TRUST	FINANCIAL INSTITUTIONS	223 NORTH MAIN 1300 NORTH MAIN 104 SOUTH CENTENNIAL DRIVE	N/A
PEOPLES BANK & TRUST	FINANCIAL INSTITUTIONS	101 SOUTH MAIN 1ST & MAIN 1320 NORTH MAIN	N/A
SUNFLOWER BANK	FINANCIAL INSTITUTIONS	120 WEST KANSAS AVENUE	N/A
CITIZENS NATIONAL BANK	FINANCIAL INSTITUTIONS	205 SOUTH CENTENNIAL	N/A
GREAT PLAINS CREDIT UNION	CREDIT UNION	720 NORTH MAIN	N/A
MCPHERSON CO-OP CREDIT UNION	CREDIT UNION	1999 SOUTH MAIN	N/A

Community Concerns

The City of McPherson is concerned for the elderly. Necessities such as water, food, shelter, special care, transportation, and sanitation are all areas of concern during times of emergency. Table 3.7.16 is the hazard vulnerability information for the senior center located in McPherson. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.7. 16 - MCCOA Hazard Vulnerability Assessment for McPherson Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
MCPHERSON SENIOR CENTER 112 E EUCLID	NONE	HEAT - OFTEN - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	NONE	YES	NO

Table 3.7.17 identifies the concerns the City of McPherson has regarding specific population groups.

Table 3.7. 17 – City of McPherson Community Concerns

Population group:	Concerns:
Disabled populations	THE CITY OF MCPHERSON IS CONCERNED FOR THE EVACUATION, TRANSPORTATION, AND POWER TO RESIDENTS ON OXYGEN, DIALYSIS, OR WITH OTHER MEDICAL DISABILITIES.
School age children	THE CONCERNS FOR SCHOOL AGE CHILDREN ARE HEALTH EPIDEMICS AND SECURITY (SCHOOL SHOOTINGS AND VIOLENCE). SHELTERING NEEDS ARE ALSO A CONCERN DURING STORM EVENTS AND FIRE RISKS IN THE SCHOOLS.
Institutionalized populations	THE CITY IS CONCERNED ABOUT THE INSTITUTIONALIZED POPULATION ESCAPING AND SECURITY IF THERE IS A POWER FAILURE. MAINTAINING POWER AND QUICKLY RESTORING POWER IS A PRIMARY CONCERN DURING TIMES OF OUTAGES. TRANSPORTING THIS POPULATION GROUP IS ALSO A CONCERN.
Low Income	THE LOW INCOME POPULATIONS ARE AT AN INCREASED RISK FOR MEDICAL CONDITIONS. HEATING, COOLING, FOOD AND SHELTER ARE ALSO A CONCERN DURING TIMES OF EMERGENCY.

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.7.18 identifies the current land usage for the City of McPherson.

Table 3.7. 18 – City of McPherson Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	39.3
Industrial	6.9
Developed with mixed uses	1.8
Commercial	1.8
Agricultural Parks/restricted wild land/wildlife refuge Institutional (education, health care, etc.)	27.9
Transportation or utility right-of-way	13.3
Vacant/unused - private ownership	Not Tracked
Vacant/unused - government ownership	Not Tracked

New Development

The City of McPherson is one of 25 Kansas cities, and 1300 communities nation-wide, benefiting from the National Main Street approach to downtown revitalization, providing technical assistance, training and a structured comprehensive development program that works to reinforce and rekindle the economic vitality and values that Main Street stands for.

McPherson Main Street, Inc. is a non-profit, volunteer-based, membership-driven organization dedicated to revitalizing downtown McPherson. McPherson Main Street was designated a Kansas Main Street Community on August 19, 1997, and is a member of the Kansas Main Street Program which is administered by the Kansas Department of Commerce in Topeka, KS. The National Main Street Center was created in 1978 by the National Trust for Historic Preservation with the goal of revitalizing the country's downtown while retaining the historic integrity of

the buildings therein. The Main Street approach to revitalization is a comprehensive one that works through four points: Promotion, Design, Economic Restructuring and Organization.

In recent years, there has been discussion of developing a by-pass route around the City of McPherson for U.S. Highway 56. There is heavy truck traffic traveling along U.S. Highway 56 (Kansas Avenue within the City of McPherson). A large portion of this truck traffic consists of cattle trucks transporting feeder cattle from the pasture land of the Flint Hills region of east-central Kansas to the large-operation cattle feedlots in western Kansas counties. There is also hazardous materials truck traffic traveling along U.S. Highway 56. The City of McPherson has favored the building of a bypass route to the north of the city. This proposed highway 56 bypass would intersect existing highway 56 at areas both east and west of the city, would intersect with a proposed new interstate interchange with Interstate I-135 at the current location of Mohawk Road, and would expand on the right-of-way of Mohawk Road to initially accommodate a “super two” traffic lane configuration with the potential for future upgrading to a divided four-lane system at some time in the future.

The City of McPherson also reported the possible development of a new residential area in the northwest corner of the city, an unnamed area of 37.5 acres. Eagle’s Wings Estates in the north central portion has 35.4 acres remaining to be developed. Calvary Estates has 18.8 acres for future units. Barnstormers Field in the south central portion of the city has ± 85.5 acres that is platted but not yet developed. There are currently no commercial or industrial development plans.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of McPherson plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON, CITY FLOODPLAIN ADMINISTRATOR	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING

Plan for Implementation and Administration:

CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING:

- REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW;
- ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS;
- NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA);
- ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND
- VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES;
- VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED;
- WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON	**Project Title:** FEMA APPROVED COMMUNITY SHELTER
Project Description: RETROFIT COMMUNITY BUILDING TO ENABLE IT TO BE USED AS A FEMA APPROVED COMMUNITY SHELTER	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING TO RETROFIT COMMUNITY BUILDING TO ENABLE IT TO BE USED AS A FEMA APPROVED COMMUNITY SHELTER, AFTER OBTAINING GRANT BEGIN RETROFIT OR CONSTRUCTION (WHICHEVER IS DEEMED MOST FEASIBLE) OF FEMA APPROVED COMMUNITY SHELTER	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MEMORIAL HOSPITAL	**Project Title:** FEMA APPROVED SHELTER IN HOSPITAL
Project Description: CONSTRUCT SHELTER IN HOSPITAL FOLLOWING THE FEMA 361 DESIGN AND CONSTRUCTION GUIDANCE FOR COMMUNITY SHELTERS – SIMILAR TO THE SHELTER CONSTRUCTED IN THE CLARA BARTON HOSPITAL IN HOISINGTON, KANSAS	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** UNKNOWN
Plan for Implementation and Administration: OBTAIN DESIGNS AND BIDS FOR PROJECT, APPLY FOR GRANT FUNDING, AFTER GRANT HAS BEEN APPROVED BEGIN TO CONSTRUCT SHELTER IN HOSPITAL IN ACCORDANCE WITH THE FEMA 361 DESIGN AND CONSTRUCTION GUIDANCE FOR COMMUNITY SHELTERS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MEMORIAL HOSPITAL	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: PURCHASE/UPGRADE EMERGENCY BACKUP GENERATOR AND WIRING FOR THE HOSPITAL FOR LIFE SAFETY AND CRITICAL BRANCH ELECTRICAL NEEDS	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): LIFE SAFETY AND CONTINUITY OF OPERATION	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING TO PURCHASE EMERGENCY BACKUP GENERATOR OF THE HOSPITAL, AFTER FUNDING HAS BEEN OBTAINED PURCHASE AND INSTALL BACKUP GENERATOR	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MEMORIAL HOSPITAL	**Project Title:** SECURITY SYSTEM FOR HOSPITAL AND ANNEX
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TERRORISM/AGRI-TERRORISM/CIVIL DISORDER
Benefits (Losses Avoided): LIFE AND PROPERTY SAFETY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR SECURITY SYSTEM FOR HOSPITAL AND ANNEX, AFTER FUNDING HAS BEEN SECURED PURCHASE AND INSTALL SECURITY SYSTEM	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MEMORIAL HOSPITAL	**Project Title:** UPGRADE COMMUNICATION SYSTEM AT THE HOSPITAL
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CONTINUITY OF COMMUNICATION	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR UPGRADING PAGING AND RADIO SYSTEM TO COMPLY WITH NARROWING BANDIN, AFTER FUNDING HAS BEEN SECURED PURCHASE AND INSTALL NEW COMMUNICATION SYSTEM	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MCPHERSON EMS	**Project Title:** SECURITY SYSTEM FOR EMS FACILITY
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL FUNDS	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TERRORISM/AGRI-TERRORISM/CIVIL DISORDER
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** UNKNOWN
Plan for Implementation and Administration:	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MCPHERSON EMS	**Project Title:** EMERGENCY BACKUP GENERATOR FOR CRITICAL FACILITIES
Project Description: EMERGENCY BACKUP GENERATOR FOR THE MCPHERSON EMS FACILITY	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL FUNDS/GRANT	
Estimated Cost: $10,000-$15,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): LIFE SAFETY AND CONTINUITY OF OPERATION	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING TO PURCHASE EMERGENCY BACKUP GENERATOR OF THE HOSPITAL	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MCPHERSON AND MCPHERSON EMS	**Project Title:** UPGRADE COMMUNICATION SYSTEM FOR EMS
Project Description: PURCHASE RADIOS MOBILE AND PORTABLE FOR KANSAS P25 SYSTEM	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL FUNDS	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CONTINUITY OF COMMUNICATION DURING EMERGENCY SITUATIONS	**Completion Date:** UNKNOWN
Plan for Implementation and Administration: LOOK INTO FUNDING TO PURCHASE RADIOS, AFTER FUNDING HAS BEEN SECURED PURCHASE AND INSTALL MOBILE AND PORTABLE RADIOS FOR KANSAS P25 SYSTEM	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Moundridge	
NFIP Participation	Yes
Date of FEMA Maps	1/16/2009
CRS Participation	No
Number of Repetitive Loss Properties	0

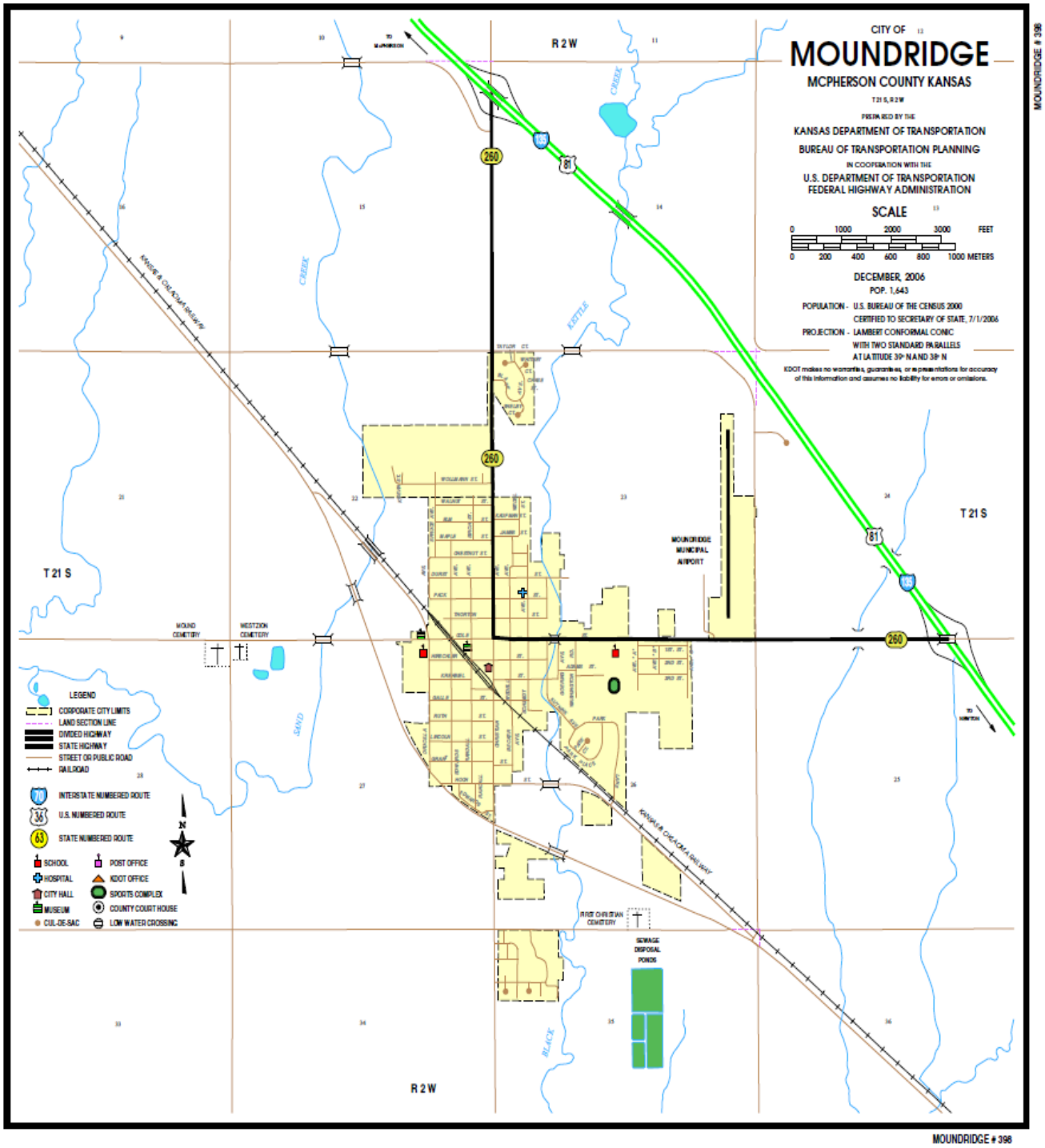
The following image is an aerial view of the City of Moundridge (City-Data.com).

Figure 3.8. 1 - City of Moundridge

Location

The City of Moundridge is located two miles from Interstate 135. It has a total land area of 1.05 square miles and has an elevation of 1,490 feet. The following map is the jurisdictional boundaries for the City of Moundridge (Kansas Department of Transportation).

Figure 3.8. 2 - City of Moundridge Jurisdictional Boundary Map



History

The Cole House was built on land homesteaded by Thornton C. J. Cole and his wife, Drusilla in 1875. It was the first house built in what later became the town of Moundridge. The Coles gave the southwest quarter of their Homestead to help establish the town of Moundridge in 1887. The Cole House was known as the halfway house due to its location of half way between McPherson and Newton, and offered shelter and hospitality to travelers who couldn't reach their destination by nightfall. The house began as a two-room house with a lean-to kitchen and through additions is now a 15 -room house. It is unique because descendants of the Cole family have owned the house for over 120 years, as well as many of the artifacts exhibited. Members of the community have donated other artifacts. The time line of the exhibits is from 1930 and before. Grace Kutnink, granddaughter of Thornton and Drusilla Cole, donated the house to the City of Moundridge in 1985 to be developed as a museum. Plans are underway for a new museum to be built on the farmstead grounds that will house many artifacts from other donors and will record the community history more completely

The railroads played an important role in settling the United States during the 1800's. In 1850 the railroads sold land to settlers for farming and commerce. The first trains to come through Moundridge were the Atchison, Topeka & Santa Fe; Union Pacific and Missouri Pacific. During the first year, there were four trains a day for mail, freight and passengers also rode the trains. The depot became its symbol and the center of activity. Through the introduction of motorized trucks and busses, the importance of trains faded and in 1986 the depot in Moundridge was moved to its present location.

Governance

The City of Moundridge is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

Moundridge has the most prevalent form of city government in Kansas, the mayor-council form of government. It is used by nearly all cities of the third class. The city council is made up of five council members. The City also has the following departments:

- City Clerk
- City Administrator
- City Attorney
- Economic Development
- Fire Department
- Library
- Municipal Judge
- Police Department
- Street Department
- Treasurer
- Gas
- Electric
- Sewer
- Water
- Zoning

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 1,628 in 2009, the City of Moundridge is ranked 246th among Kansas' incorporated cities. Table 3.8.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Moundridge has increased since the 2000 census. There has been over a two percent increase in the population.

Table 3.8. 1 – Moundridge Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Moundridge	1,628	1,621	1,622	1,620	1,630	1,634	1,641	1,638	1,662	1,593

Table 3.8.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Moundridge in comparison nationally, state, and county demographics. Over 26 percent of the population in Moundridge is over the age of 65, which is over 13 percent higher than the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.8. 2 – Moundridge Select Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Moundridge	7.1	26.4	40.6	42.4	73.7	16.8

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Moundridge is educational, health, and social services. There are 240 people employed in this industry, which is 31 percent of the population. Table 3.8.3 is the 2000 census statistics for the employed civilian population 16 years and over in Moundridge.

Table 3.8. 3 – Moundridge Employed Civilian Population (16 years & older)

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Educational, Health, and Social Services	240	31
Manufacturing	236	30.5
Construction	52	6.7
Other Services	44	5.7
Retail Trade	42	5.4
Finance, Insurance, Real Estate, Rental and Leasing	30	3.9
Transportation and Warehousing, and Utilities	27	3.5
Arts, Entertainment, Recreation, Accommodation, and Food Services	24	3.1
Professional, Scientific, Management, Administrative, and Waste Management Services	24	3.1
Information	23	3
Agriculture, forestry, mining, fishing and hunting	22	2.8
Wholesale Trade	7	0.9
Public Administration	4	0.5

The December 2009 cost of living index is 77.9, which is low compared to the Nation's average of 100 (City-Data.com). Table 3.8.4 identifies the economic characteristics for Moundridge, Kansas from the 2000 census (U.S. Census Bureau). Moundridge has a two percent unemployment rate, which is less than the State rate of unemployment.

Table 3.8. 4 – Moundridge Select Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	3.8	5.6	45,000	35,938	17,965	2.8	68.2
City of Moundridge	2.1	4.7	85,100	73,500	19,263	2.0	63.2

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA and the floodplain management regulations were updated at that time. The City of Moundridge adopted Ordinance 855.

National Flood Insurance Program

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Moundridge is a participant in the National Flood Insurance Program. Table 3.8.5 is information from the Federal Emergency Management Agency's (FEMA) Community Status Book Report for the City of Moundridge.

Table 3.8. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
200218#	City of Moundridge	McPherson	3/8/1974	12/15/1982	1/16/2009	12/15/1982	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Moundridge. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.8.6 identifies the existing planning ordinances, codes, and plans for the community.

Table 3.8. 6 – Moundridge Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans
Zoning ordinance
Subdivision ordinance
Floodplain Management - ORDINANCE 855
Municipal Code
Fire Prevention Code
Building code
Fire department ISO rating
Site plan review requirements
Local emergency operations plan
Comprehensive Land Use Plan - DATED 1979
Flood insurance study or other engineering study for streams
Mutual Aid Agreements
Fire or Life Safety Code

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Moundridge. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.8.7 identifies personnel resources and warning capabilities for the community.

Table 3.8. 7 – Moundridge Administrative/Technical Resources

Personnel Resources
Floodplain Manager - COUNTY
Emergency Manager - COUNTY
Outdoor weather warning signals

Financial Resources

This section will identify the financial resources available to the City of Moundridge. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.8.8 identifies the financial resources available to the community.

Table 3.8. 8 – Moundridge Financial Resources

Financial Resources	
Community Development Block Grants	Impact fees for new development
Capital improvements project funding	Incur debt through general obligation bonds
Authority to levy taxes for specific purposes	Incur debt through special tax bonds
Fees for water, sewer, gas, or electric services	Withhold spending in hazard prone areas

Outdoor Siren System

Moundridge utilizes the outdoor siren network to warn residents of impending severe weather. There are six outdoor storm sirens in the City of Moundridge. Table 3.8.9 identifies the outdoor storm siren locations and activation method.

Table 3.8. 9 – City of Moundridge Siren Network

Location	Activation Method
CITY OFFICE – 225 SOUTH CHRISTIAN	SIRENS ARE ACTIVATED BY CITY OFFICE OR EMERGENCY VEHICLES (POLICE, FIRE)
CHESTNUT & DRUCILLA	
HIGH SCHOOL – EAST COLE	
RIDGEWOOD DRIVE	
MEMORIAL HOME	
HOCK & EDWARDS	

Vulnerabilities

Hazards Affecting the City of Moundridge

History of Flooding

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 12, 2002 — One vehicle plus it's driver stranded in the Arrowhead/30th Avenue intersection seven miles east of Moundridge due to flash flooding. Property damage estimates were not available. There were no reports of injuries.

Severe Repetitive Loss Properties

FEMA defines severe repetitive loss properties as "a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are no severe repetitive flood loss properties in Moundridge, Kansas.

HAZUS Report

A "flood" HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA's software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figures 3.8.3 and 3.8.5 are maps that identify the 100-year floodplain for the City of Moundridge. Figure 3.8.6 identifies the critical facilities in Moundridge in relation to the 100-year floodplain.

According to the HAZUS loss estimation model for Moundridge, approximately 40 households would receive minor damage and 8 households would receive minor to moderate damage as the result of a 100-year flood event.

Figure 3.8. 3 – Moundridge 100-year Floodplain

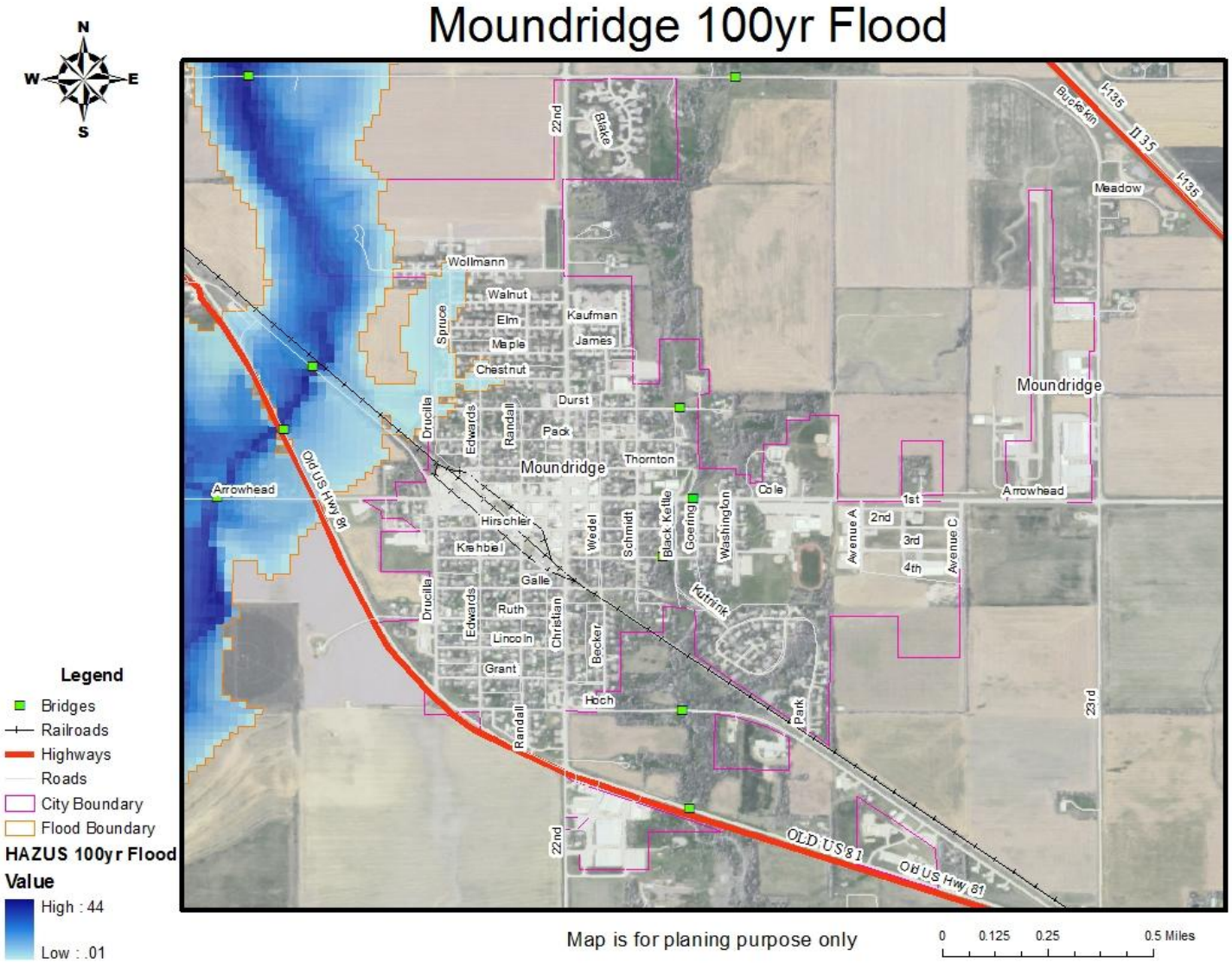


Figure 3.8. 4 – City of Moundridge's 100-year Floodplain by Census Block

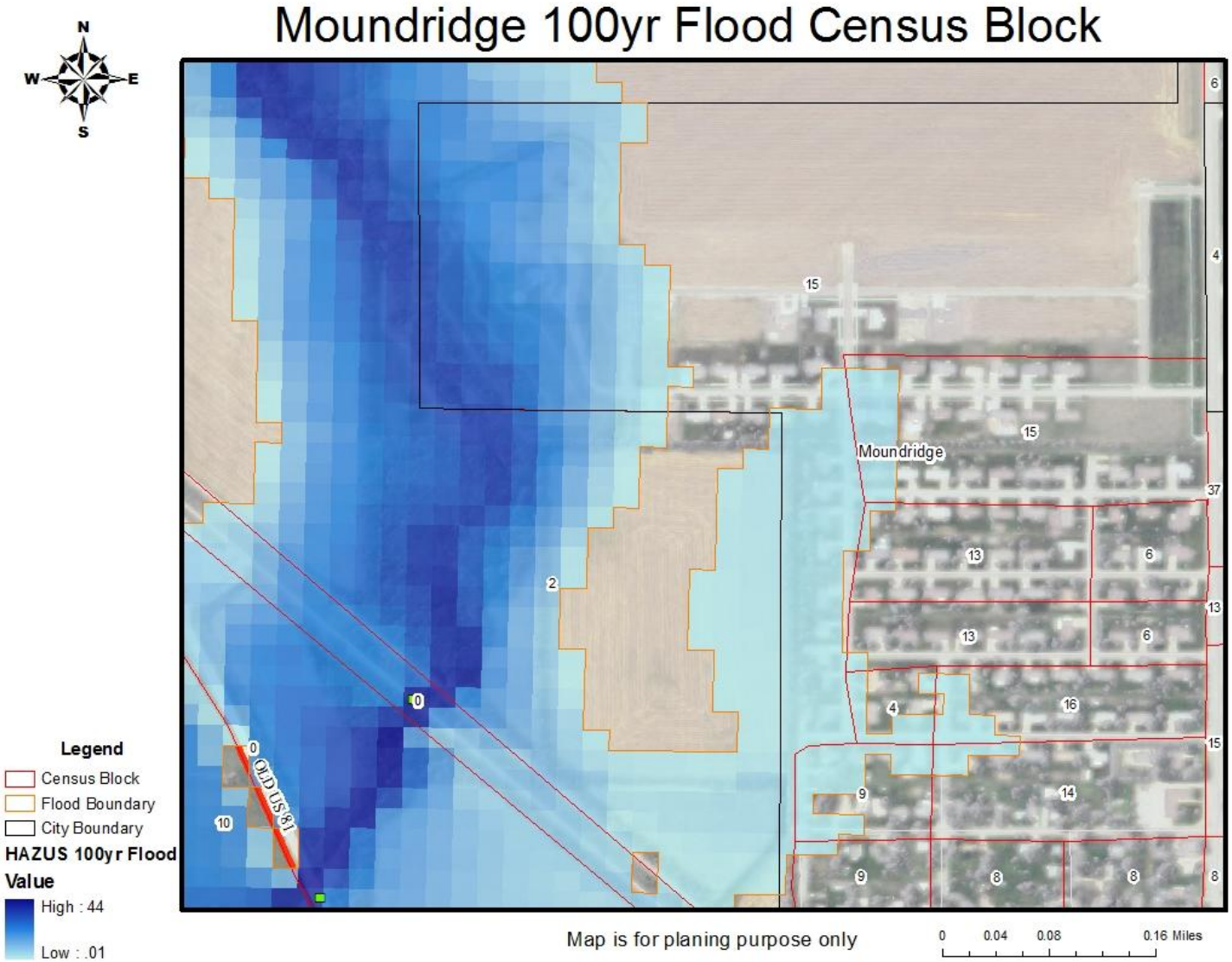


Figure 3.8. 5 – Detailed View of Moundridge's 100-year Flood Zone

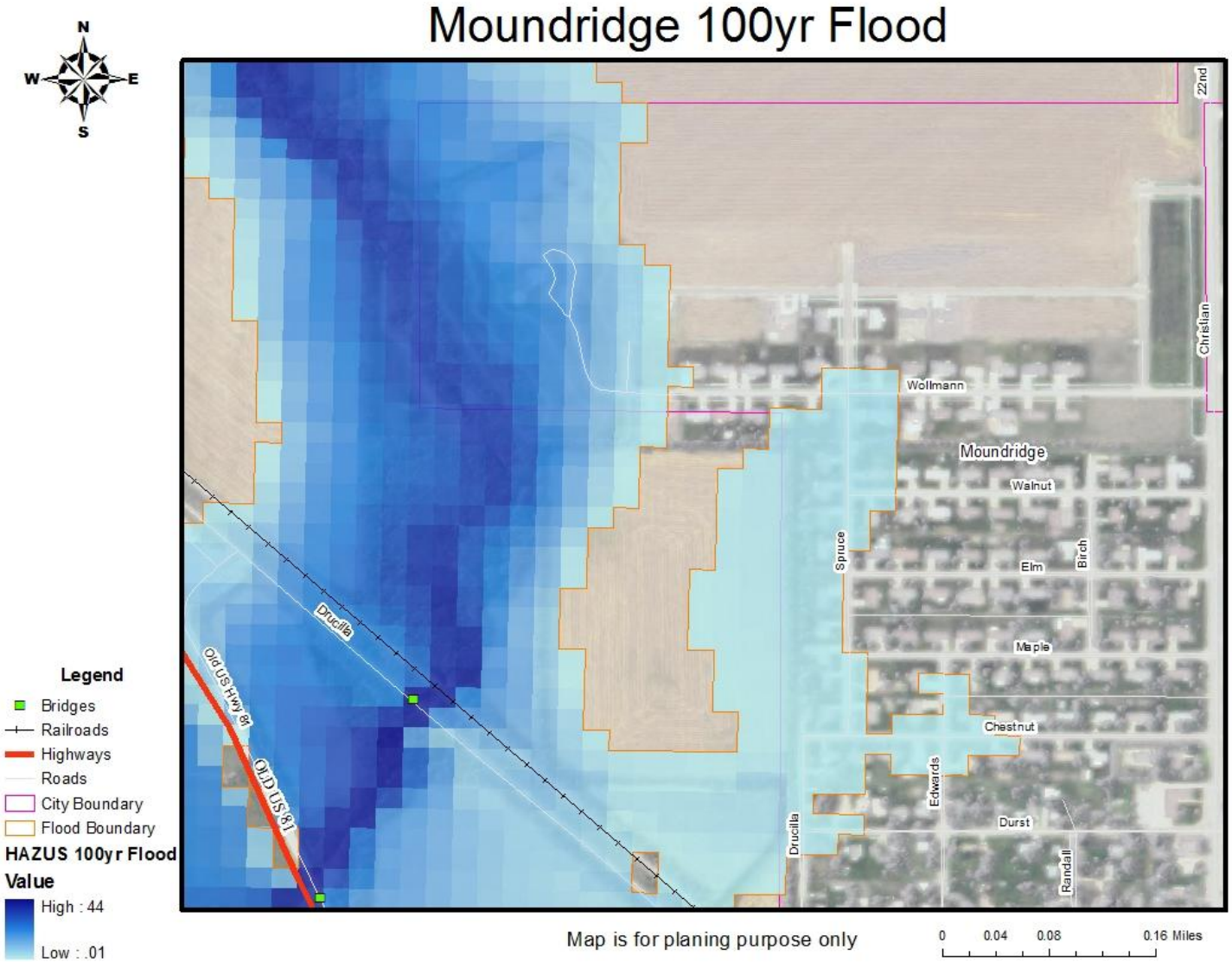
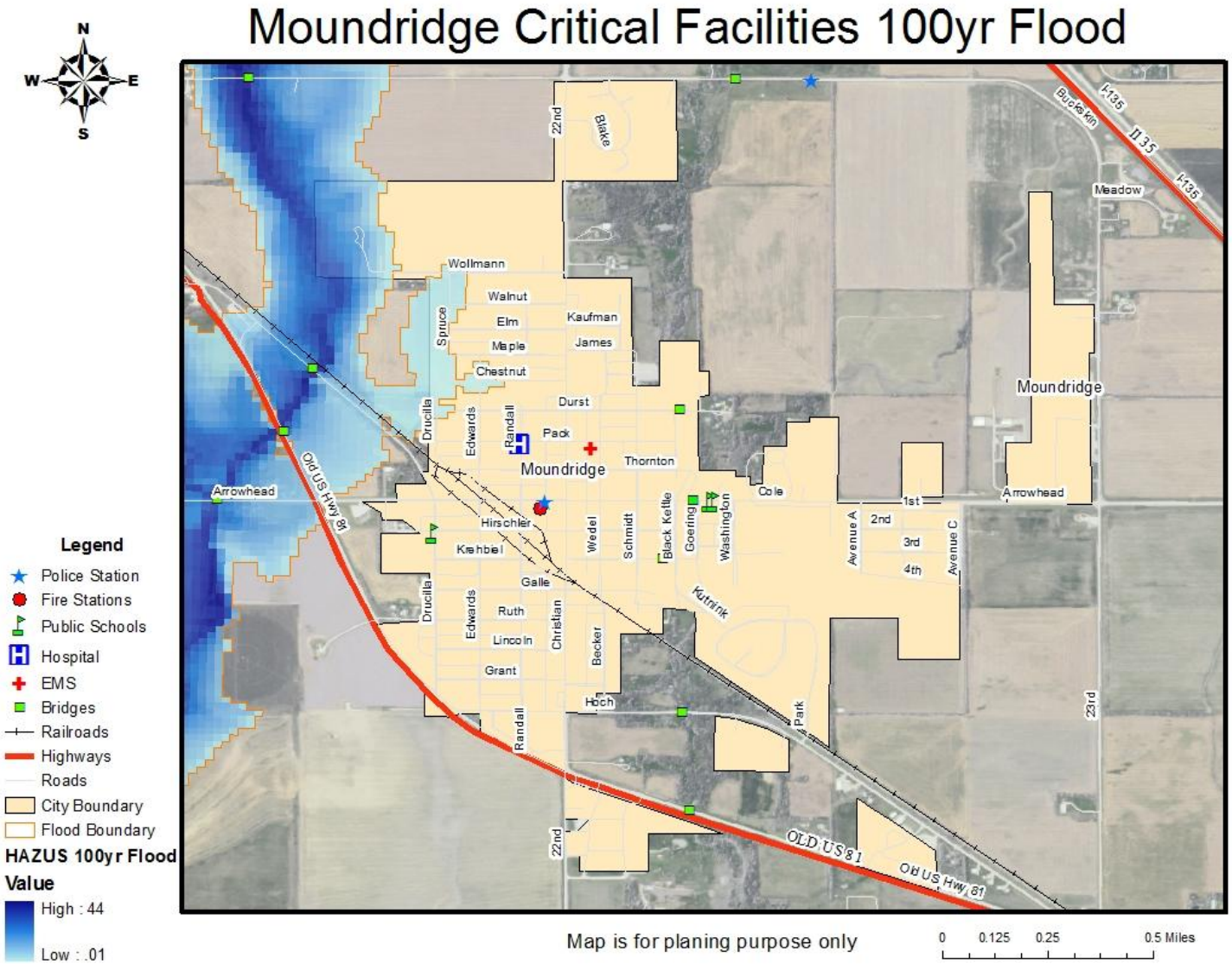


Figure 3.8. 6 – Moundridge's Critical Facilities in Relation to the 100-year Floodplain



History of Hailstorm Events

Historic hailstorm incidents were obtained from the National Climatic Data Center database.

March 28, 1993	A hailstorm was reported in Moundridge. Hailstones nearly one inch in diameter were reported causing $5,000 in property damage and $5,000 in crop damage. There were no reports of injuries.
May 7, 1993	A hailstorm was reported in the City of Moundridge. Hailstones one inch in diameter caused $500 in property damage and $500 in crop damage. There were no reports of injuries.
July 7, 1997	A hailstorm was reported in Moundridge. Three-quarter inch hailstones were reported. There were no reports of property damage or injuries.
June 8, 1998	A hailstorm was reported in Moundridge. Hailstones one and three-quarter inches in diameter were reported. There were no reports of property damage or injuries.
June 1, 2001	A hailstorm was reported in Moundridge. Over one inch hailstones were reported. There were no reports of property damage or injuries.
April 10, 2003	A hailstorm was reported one mile east of Moundridge. One inch hailstones were reported. There were no reports of property damage or injuries.
July 4, 2004	A hailstorm was reported in Moundridge. Hailstones 0.75 inches in diameter were reported. There were no reports of property damage or injuries.
May 8, 2005	A hailstorm was reported one mile north of Moundridge. One inch hailstones were reported. There were no reports of property damage or injuries.
March 7, 2009	The interaction of a quasistationary front and a dryline lead to discrete supercells developing across portions of Central and South Central Kansas during the late afternoon and evening hours of March 7th, 2009. Nearly one inch hail was reported in Moundridge.
July 8, 2009	Forty five mph winds accompanied the hail 1.75 inches in diameter. Property damage estimates were not available. There were no reports of injuries.
August 18, 2006	A hailstorm was reported four miles west of Moundridge. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.

History of Utility/Infrastructure Failure

Utility/Infrastructure failure includes power and telephone lines, water supply facilities, wastewater facilities and communication towers. Historic hazard incidents were obtained from the National Climatic Data Center database

August 16, 1997	A windstorm was reported in the City of Moundridge resulting in downed power lines. Property damage estimates were not available. There were no reports of injuries.
June 16, 2005	Downed power poles (14 total) severed power to much of Moundridge as a result of a thunderstorm going through the area. Property damage was estimated at $15,000.

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database, unless otherwise stated.

May 24, 1996	A severe thunderstorm was reported in the City of Moundridge. There were no reports of injuries or property damage.
August 16, 1997	A windstorm was reported in the City of Moundridge resulting in downed power lines. Property damage estimates were not available. There were no reports of injuries.
October 4, 1998	A windstorm was reported in Moundridge. There were no reports of injuries or property damage.
June 16, 2001	A windstorm was reported in Moundridge. Property damage estimates were not available. There were no reports of injuries.
June 15, 2002	A windstorm was reported in Moundridge. There were no reports of injuries or property damage.
June 16, 2005	Downed power poles (14 total) severed power to much of Moundridge as a result of a thunderstorm going through the area. Property damage was estimated at $15,000.
May 23, 2007	A stalled frontal boundary resulted in numerous, slow-moving strong to severe thunderstorms across portions of central and south-central Kansas from the afternoon hours on May 23rd, to the early morning hours on May 24th. In addition to large hail and high winds, very heavy rainfall amounts occurred over a short period of time, resulting in widespread urban and rural flash flooding across the area. Additionally, excessive runoff produced river and stream flooding for days, inflicting millions of dollars in damages to roads, businesses and homes. Property damage estimates were not available.
May 31, 2007	Downburst or small tornado struck Moundridge Industrial Park area. There was $1.3 million in private property and municipal loss.
April 26, 2009	Straight-line winds blew over a grain bin east of Moundridge, and also damaged some farm equipment. The property damage was estimated at $50,000.
July 14, 2009	A windstorm knocked down 20 power poles on McPherson BPU line to Moundridge. Power was out in the City for 28 hours.

City of Moundridge Hazard Vulnerability Assessment

The following table is a comparison of the hazards vulnerability assessment for the City of Moundridge with the entire planning area. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to all of McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Moundridge for their specific community. Vulnerability to flood was determined to be a moderate risk instead of high. Utility/Infrastructure and wildfire vulnerability were determined to be low.

Table 3.8. 10 – Moundridge Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Moundridge Planning Significance
1	Tornado	High	High
2	Windstorm	High	Low
3	Flood	High	Moderate
4	Winter Storm	High	High

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Moundridge Planning Significance
5	Utility/Infrastructure Failure	High	Low
6	Wildfire	High	Low
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Low
9	Soil Erosion and Dust	Moderate	Low
10	Hazardous Materials	Moderate	Low
11	Lightning	Moderate	Low
12	Expansive Soils	Moderate	Low
13	Agricultural Infestation	Moderate	Low
14	Land Subsidence - Sinkholes	Moderate	Low
15	Extreme Temperatures	Moderate	Low
16	Fog	Moderate	Low
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Low
18	Drought	Moderate	Low
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Black Kettle State Fishing Lake

Black Kettle Lake is a borrow pit lake that was created when the nearby interstate interchange was built. It is maintained and operated with a cooperative agreement between the City of Moundridge, Kansas Department Of Transportation (KDOT), and Kansas Department of Wildlife and Parks (KDWP) first entered into in 1980. There are high inflows and outflows from this borrow pit lake during high rainfall events that tend to flush game fish downstream and bring in rough fish from above and below.

KDWP installed fish screens on the inflow channel and the outflow channel with the assistance of the Moundridge City Maintenance Crew. A boat ramp was also built. The lake's fishery, which was largely rough fish at the time, was killed out and then the lake was restocked with channel catfish, largemouth bass, and bluegill. However, there has been one flood each spring and one each fall since the stocking that has either exceeded the top of the screens or has carried enough trash to knock the screens down for a day or two before they could be put back up, so some of the game fish have been lost downstream and some rough fish have re-entered the lake. Due to a drought, 2006 is the first year that none of the fish screens were knocked down.

Black Kettle State Fishing Lake is an eight acre lake that is open to public fishing. It is located one and a half miles north of Moundridge. The lake is very shallow around the edges and is suitable for shoreline anglers and small boats.

Highways/Roads
Interstate 135 runs just outside the city limits and Old U.S. Highway 81 runs through the southwestern portion of the City.

Bridges
There are main three bridges in Moundridge, Kansas. They are:

- East Krehbiel – Black Kettle
- East Cole – Black Kettle
- East Durst – Black Kettle

Railroads
In 1850 the railroads sold land to settlers for farming and commerce. The first trains to come through Moundridge were the Atchison, Topeka & Santa Fe; Union Pacific and Missouri Pacific. During the first year, there were four trains a day for mail, freight and passengers also road the trains. The depot became its symbol and the center of activity. Through the introduction of motorized trucks and busses, the importance of trains faded and in 1986 the depot in Moundridge was moved to its present location.

Currently, the only railroad in operation in Moundridge is the Kansas and Oklahoma Railroad (KO). KO began operations in July 2001. With 840 miles of track reaching out in three directions from Wichita, KS to the Colorado border, the KO carries more than 55,000 carloads annually.

One of the largest single short-lines in the industry, the KO carries diverse agricultural commodities such as grain and grain products, and industrial products such as chemicals and paper.

Airports
There is one airport in Moundridge, Kansas. The Moundridge Municipal Field is located approximately one mile east of central Moundridge and is owned by the City of Moundridge. The airport opened to the public on August 1, 1971, with one runway and no air traffic control tower.

Critical Facilities
For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. The facilities also include education facilities to ensure continuity of education. Tables 3.8.11 and 3.8.12 identify the critical facilities in Moundridge.

Table 3.8. 11 – Moundridge Health Facilities

Health Facilities			
Number of Hospital Beds	Number of Ambulance Services	Number of Health Clinics	Number of Medical Doctors
21	1	1	4

Table 3.8. 12 – Moundridge Critical Facilities

Name of Asset	Facility Type	Address	Replacement Value	Occupancy/ Capacity #
POLICE DEPARTMENT	EMERGENCY SERVICES	ARROWHEAD	$550,000	N/A

Name of Asset	Facility Type	Address	Replacement Value	Occupancy/ Capacity #
MOUNDRIDGE FIRE DEPARTMENT	EMERGENCY SERVICES	ARROWHEAD	$1.2 MILLION	N/A
MOUNDRIDGE MIDDLE SCHOOL/HIGH SCHOOL/DISTRICT OFFICE	EDUCATION	526 EAST COLE STREET	$14,191,297	N/A
MOUNDRIDGE ELEMENTARY SCHOOL	EDUCATION	207 SOUTH DRUCILLA	$4,233,889	N/A
MERCY HOSPITAL	HEALTH CARE	218 EAST PACK	$4 MILLION	30
MOUNDRIDGE EMS	HEALTH CARE	225 NORTH WEDEL	$200,000	N/A
PARTNERS IN FAMILY CARE	HEALTH CARE	200 EAST PACK	$2 MILLION	25
MOUNDRIDGE PHARMACY	CRITICAL SUPPLIER	115 NORTH CHRISTIAN AVE	N/A	N/A
MEMORIAL HOME, INC	HEALTH CARE	86 22ND AVENUE	$20 MILLION	160
MOUNDRIDGE MANOR	NURSING HOME FACILITY	700 NORTH CHRISTIAN AVE	$6.2 MILLION	77
NORTHRIDGE MANOR – HUD DEVELOPMENT LOW INCOME HOUSING	RETIREMENT & SPECIAL NEEDS FACILITY	612 NORTH CHRISTIAN AVE	$3 MILLION	75
SUNRISE HOME	ASSISTED LIVING	700 NORTH CHRISTIAN AVE	VALUATION IS PART OF MOUNDRIDGE MANOR	16
VALLEY HOPE	DRUG REHABILITATION	N/A	$4 MILLION	50

Local Businesses

Local businesses are important to the economic development for Moundridge. During a disaster loss of local businesses can have a detrimental effect on the local economy. The major employers for the City of Moundridge are identified in Table 3.8.13.

Table 3.8. 13 – Moundridge Local Businesses

Business Name	Type of Business	Address
Mercy Hospital	Health Care	218 East Pack
Moundridge EMS	Health Care	225 North Wedel
Partners in Family Care	Health Care	200 East Pack
Moundridge Pharmacy	Critical Supplier	115 North Christian Ave
Memorial Home, Inc	Health Care	86 22nd Avenue
Moundridge Manor	Nursing Home Facility	700 North Christian Ave
Northridge Manor	Retirement & Special Needs Facility	612 North Christian Ave
Sunrise Home	Assisted Living	700 North Christian Ave
Action Equipment Co.	Manufacturing	2350 Arrowhead Road
Bradbury Company	Manufacturing	1200 East Cole
Companion Industries	Manufacturing	500 South Drucilla
Moridge Manufacturing Inc	Manufacturing	105 Old US Hwy 81
Schrag Builders & Electrical	Manufacturing	101 East Krehbiel
JD Enterprises of Kansas, Inc	Transportation Services	1101 Industrial Park Drive
Jim's Auto Repair	Auto Repair	208 North Black Kettle Ave
Milo's Paint & Body Services, Inc	Auto Repair	108 East Hirshler
Norman Roux Trucking	Transportation Services	12906 West Dutch Ave
Ortman Auto	Auto Sales/Repair	8720 Halstead Rd

Business Name	Type of Business	Address
Frontier Electrical LLC	Electrical Services	496 23rd Avenue
Koehn Construction	Construction	720 South Christian
Stucky Electric	Electrical Services	2065 Cherokee Rd
Citizens State Bank	Financial Services	201 South Christian
Mid Kansas Credit Union	Financial Services	104 South Avenue
Block 32 Eatery & Pub	Food Services	128 South Christian
Hair Happenings	Retail Services	208 South Christian
Bernie Regehr Enterprises	Retail Store	212 Maple St
Goering Hardware	Retail Store	104 N Christian
Gospel Publishers and Bookstore	Retail Store	420 N Wedel Ave
Gospel Tract and Bible Society	Retail Store	420 N Wedel Ave
Jim's Woodworking	Retail Store	403 S Edwards
Mid-West Motors	Retail Store	Industrial Park Dr
Moundridge Food Market	Retail Store	101 South Avenue A
Moundridge Lumber Yard	Retail Store	118 S Randall
Moundridge Tractor, Inc	Retail Store	116 E Cole
Waltner Electric	Retail Store	139 S Christian Ave
Uhrig Home Furniture	Retail Store	115 W Cole
Weaver Aero International, Inc	Retail Services	1120 E Cole
Wood-N-Thread	Retail Services	109 S Christian
The Ledger Newspaper	Newspaper Services	107 S Christian

Community Concerns

The City of Moundridge is concerned for the elderly. Necessities such as water, food, shelter, special care, transportation, and sanitation are all areas of concern during times of emergency. Table 3.8.14 is the hazard vulnerability information for the senior center located in Moundridge. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.8. 14 - MCCOA Hazard Vulnerability Assessment for Moundridge Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
MOUNDRIDGE SENIOR CENTER 100 N. SCHMIDT	NONE	HEAT - SOMETIMES - SENIOR CENTER USED AS "COOL OFF" SPOT OF ELDERS WITHOUT A/C IN AFTERNOON	NONE	NONE	SHORT TERM SHELTER WHEN ICE SHUT DOWN SOME ELECTRICITY 2007 & 2009	YES	NO

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.8.15 identifies the current land usage for the City of Moundridge.

Table 3.8. 15 – Moundridge Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	44%
Industrial	22%
Commercial	7%
Agricultural	13%
Parks/restricted wild land/wildlife refuge	4%
Institutional (education, health care, etc.)	9%

New Development

Community leaders in Moundridge would like to see the City grow. An Ordinance was passed which will grant six thousand dollars to any person completing a new residence on any vacant lot in the City prior to August 1, 2010. If someone builds a $120,000 home this grant is equal to 5% of the purchase price. In new development areas which charge City financed special assessments against the cost of the lots; the cash payment is dropped in favor of forgiving the assessment (with an estimated value of $6000-$7000).

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Moundridge plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF MOUNDRIDGE	**Project Title:** NATIONAL FLOODPLAIN INSURANCE PROGRAM REGULATION COMPLIANCE
Project Description: CONTINUE TO COMPLY WITH NFIP REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS	
Type of Project: PREVENTION	
Funding Description: LOCAL BUDGET	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): REDUCE FLOOD INSURANCE PREMIUMS FOR RESIDENTS AND REDUCE FLOOD DAMAGE	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO REVIEW AND COMPLY WITH FLOODPLAIN REGULATIONS BY ENFORCING FLOODPLAIN MANAGEMENT REGULATIONS IINCLUDING: • REVIEW OF ALL APPLICATIONS FOR FLOODPLAIN DEVELOPMENT PERMITS TO CONFIRM THAT SITES ARE REASONABLY SAFE FROM FLOODING AND THAT THE FLOODPLAIN DEVELOPMENT PERMIT REQUIREMENTS OF THE ORDINANCE HAVE BEEN SATISFIED; TO VERIFY THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED FROM FEDERAL, STATE, OR LOCAL GOVERNMENTAL AGENCIES FROM WHICH PRIOR APPROVAL IS REQUIRED BY FEDERAL, STATE, OR LOCAL LAW; • ISSUE FLOODPLAIN DEVELOPMENT PERMITS FOR ALL APPROVED APPLICATIONS; • NOTIFY ADJACENT COMMUNITIES AND THE DIVISION OF WATER RESOURCES, KANSAS DEPARTMENT OF AGRICULTURE, PRIOR TO ANY ALTERATION OR RELOCATION OF A WATERCOURSE, AND SUBMIT EVIDENCE OF SUCH NOTIFICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA); • ASSURE THAT THE FLOOD-CARRYING CAPACITY IS NOT DIMINISHED AND SHALL BE MAINTAINED WITHIN THE ALTERED OR RELOCATED PORTION OF ANY WATERCOURSE; AND • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) OF THE LOWEST FLOOR, INCLUDING BASEMENT, OF ALL NEW OR SUBSTANTIALLY IMPROVED STRUCTURES; • VERIFY AND MAINTAIN A RECORD OF THE ACTUAL ELEVATION (IN RELATION TO MEAN SEA LEVEL) THAT THE NEW OR SUBSTANTIALLY IMPROVED NON-RESIDENTIAL STRUCTURES HAVE BEEN FLOODPROOFED; • WHEN FLOODPROOFING TECHNIQUES ARE UTILIZED FOR A PARTICULAR NON-RESIDENTIAL STRUCTURE, THE FLOODPLAIN ADMINISTRATOR SHALL REQUIRE CERTIFICATION FROM A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF MOUNDRIDGE	**Project Title:** PROMOTE PUBLIC AWARENESS
Project Description: CONTINUE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS CAMPAIGNS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: City of Windom	
NFIP Participation	NO
Date of FEMA Maps	N/A
CRS Participation	NO
Number of Repetitive Loss Properties	0

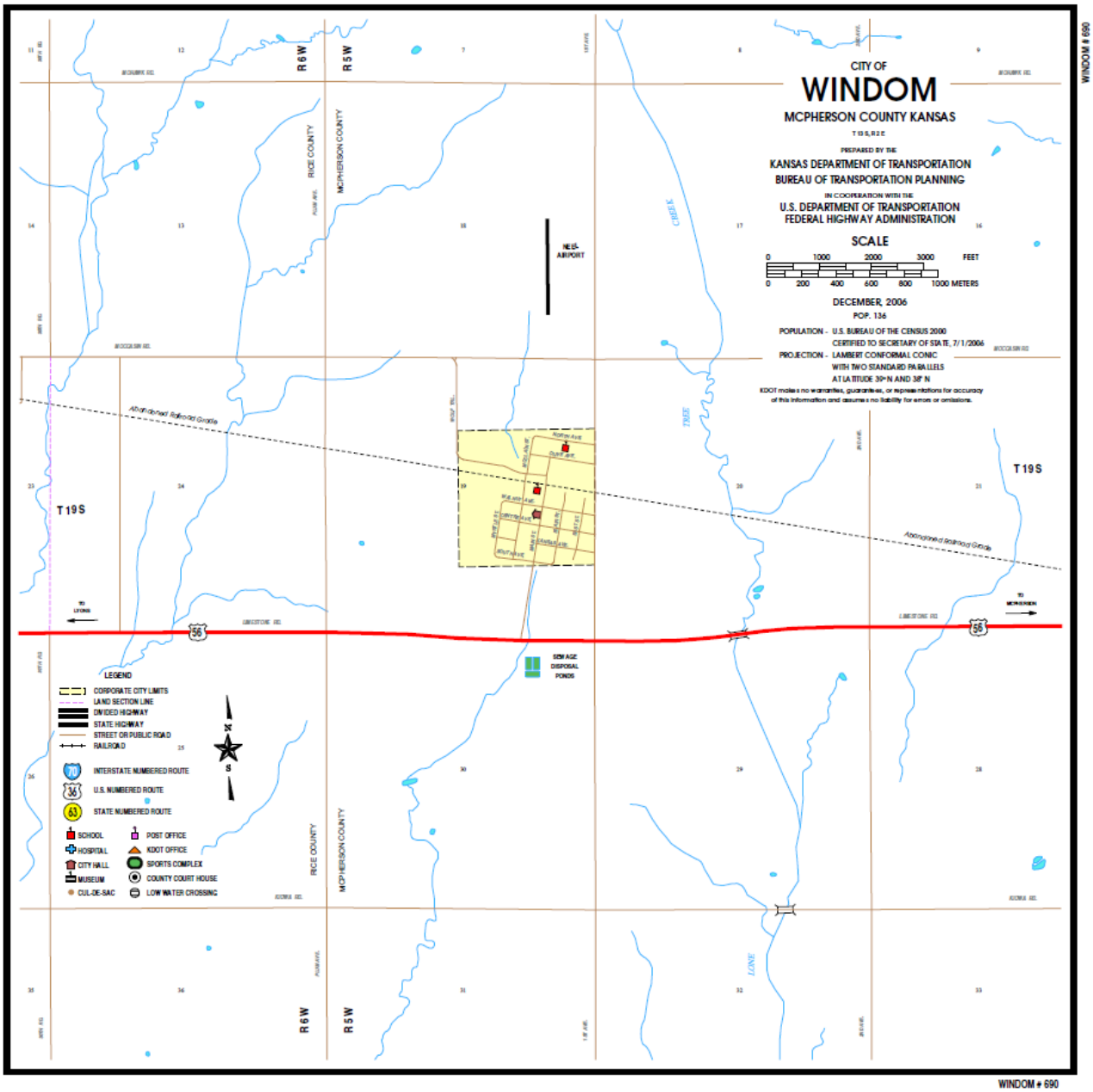
The following image is an aerial view of the City of Windom (City-Data.com).

Figure 3.9. 1 - City of Windom

Location

The City of Windom is located in western McPherson County. It has a total land area of 0.24 square miles and has an elevation of 1,950 feet. The following map is the jurisdictional boundaries for the City of Windom (Kansas Department of Transportation).

Figure 3.9. 2 - City of Windom Jurisdictional Boundary Map



WINDOM # 690

History

Windom was first started as the pioneer town of Laura in September of 1873, on the western edge of Castle Township. The first recorded house to be built in the area was owned by George E. Gubernature. He was a farmer and stockman born in Pennsylvania. Another early homesteader was C.C. Woodruff, a farmer and stockman also. He is recorded as the first postmaster of Laura, and opened a hardware store in the pioneer town. The ethnic background of the people who settled in Windom and surrounding territory cannot be traced to any one group.

The name was changed to Leeds and Hallville for short periods of time. The town plat was filed on January 11, 1881. Windom became the official name in 1884. This name came from William Windom, a Quaker lawyer living in Ohio who moved to Minnesota where he became a U.S. Senator.

There is also another story about the name. This version indicates it was originally spelled Windham, honoring the wife of a local druggist, C.M. Case. She had previously lived in Windham County, Connecticut, but when her husband sent the name to the Kansas secretary of state's office for incorporation; he misspelled it "Windom".

Santa Fe Railroad built its railroad across Kansas; Windom was one of the town sites the railroad marked every six miles. By the year 1886, Windom boasted of 23 businesses. One was rather unique. The Holt Grain Company operated a grinding mill powered by a large wind wheel which ground grain when the wind was strong enough.

Several disastrous fires plagued Windom over the years which destroyed many of the buildings and businesses. Good roads and modern automobiles started to have their effect on the economy of the town. However the town is still home for many families and will continue to be for years into the future (Blue Skyways).

Governance

The City of Windom is a city of the third class. When a city incorporates, it becomes a city of the third class. To be eligible for incorporation, there must either

- have 300 inhabitants or at least 300 platted lots, each served by water and sewer lines owned by a non-profit corporation and 50 electors sign a petition for incorporation; or
- the territory has been designated a national landmark by the Congress of the United State.

Windom has a mayor-council form of government, which is the most prevalent form of city government in Kansas. It is used by nearly all cities of the third class. The city council is made up of five council members. The City also has the following departments:

- City Clerk
- City Attorney
- Municipal Judge
- Parks and Recreation
- Police
- Street Department
- Treasurer
- Gas
- Sewer
- Water

Population and Demographics

The population and demographics, as well as the economic characteristics are used in the development of the risk assessment. With a population estimated at 130 in 2009, the City of Windom is ranked 1,380th among Kansas' incorporated cities. Table 3.9.1 identifies the population estimates from last official census conducted in 2000 to 2009 (U.S. Census Bureau). According to the Census Bureau's population estimates, the population for the City of Windom has decreased since the 2000 census. There has been over a five percent decrease in the population.

Table 3.9. 1 – Windom Population

Jurisdiction	July 1, 2009	July 1, 2008	July 1, 2007	July 1, 2006	July 1, 2005	July 1, 2004	July 1, 2003	July 1, 2002	July 1, 2001	2000 Census
City of Windom	130	131	132	133	135	135	135	135	137	137

Table 3.9.2 is the U.S. Census Bureau demographic statistics from the 2000 Census for Windom in comparison nationally, state, and county demographics. Nineteen percent of the population in Windom is over the age of 65, which is about six percent higher than the average for the State of Kansas. A large elderly population puts the city at an increased risk in during hazard events due to transportation and sheltering needs.

Table 3.9. 2 – Windom Demographics

Jurisdiction	Under 5 Years (%)	Over 65 Years (%)	Median Age (Years)	Average Household Size	High School Graduates (%)	Bachelor Degree or Higher (%)
United States	6.8	12.4	36.4	2.59	80	24.4
Kansas	7	13.3	35.2	2.51	86	25.8
McPherson County	5.9	17.3	38.1	2.49	85.9	22.2
City of Windom	9.5	19.0	42.2	2.21	83.5	7.2

Economy

An important population trend is the number of people employed in different employment sectors. Employment trends can indicate changes in land use or demand for land. The principal employment sector for the City of Windom is retail trade. There are 17 people employed in this industry, which is almost 24 percent of the population. Table 3.9.3 is the 2000 census statistics for the employed civilian population 16 years and over in Windom.

Table 3.9. 3 – Windom Employed Civilian Population (16 years & older)

Industry	Number of People Employed in Industry	Percent of Population Working in Industry
Retail Trade	17	23.9
Manufacturing	15	21.1
Educational, Health, and Social Services	12	16.9
Professional, Scientific, Management, Administrative, and Waste Management Services	8	16.9
Transportation and Warehousing, and Utilities	4	5.6
Wholesale Trade	4	5.6
Public Administration	4	5.6
Construction	3	4.2
Arts, Entertainment, Recreation, Accommodation, and Food Services	3	4.2
Finance, Insurance, Real Estate, Rental and Leasing	30	3.9
Agriculture, forestry, mining, fishing and hunting	1	1.4
Other Services	0	0
Information	0	0

The December 2009 cost of living index is 68.9, which is very low compared to the Nation's average of 100 (City-Data.com). Table 3.9.4 identifies the economic characteristics for Moundridge, Kansas from the 2000 census (U.S. Census Bureau). Windom has nearly two percent unemployment rate, which is less than the State rate of unemployment.

Table 3.9. 4 – Windom Economic Characteristics

Jurisdiction	Families Below Poverty Level (%)	Individuals Below Poverty Level (%)	Median Home Value (1999$)	Median Household Income (1999$)	Per Capita Income (1999$)	Unemployment Rate (%)	Population in Labor Force (%)
United States	9.8	13.3	181,800	50,007	26,178	4.2	64.7
State of Kansas	8.3	11.9	114,400	46,669	24,579	3.6	68.6
McPherson County	3.8	5.6	45,000	35,938	17,965	2.8	68.2
City of Windom	7.1	11.1	27,900	35,833	17,240	1.9	67.6

Capabilities

Floodplain Management

According to FEMA the definition for floodplain management is "a decision-making process that aims to achieve the wise use of the nation's floodplains. Wise use means both reduced flood losses and protection of the natural resources and function of floodplains.

Floods are one of the most common hazards in the United States, as well as Kansas, and most homeowners' insurance policies do not cover flood damage. For that reason, in 1968 Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. In order for a community to offer flood insurance through the NFIP, the community is required to enforce certain minimum regulations on development in the floodplain. This management of the floodplain is done to ensure that flooding problems do not increase and to work towards the reduction in the risk of flooding. This work is performed by the local communities' Floodplain Administrator.

McPherson County has Floodplain Management Regulations that are above the NFIP minimum regulations. A floodplain development permit is required to construct a building, move existing land forms (hills, ditches, river banks, etc.), or place fill dirt within the 100-year floodplain.

All of the cities in McPherson County obtained new flood maps on January 16, 2009 from FEMA and the floodplain management regulations were updated at that time. The City of Windom is not located in a floodplain and therefore not required to enforce floodplain management regulations.

National Flood Insurance Program

The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding (Federal Emergency Management Agency). The City of Windom is a not participant in the National Flood Insurance Program. There is not any information in the Federal Emergency Management Agency's (FEMA) Community Status Book Report. The residents of Windom are currently unable to purchase flood Insurance through the NFIP because the community is not a participant.

Table 3.9. 5 - NFIP Community Status

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Current Effective Map Date	Reg. – Emer. Date	Tribal
N/A	City of Windom	McPherson	N/A	N/A	N/A	N/A	No

Existing Planning Ordinances, Codes, and Plans

This section will identify an inventory of existing planning and regulatory tools available to the City of Windom. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.9.6 identifies the existing planning ordinances, codes, and plans for the community.

Table 3.9. 6 – Existing Plans, Ordinances, and Codes

Planning ordinances, codes, plans
Municipal Code
Fire Prevention Code
Building code
Disaster and Recovery Plan
Fire department ISO rating 7
Site plan review requirements
Local emergency operations plan
Mutual Aid Agreements
Fire or Life Safety Code

Administrative/Technical Resources

This section will identify the administrative and technical resources available to the City of Windom. It is vital to ensure that adequate staffing and technical resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.9.7 identifies personnel resources and warning capabilities for the community.

Table 3.9. 7 –Windom Administrative/Technical Resources

Personnel Resources
Personnel skilled in GIS - COUNTY
Emergency Manager - COUNTY
GIS Data – Hazard areas - COUNTY DATA
GIS Data - Critical facilities - COUNTY DATA
GIS Data – Building footprints - COUNTY DATA
GIS Data – Land use - COUNTY DATA
GIS Data – Links to Assessor's data - COUNTY DATA
Warning Systems/Services - ONE SIREN THAT NEEDS UPDATING AND BACKUP
Outdoor weather warning signals - NEEDS TO BE UPDATED WITH EMERGENCY BACKUP

Financial Resources

This section will identify the financial resources available to the City of Windom. It is vital to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.9.8 identifies the financial resources available to the community.

Table 3.9. 8 – Windom Financial Resources

Financial Resources	
Authority to levy taxes for specific purposes - WITH VOTE	Incur debt through general obligation bonds
Fees for water, sewer, gas, or electric services	Incur debt through private activities - LOAN FROM STATE – SEWER SYSTEM

Outdoor Siren System

The City of Windom utilizes the outdoor siren network to warn residents of impending severe weather. There is only one outdoor storm siren in the community. It is located in the 800 block on Main Street on the west side and is telephone activated. The City would like to upgrade the storm siren to include an emergency backup.

Vulnerabilities

Hazards Affecting the City of Windom

History of Drought

The City of Windom reported the community has experienced drought problems in the past. Property damage occurred to the trees in the city park.

History of Flooding

There were no flooding incidents in the National Climatic Data Center database for Windom. However, the City reported that flash flooding is a problem for the community. The City Park pond floods and runs across highway 56 during large rainfall events.

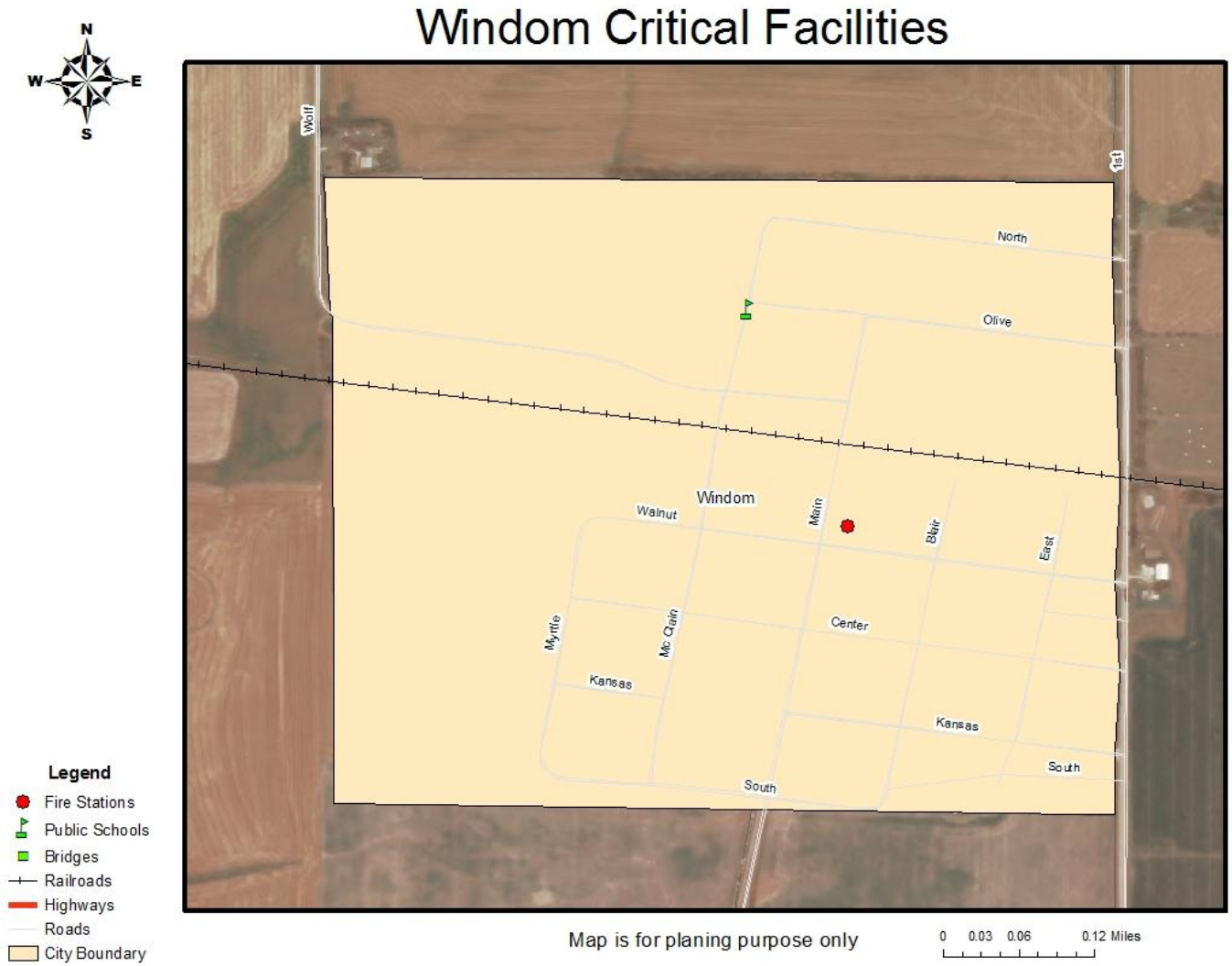
Severe Repetitive Loss Properties

FEMA defines severe repetitive loss properties as "a residential property that is covered under an NFIP flood insurance policy and has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000; or at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. In both cases at least two of the claims must have occurred within any 10-year period and must be greater than 10 days apart. There are no repetitive flood loss properties in Windom, Kansas.

HAZUS Report

A "flood" HAZUS loss estimation model was completed by State and Local Emergency Management Consultants, LLC using FEMA's software program, HAZUS-MH MR4. The software was used for estimating potential losses from flooding. Figure 3.9.3 is map that identifies the location of the critical facilities in relation to the 100-year floodplain for the City of Windom. The HAZUS loss estimation model for Windom did not identify any floodplain areas.

Figure 3.9. 3 - Windom's Critical Facilities in relation to the 100-year Floodplain



History of Hailstorm Events

Historic hazard incidents were obtained from the National Climatic Data Center database.

May 9, 1996	A hailstorm was reported in Windom. Hailstones nearly one inch in diameter were reported. There were no reports of property damage or injuries.
September 30, 1998	A hailstorm was reported in the City of Windom. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
June 13, 2000	A hailstorm was reported six miles south west of Windom. Hailstones 2.75 inches in diameter were reported. There were no reports of property damage or injuries.
June 25, 2000	A hailstorm was reported four miles south of Windom. Hailstones three-quarters of an inch in diameter were reported. There were no reports of property damage or injuries.
June 1, 2001	A hailstorm was reported in Windom. Over one inch hailstones were reported. There were no reports of property damage or injuries.
June 16, 2001	A hailstorm was reported one mile east of Windom. Nearly one inch hailstones were reported. There were no reports of property damage or injuries.
September 17, 2001	A hailstorm was reported in Windom. Hailstones one inch in diameter were reported. There were no reports of property damage or injuries.
April 17, 2002	A hailstorm was reported one mile north of Windom. Nearly one inch hailstones were reported. There were no reports of property damage or injuries.
April 10, 2005	Three-quarter inch hail was reported four miles north east of Windom. There were no reports of property damage or injuries.
July 3, 2005	A hailstorm was reported one mile south of Windom. Over one inch hailstones were reported. There were no reports of property damage or injuries.
June 27, 2008	Winds to 60 mph occurred with the hail three miles north west of Windom. There were no reports of property damage or injuries.

History of Utility/Infrastructure Failure

Utility/Infrastructure failure includes power and telephone lines, water supply facilities, wastewater facilities and communication towers. Historic hazard incidents were obtained from the National Climatic Data Center database and the City of Windom.

August 8, 2007	Power lines were blown down as a result of a thunderstorm one mile west of Windom. Property damage was estimated at $15,000.
October 2007	Water line was damaged by being bored into by contractor, the leak was later repaired. The line blew out again due to the age of the pipe. Citizens, school and the fire department were without water for 2 days. A boil water order was issued.
December 2008	A severe ice storm caused major tree damage to the City of Windom. The community was without power for one week.
August 2009	A water line broke three times. Citizens and fire department were without water for three days. A boil water order was issued.

Since 2005 at least once or twice a year the city's main waterline between McPherson and Windom has broken. The pipe is defective and old and needs to be replaced. It is an issue for the citizens, elementary school and for Fire district #3 as they fill their trucks in town.

History of Wildfire

From 1995 to 2009 there have been a total of 1,354 acres burned in the Windom Fire Department (Fire District #3) service area as the result of wildfires. The information in Table 3.9.9 was provided by the Windom Fire Department. For the past 15 years, the majority of fire response calls have been wildfire calls, 23 calls were structure fire and 72 were wildfire. There have not been any deaths or injuries as a result of fire.

Table 3.9. 9 – Windom Fire Department Fire Statistics

Year	Total # of Calls	Total # of Structure Fire Calls	Total # of Wildfire Calls	Acres Burned as a result of Wildfire	Structures Burned as a result of Wildfire	Deaths as a result of Structure Fire	Deaths as a result of Wildfire	Injuries as a result of Structure Fire	Injuries as a result of Wildfire
1995	10	2	2	49	1	0	0	0	0
1996	4	2	3	10	1	0	0	0	0
1997	6	1	3	5	0	0	0	0	0
1998	6	1	2	1	0	0	0	0	0
1999	6	0	4	58	1	0	0	0	0
2000	7	0	3	1100	1	0	0	0	0
2001	25	3	2	15	1	0	0	0	0
2002	26	0	7	10	0	0	0	0	0
2003	26	2	9	10	1	0	0	0	0
2004	18	5	6	10	0	0	0	0	0
2005	29	2	13	15	1	0	0	0	0
2006	42	0	6	17	1	0	0	0	0
2007	42	2	2	12	1	0	0	0	0
2008	27	3	6	25	0	0	0	0	0
2009	33	0	4	17	1	0	0	0	0

History of Windstorms

Historic hazard incidents were obtained from the National Climatic Data Center database.

June 21, 1998 — A severe thunderstorm was reported in the City of Windom. There were no reports of injuries or property damage.

September 30, 1998 — Grain bins were blown over, power lines and power poles blown down, houses sustained damage to roofs, siding and windows, and vehicles had windows blown out. Property damage was estimated at $100,000.

June 23, 2000 — A windstorm was reported in Windom. There were no reports of injuries or property damage.

May 30, 2004 — A windstorm was reported in Windom. Property damage estimates were not available. There were no reports of injuries.

August 8, 2007 — Power lines were blown down as a result of a thunderstorm one mile west of Windom. Property damage was estimated at $15,000.

June 18, 2008 — A large complex of thunderstorms developed over Northwest Kansas on the evening and overnight of June 18th, 2008 producing damaging winds along its path. Tree limbs were blown down in Windom. Property damage was $200.

June 27, 2008 — The wind was measured by KSNW WeatherLab equipment at Windom Elementary School. The wind speeds were measured at 50 knots.

June 15, 2009 — Wind measured at the KSN TV WeatherLab site. The wind speeds were measured at 65 knots. The wind also knocked down almost 25 percent of the wheat crop in and around town resulting in $15,000 in crop damage.

June 20, 2009 — Straight-line winds destroyed a cattle shed and damaged some trees on a farmstead in the Windom area, resulting in $5,000 in property damage.

History of Winter Storms

December 2008 — A severe ice storm caused major tree damage to the City of Windom. The community was without power for one week.

City of Windom Hazard Vulnerability Assessment

Table 3.9.11 is a comparison of the hazards vulnerability assessment for the City of Windom with the entire planning area. The first column is the order of priority the HMPC ranked the hazards that threaten the entire planning area. The second column is the hazards that pose a threat to all of McPherson County. The third column is the McPherson County HMPC planning significance (high, moderate, or low) for the entire planning area. The HMPC determined the planning significance for each hazard during the first hazard mitigation planning meeting. The last column is the planning significance for each hazard as determined by the City of Windom for their specific community. Vulnerability to flood was determined to be a low risk instead of high because Windom is not in a floodplain. The City raised the hazard vulnerability of hazardous materials to high because of the close proximity to major pipelines and underground storage caverns.

Table 3.9. 10 – City of Windom Hazards Vulnerability Ranking

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Windom Planning Significance
1	Tornado	High	High
2	Windstorm	High	High
3	Flood	High	Low
4	Winter Storm	High	High
5	Utility/Infrastructure Failure	High	High
6	Wildfire	High	High
7	Hailstorm	High	High
8	Major Disease Outbreak	Moderate	Moderate
9	Soil Erosion and Dust	Moderate	Low
10	Hazardous Materials	Moderate	High
11	Lightning	Moderate	Moderate
12	Expansive Soils	Moderate	Moderate
13	Agricultural Infestation	Moderate	Moderate
14	Land Subsidence - Sinkholes	Moderate	Low
15	Extreme Temperatures	Moderate	Moderate
16	Fog	Moderate	Moderate

HMPC Priority	Hazards That Threaten McPherson County	HMPC Planning Significance	City of Windom Planning Significance
17	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	Moderate
18	Drought	Moderate	Moderate
19	Earthquake	Low	Low
20	Landslide	Low	Low
21	Radiological	Low	Low
22	Dam and Levee Failure	Low	Low

Critical Infrastructure

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the critical infrastructure located in each participating jurisdictions.

The purpose of the critical infrastructure inventory is to provide information and location data on buildings and infrastructure that are vital to the response and recovery of the community from a natural and/or manmade disaster. While all buildings and structures have value, certain types of structures have a higher priority for protection because damage to them can directly impact the delivery of vital services, thereby delaying response and/or recovery efforts.

Highways/Roads

U.S. Highway 56 is the main highway that runs through the City of Windom.

Critical Facilities

For purposes of this Mitigation Plan, McPherson County and participating jurisdictions considered critical facilities to be those buildings and structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include supporting infrastructure essential to the mission of critical facilities. The facilities also include education facilities to ensure continuity of education. Tables 3.9.12 identify the critical facilities in Moundridge.

Table 3.9. 11 – Windom Critical Facilities

Name of Asset	Facility Type	Address	Replacement Value	Occupancy/ Capacity #
FIRE DISTRICT #3	EMERGENCY SERVICES	702 MAIN ST	$2,000,000	150/200
CITY HALL/COMMUNITY BUILDING	GOVERNMENT	611 N MAIN ST	$20,000	80/100
WINDOM ELEMENTARY SCHOOL	GRADE SCHOOL	101 E. OLIVE	$3,288,039	200/250
CITY GARAGE	EQUIPMENT STORAGE	712 MAIN ST	$200,000	20

Local Businesses

Local businesses are important to the economic development in Windom. During a disaster loss of local businesses can have a detrimental effect on the local economy. The local businesses for the City of Windom are identified in Table 3.9.13.

Table 3.9. 12 – Windom Local Businesses

Business Name	Type of Business	Address
Steller Auto Restoration	Auto Restoration	624 Main Street
Mid Kansas Cooperative	Grain Elevator	724 & 800 Main Street

Community Concerns

Since 2005 at least once or twice a year the city's main waterline between McPherson and Windom has broken. The pipe is defective and old and needs to be replaced. It is an issue for the citizens, elementary school and for Fire district #3 as they fill their trucks in town. The City of Windom needs a dependable source of water for the citizens in the community.

The City of Windom is concerned about communication with the elderly and disabled populations during emergencies. The community lacks funding for heating/cooling assistance for the elderly and disable individuals that cannot afford it. Table 3.9.13 is the hazard vulnerability information for the senior center located in Moundridge. The hazard vulnerability assessment was conducted by the McPherson County Council on Aging, Inc. (MCCOA). The MCCOA is a private, non-profit planning service agency dedicated to providing community based supportive services to persons age 60 and over throughout McPherson County. MCCOA provides some direct services but it is mostly an administrative body that oversees funding and information for the eight Senior Citizen Centers in the County. Each of the Senior Centers has a building, a small staff and supportive volunteers in the communities of Canton, Galva, Inman, Lindsborg, Marquette, McPherson, Moundridge, and Windom.

These Centers serve as local gathering places mostly for people age 60 and over. They are local hubs for social activities, information and education on Senior Citizen's issues and available assistance programs and health maintenance programs. Some of the Centers provide congregate meals, home delivered meals and general public transportation. These Centers are not residential, and most have operating hours that range from three hours per day four days a week to eight hours per day five days a week. They are all closed on the weekends with the only exception being for special activities.

Table 3.9. 13 - MCCOA Hazard Vulnerability Assessment for Windom Senior Center

Senior Center & Address	History of Expansive Soils	History of Extreme Temperatures	History of Lightning Strikes	History of Tornado Damage	History of Winter Storm Damage	Tornado Shelter in Community?	Does Senior Center have Emergency Generator?
WINDOM SENIOR CENTER 601 MAIN	YES, MILD, ON-GOING	NONE	NONE	NONE	NONE	YES	NO

Table 3.9.14 identifies the concerns the City of Windom has regarding specific population groups.

Table 3.9. 14 – Windom Community Concerns

Population group:	Concerns:
School age children	The City is concerned about the safety for the school age children during tornadoes. There currently is not a FEMA approved shelter in the school. The City of Windom needs a dependable source of water for the school.
Low Income	The City of Windom is concerned about communication with the elderly and disabled populations during emergencies. The community lacks funding for heating/cooling assistance for the elderly and disable individuals that cannot afford it. The City has the need to build a FEMA approved community shelter in case of storms. The City of Windom needs a dependable source of water for the citizens in the community.
Other	The City of Windom is concerned about communication with the elderly and disabled populations during emergencies. The City has the need to build a FEMA approved community shelter in case of storms. The City of Windom needs a dependable source of water for the citizens in the community.

Land Use

Land use can be classified as either primary land use or secondary land use. Direct extraction of a useful product from the physical environment is a primary economic land use. Examples of primary land use include hunting and gathering, caring for grazing livestock, cultivating agriculture, timbering, and extraction of minerals, ore, shale, and clay. Secondary land uses include residential, commercial, and industrial land uses. In some cases primary and secondary land uses are intermingled.

Residential home sites, commercial sites, and industrial purposes account for most of the land use in cities in McPherson County. Larger density residential, commercial, and industrial land uses are primarily found either within the incorporated communities or close to the city limits. Table 3.9.15 identifies the current land usage for the City of Windom.

Table 3.9. 15 – Windom Land Use

Current Land Use Category	Percent of Jurisdiction
Residential	70%
Industrial	-
Developed with mixed uses	-
Commercial	1%
Agricultural	8%
Parks/restricted wild land/wildlife refuge	3%
Institutional (education, health care, etc.)	5%
Transportation or utility right-of-way	2%
Vacant/unused - private ownership	10%
Vacant/unused - government ownership	1%

New Development

The City of Windom did not report any new development plans.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions the City of Windom plans to adopt.

2010 Mitigation Actions	
Lead Agency: CITY OF WINDOM	**Project Title:** WATER LINE REPLACEMENT PROJECT
Project Description: REPLACE 17 MILES OF WATERLINE FROM THE CITY OF MCPHERSON TO THE CITY OF WINDOM	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL BUDGET AND LOOK INTO POSSIBLE GRANTS	
Estimated Cost: $1,000,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): PROVIDE DEPENDABLE SOURCE OF WATER FOR CITIZENS, SCHOOL AND FIRE DEPARTMENT	**Completion Date:** WITHIN NEXT 5 YEARS
Plan for Implementation and Administration: LOOK INTO POSSIBLE GRANT FUNDING TO ASSIST WITH WATER LINE REPLACEMENT. SECURE FUNDING, HIRE CONTRACTOR, AND REPLACE WATER LINES.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Can the community implement the strategy?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: CITY OF WINDOM	**Project Title:** JOIN NATIONAL FLOOD INSURANCE PROGRAM (NFIP)
Project Description: LOOK INTO JOINING THE NATIONAL FLOOD INSURANCE PROGRAM	
Type of Project: PREVENTION, PROPERTY PROTECTION	
Funding Description: NO COST	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FLOOD
Benefits (Losses Avoided): FLOOD INSURANCE RATE DISCOUNTS FOR RESIDENTS	**Completion Date:** WITHIN 1 YEAR
Plan for Implementation and Administration: COMPLETE NECESSARY PAPERWORK TO JOIN THE NFIP	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Can the community implement the strategy?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

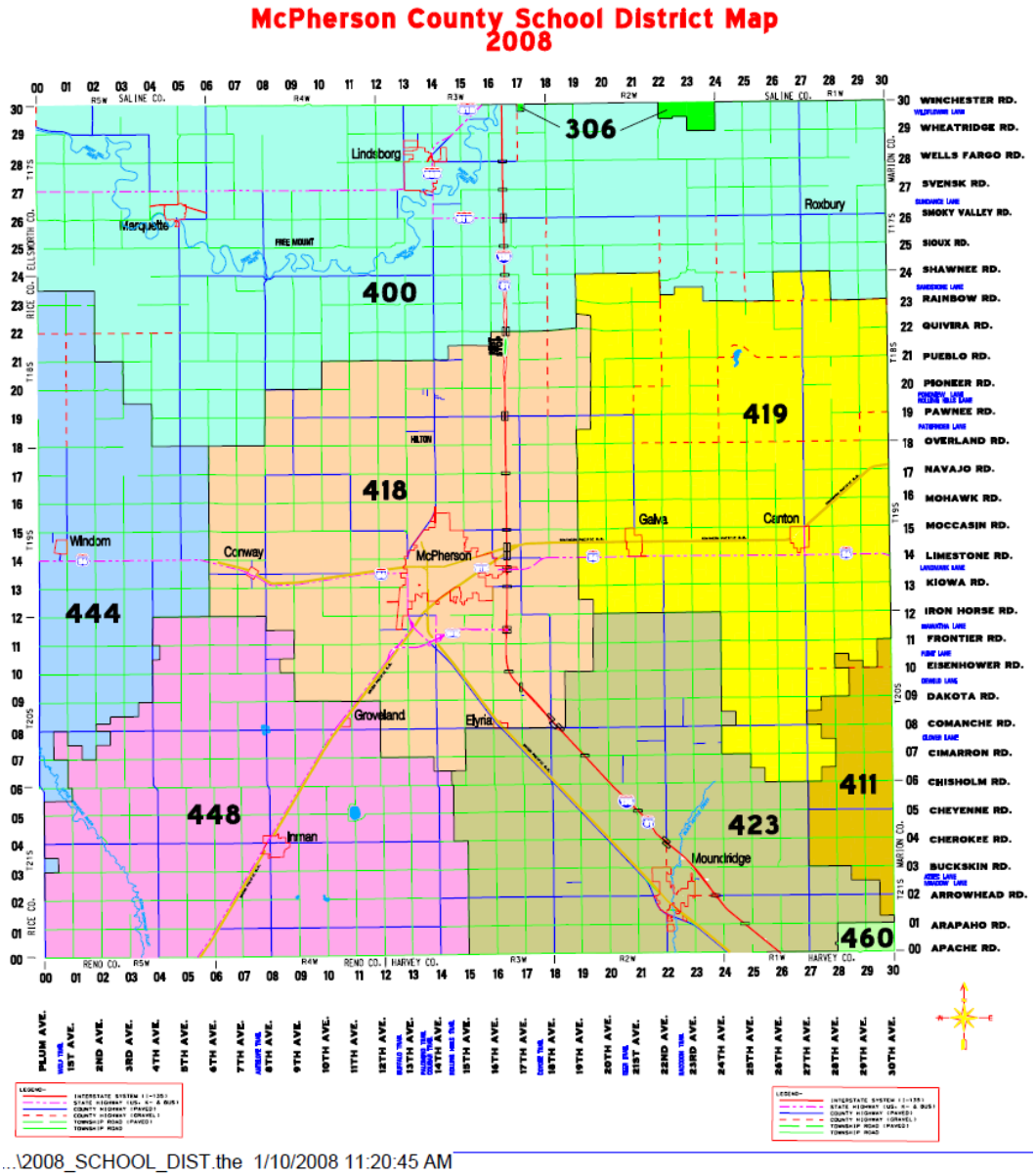
2010 Mitigation Actions	
Lead Agency: CITY OF WINDOM	**Project Title:** UPGRADE OUTDOOR STORM SIRENS
Project Description: UPGRADE STORM SIREN TO INCLUDE BATTERY BACKUP	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $15,000 - $20,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN 1 YEAR
Plan for Implementation and Administration: LOOK INTO POSSIBLE GRANT FUNDING FOR SIREN UPGRADE COMPLETE WITH EMERGENCY BACKUP, PURCHASE NEW SIREN AND INSTALL	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Can the community implement the strategy?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Unified School Districts

There are nine Unified School Districts (USDs) that service McPherson County area. They are Southeast of Saline USD 306, Smoky Valley USD 400, McPherson USD 418, Canton-Galva USD 419, Moundridge USD 423, Little River USD 444, Inman USD 448, and Hesston USD 460.

Two school districts, Southeast of Saline USD 306 and Hesston USD 460, only have special taxing authority in McPherson County and do not have any physical assets located within the county boundaries. Therefore, they have opted not to participate in this hazard mitigation planning process. All other unified school districts in McPherson County participated in the plan development. The map below identifies the jurisdictional boundaries for each school district.



Jurisdiction: Smoky Valley USD 400	
Counties In Service Area McPherson County	**Website Address:** http://www.smokyvalley.org

Smoky Valley USD 400

126 South Main
Lindsborg, KS 67456-2418

Administrators:

Superintendent	Glen Suppes	email: gsuppes@smokyvalley.org
Director of Student Learning	Fred Van Ranken	email: fvanranken@smokyvalley.org
District Technology Director	Mike Rose	email: mrose@smokyvalley.org
Business Manager	Julie Martin	email: jmartin@smokyvalley.org
Accounts Payable	Christine Deterding	
Payroll	Joyce Jones	
Office Assistant	Kelly Carlson	
Director of Buildings & Grounds	Keith Kandt	
Director of Transportation	Tom Buffington	

The Communities of Smoky Valley USD 400

There are 966 students enrolled in Smoky Valley USD 400 school district for the 2010-2011. The public school district is made up of five separate communities in the Greater Smoky Valley of Central Kansas. The school district central office is located in Lindsborg, the largest of these communities. Students from Falun, Roxbury, and Smolan attend Soderstrom Elementary School and Lindsborg Middle School in Lindsborg. Marquette students attend grades K-8 in Marquette, and all district students attend Smoky Valley High School in Lindsborg.

Three of the four district schools were declared “Buildings of Excellence” based on 2004 Kansas State Assessment Scores. In 2006 Lindsborg Middle School was recognized by the Governor’s Achievement Award, one of only twelve such middle schools in the State of Kansas. To receive this award, Lindsborg Middle School met the standard of excellence in both math and reading, scoring in the top 5 percent in both areas. The schools in USD 400 continue to exceed state standards each year. The school district was named in the “Top 100 Districts for Music Education in the United States in 2003.

In March 2004, Smoky Valley High School implemented a one-to-one laptop computer program for all Smoky Valley High School students and staff. In August 2006 the program was extended to the seventh and eighth graders in Lindsborg and Marquette Middle Schools. Smoky Valley High was recognized as an “Apple Distinguished School” in January 2009 and 2010.

In the fall of 2005, the district opened the new charter school facility. The Smoky Valley Virtual Charter School provides a unique style of instruction for students, either virtually (at home) or on-site. It also offers student laptops. The institution provides a wide variety of academic opportunities for students in grades 7-12. Smoky Valley USD 400‘s technology portal for school and community is Vision_Tek, which is located downtown across from the USD 400 district office. Vision_Tek began with a vision that is based on using technology to create bridges between learning, communication, and skill development. For more information on the Smoky Valley Charter School or Vision_Tek, please contact Director, Marla Elmquist.

Smoky Valley USD 400

Open Buildings

Marquette Elementary School
310 North Swedonia
Box 309
Marquette, KS 67464-0309
Building #: 5508
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 133
Building Type: Elementary
Year Built: 1986
Date Opened: 8/1/1987
Date Closed: Open

Soderstrom Elementary
227 North Washington
Lindsborg, KS 67456-2129
Building # 5504
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 286
Building Type: Elementary
Year Built: 1962
Date Opened: 8/1/1962
Date Closed: Open

Lindsborg Middle School
401 North Cedar
Lindsborg, KS 67456-1900
Building #5505
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 239
Building Type: Middle School
Year Built: 1954
Date Opened: 8/1/1998
Date Closed: Open

Smoky Valley High
1 Viking Blvd.
Lindsborg, KS 67456-1911
Building #5506
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 328
Building Type: High School
Year Built: 1998
Date Opened: 8/1/1954

Smoky Valley Virtual Charter School
½ Viking Blvd.
Lindsborg, KS 67456-1911
Building #5498
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 57
Building Type: High School
Year Built: N/A
Date Opened: N/A
Date Closed: Open

Smoky Valley Education Foundation

The Smoky Valley Public Schools Education Foundation was established in 2002 to provide a pathway for excellence for the students, staff and community of the Smoky Valley. The Foundation is comprised of Trustees from the community who are committed to enhancing education for the children of the Smoky Valley School District. The Foundation's primary mission is to raise the dollars needed for educational improvements to existing programs or for new innovative programs.

The Foundation is a non-profit charitable organization with its own bylaws and a 501(c) (3) tax-exempt status, separate and distinct from the Board of Education. The Foundation seeks gifts in the form of cash contributions, will bequests, insurance policies, and memorials and tributes, all of which are tax deductible.

Purpose Statement:
The Smoky Valley Public Schools Education Foundation has been created to support the education programs for both students and staff personnel of the Smoky Valley District. The Foundation will provide funds for educational programs and activities that either have not been funded or have been under-funded by the normal operating budget. These funds will be used to facilitate student achievement and skill development, to recognize and encourage staff excellence and to expand community involvement from individuals, businesses and civic organizations.

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that Smoky Valley USD 400 identified that may affect their institutions.

Table 3.10. 1 – USD 400 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	USD 400 has not been affected by hazard
Dam and Levee Failure	3	USD 400 has not been affected by hazard
Drought	3	USD 400 has not been affected by hazard
Earthquake	3	USD 400 has not been affected by hazard
Expansive Soils	3	USD 400 has not been affected by hazard
Extreme Temperatures	1	APPROXIMATELY THREE YEARS AGO SCHOOL BUILDINGS WERE CLOSED BECAUSE OF UNSAFE LOW TEMPERATURES. WITH THE COMBINATION OF HIGH WINDS AND LOW WIND CHILLS, THE DISTRICT DECIDED TO KEEP CHILDREN AT HOME. THERE WAS A CONCERN OF FREEZING WATER PIPES AND BITTER COLD EXPOSURE OF THE KIDS.
Flood	3	USD 400 has not been affected by hazard
Fog	3	USD 400 has not been affected by hazard

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Hailstorm	3	USD 400 has not been affected by hazard
Hazardous Materials	3	USD 400 has not been affected by hazard
Land Subsidence	3	USD 400 has not been affected by hazard
Landslide	3	USD 400 has not been affected by hazard
Lightning	3	USD 400 has not been affected by hazard
Major Disease Outbreak	3	USD 400 has not been affected by hazard
Radiological	3	USD 400 has not been affected by hazard
Soil Erosion and Dust	3	USD 400 has not been affected by hazard
Terrorism/Agro - Terrorism/Civil Disorder	3	USD 400 has not been affected by hazard
Tornado	2	THERE HAVE BEEN TORNADOES IN THE AREA BUT THERE WHERE NO REPORTS OF DAMAGE TO USD 400 AS A RESULT
Utility/Infrastructure Failure	2	USD 400 HAS EXPERIENCED POWER OUTAGES IN THE PAST
Wildfire/Urban Fire	3	USD 400 has not been affected by hazard
Windstorm	1	JUNE 13, 2010 SMOKY VALLEY HIGH SCHOOL GYMNASIUM SUSTAINED CONSIDERABLE DAMAGE BECAUSE OF A WINDSTORM. THE WIND BLEW A LARGE SECTION OF THE ROOF OFF THE BUILDING. THIS ALLOWED FOR THE RAIN TO POUR INTO THE BUILDING, WHICH IN TURN SEVERLY DAMAGED THE WOOD FLOOR. THE FLOOR NEEDED TO BE REPLACED. AFTER COMPLETE ROOF REPLACEMEMENT, NEW FLOOR INSTALLATION AND CLEANUP, THE TOTAL COST WAS APPROXIMATELY $360,000.
Winter Storm	2	WINTER STORMS ARE A CONCERN EVERY SCHOOL YEAR

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.10.3 identifies the vulnerable sites in the Smoky Valley USD 400.

Table 3.10. 2 – USD 400 Vulnerable Sites

Name of Building	Address	Estimated Replacement Cost
CENTRAL OFFICE BUILDING AND (THEY ARE CONNECTED) LINSBORG MIDDLE SCHOOL	126 SOUTH MAIN, LINDSBORG 401 NORTH CEDAR, LINDSBORG	$21,225,471
MARQUETTE ELEMENTARY SCHOOL	301 NORTH SWEDONIA, MARQUETTE	$4,739,802
MES CONCESSION STAND	300 NORTH SWEDONIA, MARQUETTE	$91,392
SMOKY VALLEY HIGH	1 VIKING BLVD., LINDSBORG	$21,225,471
SVHS INDUSTRIAL ARTS BUILDING	1 VIKING BLVD., LINDSBORG	$826,098
VISION_TEK CENTER/SVVCS	121 SOUTH MAIN, LINDSBORG	$846,079
SODERSTROM ELEMENTARY	227 NORTH WASHINGTON, LINDSBORG	$7,142,761
TRANSPORTATION BUS BARN	401 NORTH CEDAR, LINDSBORG	$132,655
STORAGE BUILDING FOR CHARTER BUS	500 NORTH PINE, LINDSBORG	$44,064
STORAGE BUILDING	500 NORTH PINE	$49,904
STORAGE BUILDING	500 NORTH PINE	$71,287

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Smoky Valley USD 400 plans to adopt.

2010 Mitigation Actions	
Lead Agency: SMOKY VALLEY USD 400	**Project Title:** FEMA APPROVED SAFE ROOM
Project Description: LOOK INTO FUNDING FOR FEMA APPROVED SAFEROOMS FOR SCHOOL BUILDINGS IN THE DISTRICT	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/HMGP FUNDS	
Estimated Cost: $150,000 - $350,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LOSS OF HUMAN LIFE OR PERSONAL INJURY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: SECURE FUNDING SECURED THROUGH FEMA HMGP GRANT PROGRAM AND LOCAL FUNDS. CONSTRUCT	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: SMOKY VALLEY USD 400	**Project Title:** PUBLIC AWARENESS PROJECT
Project Description: CONTINUE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON HAZARDS	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS CAMPAIGNS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: McPherson USD 418			
Counties In Service Area	McPherson County	**Website Address:**	http://www.mcpherson.com/418/

McPherson USD 418
514 North Main
McPherson, KS 67460

Administrators:

Superintendent	Dr. Randy Watson
Administrative Assistant	Lois Edwards
Receptionist	Pam Neufeld
Associated Superintendent of Business & Operations	Chris Ruder
Secretary	Carol Holm
Accounts Payable	Tracey Wedel
Payroll	Jennifer Bertrand
Benefits	Tawny Hoffman
Director of Instruction	Angie McDonald
McPherson County Special Education Cooperative	Gordon Mohn
Secretary	Donna Vincent
Secretary/Paraeducator Facilitator	Pam Neufeld
Director of Operations (Building & Grounds)	Sheldon Anderson
Technology	Larry Chaney
Technology	Andy Hanson
Power School Administrator	Aggie Windholz
Channel 20/Website Director	Linda Swinehart

Board of Education

Legal control of McPherson USD 418 is vested in the seven members of the Board of Education, elected to staggered four-year terms by district residents. Any registered voter who resides within the boundaries of McPherson may run for election to the Board. Board members are elected at-large. School elections are held bi-annually in odd years the first Tuesday of April.

McPherson USD 418

Open Buildings

Early Childhood Center
128 North Park
McPherson, KS 67460-4599
Building #: 6025
Current Accreditation Status: N/A
Total Enrollment 2009-2010: N/A
Building Type: Special School
Year Built: 1979
Date Opened: 8/1/1979
Date Closed: Open

Eisenhower Elementary
301 East Wickersham Drive
McPherson, KS 67460-1600
Building # 6028
Current Accreditation Status: Accredited
Total Enrollment 2010-2011: 250
Building Type: Elementary
Year Built: 1996
Date Opened: 8/1/1996
Date Closed: Open

Lincoln Elementary
900 North Ash
McPherson, KS 67460-2806
Building #6030
Current Accreditation Status: Accredited
Total Enrollment 2010-2011: 259
Building Type: Elementary
Year Built: 1980
Date Opened: 8/1/1980
RDate Closed: Open

Roosevelt Elementary
800 South Walnut
McPherson, KS 67460-5699
Building #6032
Current Accreditation Status: Accredited
Total Enrollment 2010-2011: 318
Building Type: Elementary
Year Built: 1980
Date Opened: 8/1/1980
Date Closed: Open

Washington Elementary
128 North Park
McPherson, KS 67460-3406
Building #6034
Current Accreditation Status: Accredited
Total Enrollment 2010-2011: 233
Building Type: Elementary
Year Built: 1936
Date Opened: 8/1/1936
Date Closed: Open

McPherson Middle School
700 East Elizabeth
McPherson, KS 67460-5006
Building #6038
Current Accreditation Status: Accredited
Total Enrollment 2010-2011: 523
Building Type: Middle School
Year Built: 1938
Date Opened: 8/1/1938
Date Closed: Open

McPherson High
801 East First Street
McPherson, KS 67460-3613
Building #6040
Current Accreditation Status: Accredited
Total Enrollment 2010-2011:745
Building Type: High School
Year Built: 1963
Date Opened: 8/1/1963

District Profile

The McPherson Unified School District 418 is recognized as one of the leading school districts in Kansas. The McPherson schools are served by three central office administrators, a full-time special education director, nine building administrators, a food service director, buildings and grounds director, 252 certified staff and 283 classified staff.

The district operates an early education center, four elementary schools, a middle school, a high school, an alternative high school program, and is also the sponsoring district of the McPherson County Special Education Cooperative. Enrollment (K-12) in the McPherson schools is approximately 2400.

The four neighborhood elementary schools, kindergarten through 5th grade, have an average regular education class size of 19 students. Each of the McPherson USD 418 elementary schools offers a comprehensive program, including library services, art, vocal and instrumental music, computer-assisted instruction, and special education. Curriculum is developed cooperatively by teachers throughout the district.

McPherson Middle School, grades 6-8, offers a broad program of academic and elective exploratory courses. Middle school regular education classes average 23 students. Activities in drama, student government, and athletics are provided for students.

McPherson High School, grades 9-12, offers a strong college preparatory program as well as vocational education and career planning services. The average regular education class size at McPherson High School is 22 students. A

wide selection of co-curricular and extracurricular programs is available for students.

All McPherson USD 418 schools are fully accredited by the Kansas State Board of Education under the Quality Performance Accreditation system.

All McPherson schools have achieved adequate yearly progress as defined under the No Child Left Behind law.

2010-2011 Student Enrollment

Table 3.11.1 is the 2010-2011 student enrollment for USD 418 as of September 20, 2010.

Table 3.11. 1 – USD 418 Student Enrollment

School	Pre-K	K	1	2	3	4	5	6	7	8	9	10	11	12	SCHOOL TOTAL
Eisenhower Elementary	15	37	43	37	44	48	41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	265
Lincoln Elementary	33	38	48	36	48	50	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	292
Roosevelt Elementary	17	62	59	56	49	42	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	335
Washington Elementary	16	39	39	36	40	41	38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	249
McPherson Middle School	N/A	N/A	N/A	N/A	N/A	N/A	N/A	169	188	166	N/A	N/A	N/A	N/A	523
McPherson High School	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	181	189	189	186	745
DISTRICT TOTAL	81	176	189	165	181	181	168	169	188	166	181	189	189	186	2409

Regulatory Tools

This section will identify an inventory of regulatory tools available to McPherson USD 418. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.11.2 identifies the regulatory tools for the school district.

Table 3.11. 2 – USD 418 Regulatory Tools

Regulatory Tools	Year Adopted	Comments
Master Plan	N/A	N/A
Capital Improvement Plan	YEARLY	5 YEAR PLAN
Emergency Plan Includes: • Shelter In Place Protocols • Evacuation Protocols • Sample Collection Protocols • Chain Of Custody Protocols • Site Security Protocols • Special Event Emergency Plan • Communicable Disease Containment Plan	2002	SAFETY MEETING CONDUCTED FOUR TIMES PER YEAR.
Weapons Policy	N/A	PART OF STUDENT HANDBOOK
Maximum Occupancy Policy	N/A	N/A

Regulatory Tools	Year Adopted	Comments
Critical Facilities have Been: • Identified/designated • Inventoried • Mapped • Assessed for risks/security	N/A	N/A

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that McPherson USD 418 identified that may affect their institutions.

Table 3.11. 3 – USD 418 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	
Dam and Levee Failure	3	
Drought	3	
Earthquake	3	
Expansive Soils	2	
Extreme Temperatures	2	
Flood	1	IN 2004, THE BASEMENT OF MCPHERSON MIDDLE SCHOOL (MMS) EXPERIENCED FLOODING DUE TO A BROKEN WATER LINE. MARCH 2010 A SNOW STORM LEFT 13 INCHES OF SNOW THAT BEGAN TO MELT IMMEDIATELY CAUSING ROOF DRAINS TO PLUG UP WITH SLUSH AND THE BACK PART OF THE MMS ON THE 1ST FLOOR FLOODED. THE EVENT CAUSED DAMAGE TO THE CEILING AND FLOOR. ANOTHER WATER PIPE BROKE IN JANUARY 2010 AT THE MMS BROKE DUE TO THE COLD RESULTING IN A FLOOD.
Fog	3	
Hailstorm	1	THE MCPHERSON HIGH SCHOOL HAD OVER $100,000 IN HAIL DAMAGE TO THE ROOF IN SUMMER OF 2005
Hazardous Materials	2	
Land Subsidence	2	WATER PIPE BROKE FROM SOIL MOVEMENT FLOODING BASEMENT AT MMS
Landslide	3	
Lightning	1	IN JANUARY 2005, A LIGHTNING STRIKE CAUSED DAMAGE AT THE PARK WAREHOUSE. JULY 2010 LIGHTNING CAUSED DAMAGE TO WASHINGTON ELEMENTARY SCHOOL'S FIRE AND SECURITY SYSTEM. AUGUST 2010 MCPHERSON HIGH SCHOOL AND EISENHOWER ELEMENTARY HVAC CONTROL SYSTEMS AND SECURITY SYSTEMS SUSTAINED DAMAGE AS THE RESULT OF LIGHTNING.
Major Disease Outbreak	2	
Radiological	2	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	2	
Tornado	1	
Utility/Infrastructure Failure	1	ELECTRICAL SUPPLY SURGES
Wildfire/Urban Fire	3	
Windstorm	1	

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Winter Storm	1	IN 2007 A SEVERE ICE STORM CAUSED OVER $13,000 IN PROPERTY DAMAGE. MARCH 2010 A SNOW STORM LEFT 13 INCHES OF SNOW THAT BEGAN TO MELT IMMEDIATELY CAUSING ROOF DRAINS TO PLUG UP WITH SLUSH AND THE BACK PART OF THE MMS ON THE 1ST FLOOR FLOODED. THE EVENT CAUSED DAMAGE TO THE CEILING AND FLOOR. A WATER PIPE BROKE IN JANUARY 2010 AT THE MMS BROKE DUE TO THE COLD RESULTING IN A FLOOD.

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.11.4 identifies the vulnerable sites in the McPherson USD 418 district.

Table 3.11. 4 – USD 418 Vulnerable Sites

Name of Building	Address	Building Estimated Replacement Cost	Contents Estimated Replacement Cost
EARLY CHILDHOOD CENTER	1200 EAST KANSAS AVENUE, MCPHERSON, KS	$51,345	N/A
EISENHOWER ELEMENTARY	301 EAST WICKERSHAM DRIVE, MCPHERSON, KS	$6,908,700	$1,435,035
LINCOLN ELEMENTARY	900 NORTH ASH, MCPHERSON, KS	$5,971,800	$1,202,275
ROOSEVELT ELEMENTARY	800 SOUTH WALNUT, MCPHERSON, KS	$5,365,800	$1,073,160
WASHINGTON ELEMENTARY	128 NORTH PARK, MCPHERSON, KS	$7,161,700	$1,432,300
MCPHERSON MIDDLE SCHOOL	700 EAST ELIZABETH, MCPHERSON, KS	$13,841,800	$2,768,300
WAREHOUSE	212 NORTH ELM STREET, MCPHERSON, KS	$2,874,500	$574,900
MCPHERSON HIGH	801 EAST FIRST STREET, MCPHERSON, KS	$20,624,500	$4,124,900
VO-TECH	801 EAST 1ST STREET, MCPHERSON, KS	$731,700	$300,825
AUTO VO-TECH	801 EAST 1ST STREET, MCPHERSON, KS	$253,890	$66,150
DISTRICT OFFICE	514 NORTH MAIN STREET, MCPHERSON, KS	$756,735	$330,750
OFFICES	520 NORTH MAIN STREET, MCPHERSON, KS	$23,520	$6,615
INFANT TODDLER CENTER	1106 HOSPITAL DRIVE, MCPHERSON, KS	$36,225	N/A
WAREHOUSE	801 WEST WOODSIDE STREET, MCPHERSON,KS	$91,140	$133,665
SCIENCE CENTER	N/A	$3,308	N/A
BUS BARN	301 GILDERSLEEVE STREET, MCPHERSON,KS	$10,080	N/A
EARLY CHILDHOOD CENTER	210 NORTH 6TH STREET, CANTON, KS	$40,110	N/A

Public Safety Information

Table 3.11.5 identifies the public safety information for the school district.

Table 3.11. 5 – USD 418 Public Safety Information

Area	Sufficiently Staffed Minimally Staffed Community Assets	Equipment Sufficiently Minimally Equipped Not Equipped	Response Time (estimated) On Call 24/7
Police	Community Assets	Minimally Equipped	On Call 24/7 ETA 5 MINUTES IF NOT BUSY
Fire			
Emergency Medical Services			
Environmental Health & Safety			

Personnel Information

This section will identify the personnel resources available to McPherson USD 418. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.11.6 identifies personnel resources for USD 418.

Table 3.11. 6 –USD 418 Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	ALL STUDENT POPULATED BUILDINGS HAVE A BUILDING ADMINISTRATOR
Emergency Manager	DIRECTOR OF OPERATIONS
Public Information Officer	SUPERINTENDENT & HIS APPOINTEE

Financial Resources

This section will identify the financial resources available to the school district. It is fundamental to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.11.7 identifies the financial resources for McPherson USD 418.

Table 3.11. 7 – USD 418 Financial Resources

Financial Resources	Year/Amount	Comments
Is Institution Self Insured? NO	2010-11/$78,242,768	INSURED THROUGH EMC INSURANCE COMPANIES
Capital Improvements Project Funding	$1,305,862	8 MILLS CAPITAL OUTLAY ANNUALLY
Local Funds (Percentage)	$4,444,099	LOCAL OPTION BUDGET 30%
General Obligation Bonds	$5,040,000	
State and Federal Funds	$13,602,285	GENERAL FUND

Past Mitigation Initiatives

The school district identified the past mitigation initiatives. The mitigation actions for McPherson USD 418 are listed below. Please complete the following table for Mitigation Actions put in place in the past.

Table 3.11. 8 – USD 418 Past Mitigation Initiatives

Mitigation Measures Implemented	Brief Explanation
Emergency Notification System	ALERT NOW
Evacuation Training for staff and students	YEARLY PRACTICE
Fire Safety inspection training for staff	MONTHLY INSPECTIONS
Security Training for staff and students	AT LEAST 4 TIMES PER YEAR OR MORE

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions McPherson USD 418 plans to adopt.

2010 Mitigation Actions	
Lead Agency: MCPHERSON USD 418	**Project Title:** HVAC & BUILDING FIRE DETECTION UPGRADE
Project Description: REPLACE OLD SIMPLEX FIRE PROTECTION SYSTEM WITH NEW SYSTEM	
Type of Project: PROPERTY PROTECTION	
Funding Description: CAPITAL OUTLAY	
Estimated Cost: $300,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	FIRE
Benefits (Losses Avoided): LIFE SAFETY AND AVOID COMPLETE LOSS OF BUILDING BY FIRE	**Completion Date:** PLANNED TO BE COMPLETED BY AUGUST 1, 2011
Plan for Implementation and Administration: REPLACE OLD SIMPLEX FIRE PROTECTION SYSTEM WITH NEW SYSTEM. LOOK INTO GRANT FUNDING TO ASSIST WITH FUNDING FOR PROJECT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MCPHERSON USD 418	**Project Title:** FEMA APPROVED SAFE ROOM
Project Description: LOOK INTO FUNDING FOR FEMA APPROVED SAFEROOMS FOR SCHOOL BUILDINGS IN THE DISTRICT	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/HMGP FUNDS	
Estimated Cost: $150,000 - $350,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LOSS OF HUMAN LIFE OR PERSONAL INJURY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: SECURE FUNDING SECURED THROUGH FEMA HMGP GRANT PROGRAM AND LOCAL FUNDS. CONSTRUCT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Canton-Galva USD 419			
Counties In Service Area	McPherson County	**Website Address:**	http://www.Canton-galva.k12.ks.us

Canton-Galva USD #419

109 South Main
P.O. Box 317
Canton, KS 67428-0317

Administrators

Superintendent	Bill Seidl	email: bseidl@usd419.org
Clerk Assistant	Terry Hett	email: thett@usd419.org
Clerk of the Board	Cheryl Boesker	email: cboesker@usd419.org

Canton-Galva USD 419 is located in Eastern McPherson County. The student enrollment has held steady over the last several years with approximately 400 students in attendance. There are three attendance centers in the district. Pre-Kindergarten through 3rd grade go to the Elementary building in Canton, 4th through 8th grade students attend the Middle School in Galva, and 9th through 12th grade students attend the High School in Canton.

The school district has achieved the Standard of Excellence Award in nine of the twelve categories on the Kansas State Assessment tests during the spring of 2005. All the students, grades 4 through 8 reached at least the basic level in all tests. The 4th grade had 100% of their students achieve proficient or better on the state math test. Canton-Galva High School students received medals in 11 of the 12 categories in the League Academic contest during the spring of 2005. The graduation rate at Canton-Galva High School is traditionally over 90%.

Canton-Galva USD 419

Open Buildings

Canton-Galva Elementary at Canton
210 North Sixth
Canton, KS 67428-0297
Building #: 6064
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 134
Building Type: Elementary
Year Built: 1959
Date Opened: 8/1/1959

Canton-Galva Middle School
116 S. Santa Fe
Box 96
Galva, KS 67443-0096
Building # 6070
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 126
Building Type: Elementary
Year Built: 1972
Date Opened: 8/1/1972

Canton-Galva High
506 South Kansas
Box 275
Canton, KS 67428-0275
Building #6066
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 126
Building Type: High School
Year Built: 1964
Date Opened: 8/1/1964

Regulatory Tools

This section will identify an inventory of regulatory tools available to Canton-Galva USD 419. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.12.1 identifies the regulatory tools for the school district.

Table 3.12. 1 – USD 419 Regulatory Tools

Regulatory Tools	Year Adopted	Comments
Master Plan	2007	UPDATED ANNUALLY
Capital Improvement Plan	2009	UPDATED ANNUALLY
Emergency Plan Includes: • Sample Collection Protocols • Chain Of Custody Protocols • Special Event Emergency Plan • Communicable Disease Containment Plan	N/A	OUTLINED IN STUDENT HANDBOOK
Weapons Policy	2009	UPDATED ANNUALLY
Maximum Occupancy Policy	N/A	

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that Canton-Galva USD 419 identified that may affect their institutions.

Table 3.12. 2 – USD 419 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	
Dam and Levee Failure	3	
Drought	2	HAVE EXPERIENCED DROUGHT CONDITIONS PERIODICALLY, 5-8 YEARS
Earthquake	3	
Expansive Soils	3	
Extreme Temperatures	2	
Flood	3	
Fog	2	
Hailstorm	2	
Hazardous Materials	3	
Land Subsidence	3	
Landslide	3	
Lightning	3	
Major Disease Outbreak	3	
Radiological	3	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	3	
Tornado	2	SPRING 2010, A TORNADO WARNING WAS ISSUED AT THE END OF THE SCHOOL DAY. SCHOOL DISTRICT HAD TO HOLD THE STUDENTS AND SOME PARENTS UNTIL 5:00 P.M. BECAUSE OF THE SITUATION

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Utility/Infrastructure Failure	2	SCHOOL DISTRICT HAS EXPERIENCED POWER OUTAGES BECAUSE OF THE WIND OR ICE
Wildfire/Urban Fire	3	
Windstorm	2	SCHOOL DISTRICT HAS EXPERIENCED STRAIGHT LINE WINDS THAT HAVE REACHED UP TO 80 MPH
Winter Storm	2	THE SCHOOL DISTRICT PLANS ON 4 SNOW DAYS EACH YEAR BECAUSE OF SNOW OR ICE

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.12.3 identifies the vulnerable sites in the Canton-Galva USD 419 school district.

Table 3.12. 3 – USD 419 Vulnerable Sites

Name of Building	Address	Value of Structure	Estimated Replacement Cost	Occupancy	Contents Value
CANTON-GALVA HIGH SCHOOL	506 SOUTH KANSAS, CANTON	$10,000,000	$12-15 MILLION	150	$2-3 MILLION
CANTON-GALVA MIDDLE SCHOOL	116 SOUTH SANTA FE, GALVA	$10,000,000	$12-15 MILLION	180	$2-3 MILLION
CANTON-GALVA ELEMENTARY SCHOOL	210 NORTH SIXTH STREET, CANTON	$8,000,000	$10 MILLION	165	$1.5 MILLION
CANTON-GALVA CENTRAL OFFICE	109 SOUTH MAIN, CANTON	$800,000	$800,000	3	$500,000

Personnel Information

This section will identify the personnel resources available to Canton-Galva USD 419. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.12.5 identifies personnel resources for USD 419.

Table 3.12. 4 – USD 419 Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	BUILDING PRINCIPAL IN ALL THREE SCHOOL BUILDINGS
Grant Writer	CONTRACTED THROUGH ESSDACK SERVICE CENTER
Public Information Officer	SUPERINTENDENT OF SCHOOLS

Financial Resources

This section will identify the financial resources available to the school district. It is fundamental to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.12.6 identifies the financial resources for Canton-Galva USD 419.

Table 3.12. 5 – USD 419 Financial Resources

Financial Resources	Comments
Is Institution Self Insured?	EMC DISTRICT INSURANCE - $20,000,000
Capital Improvements Project Funding	20 YEAR BOND ISSUE PAID OFF IN 2016
Local Funds (Percentage)	10%
General Obligation Bonds	BOND ISSUE
Private Activities/Donations	YES
State and Federal Funds	YES

Mapped Resources

The following table identifies the school district's mapped areas.

Table 3.12. 6 – USD 419 Mapped Resources

Facilities
Classroom buildings and conference sites – MAPS ARE AVAILABLE IN ALL 3 BUILDINGS
Communications and computer facilities
Offices
Libraries
Food Service
Parking Areas
Essential Services
Fire
Police
Emergency Communications
Critical Infrastructures
Roads
Water
Power
Communication
Wastewater Lines
Campus-related Facilities
Residential Areas
Local Fire Stations

Past Mitigation Initiatives

The school district identified the past mitigation initiatives. The mitigation actions for Canton-Galva USD 419 are listed below. Please complete the following table for Mitigation Actions put in place in the past.

Table 3.12. 7 – USD 419 past Mitigation Initiatives

Mitigation Measures Implemented	Local, State or Federal Funds (Was project paid for with disaster funds)	Brief Explanation
Informational programs on fire safety, household/family disaster preparedness, responsible water use, etc.	LOCAL FUNDS	FIRE DEPARTMENT AWARENESS WEEK
Evacuation Training for staff and students	LOCAL FUNDS	TRAINING FOR HIGH SCHOOL INVOLVING AN INTRUDER ON CAMPUS

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Canton-Galva USD 419 plans to adopt.

2010 Mitigation Actions	
Lead Agency: CANTON-GALVA USD 419	**Project Title:** ELEMENTARY SAFE ROOM
Project Description: USD 419 WOULD LIKE TO BUILD A FEMA APPROVED SAFE ROOM AT THE CANTON-GALVA ELEMENTARY BUILDING LOCATED AT 210 NORTH SIXTH STREET, CANTON	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/GRANT	
Estimated Cost: $400,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADO
Benefits (Losses Avoided): AVOID LOSS OF LIFE DUE TO DISASTER; PROTECT THE CHILDREN WHILE AT SCHOOL.	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR A FEMA APPROVED SAFE ROOM TO PROTECT THE CHILDREN IN CASE OF A DISASTER. HOLD DISCUSSION AT BOARD MEETINGS AND BUILDING MEETING WITH PARENTS TO EXPLAIN THE NEED AND RESULTS OF THE PROJECT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Moundridge USD 423			
Counties In Service Area	McPherson County	**Website Address:**	http://www.usd423.org

Moundridge USD 423

526 E Cole
Moundridge, KS 67107-0588

Administrators:

S	Mr. Chad Higgins	email: higginsc@usd423.org
DQPA	Ms. JoAnn Browne	email: MESprincipal@usd423.org
TC	Mr. Brandon Friesen	email: techcontact@usd423.org
BC	Mrs. Kylie Goering	email: goeringk@usd423.org
LPRC	Mrs. Kylie Goering	email: goeringk@usd423.org

Open Buildings

Moundridge Elementary
207 South Drucilla
Box F
Moundridge, KS 67107-0583
Building #: 6140
Current Accreditation Status: Accredited
2009-10Total Enrollment: 130
Building Type: Elementary
Year Built: 1956
Date Opened: 8/1/1956

Moundridge Middle
530 East Cole
Box 607
Moundridge, KS 67107-0607
Building # 6146
Current Accreditation Status: Accredited
2009-10 Total Enrollment: 150
Building Type: Middle School
Year Built: 1976
Date Opened: 8/1/1976

Moundridge High
526 East Cole
Box 610
Moundridge, KS 67107-0610
Building #6142
Current Accreditation Status: Accredited
2009-10 Total Enrollment: 152
Building Type: High School
Year Built: 1965
Date Opened: 8/1/1965

Regulatory Tools

This section will identify an inventory of regulatory tools available to Moundridge USD 423. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.13.1 identifies the regulatory tools for the school district.

Table 3.13. 1 – USD 423 Regulatory Tools

USD 423 Regulatory Tools	
Capital Improvement Plan	Critical Facilities have Been: • Identified/designated • Inventoried • Mapped • Assessed for risks/security
Weapons Policy	
Maximum Occupancy Policy	

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that Moundridge USD 423 identified that may affect their institutions.

Table 3.13. 2 – USD 423 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	1	AGRICULTURAL INFESTATION IS A SIGNIFICANT HAZARD TO MCPHERSON COUNTY BUT DOES NOT DIRECTLY AFFECT USD 423. HOWEVER, IT DOES AFFECT THE ECONOMY IN THE DISTRICT AREA. THEREFORE, IT AFFECTS THE SCHOOL DISTRICT INDIRECTLY.
Dam and Levee Failure	3	
Drought	1	DROUGHT IS ALSO A SIGNIFICANT HAZARD TO MCPHERSON COUNTY BUT DOES NOT DIRECTLY AFFECT USD 423. HOWEVER, IT DOES AFFECT THE ECONOMY IN THE DISTRICT AREA. THEREFORE, IT AFFECTS THE SCHOOL DISTRICT INDIRECTLY.
Earthquake	3	
Expansive Soils	3	
Extreme Temperatures	2	EXTREME TEMPERATURES ARE A CONCERN FOR THE SCHOOL DISTRICT DUE TO THE CHILDREN THAT HAVE TO WAIT IN THE COLD AIR FOR THE SCHOOL BUS
Flood	2	
Fog	2	
Hailstorm	1	THIS PAST SUMMER USD 423 HAD TO REPAIR THE MAIN CAMPUS BUILDING ROOF AND GREER AS THE RESULT OF A HAILSTORM
Hazardous Materials	1	THERE ARE HAZARDOUS MATERIALS ON SITE
Land Subsidence	3	
Landslide	3	
Lightning	2	THERE HAVE BEEN EXTENDED POWER OUTAGES AS A RESULT OF LIGHTNING
Major Disease Outbreak	3	
Radiological	3	
Soil Erosion and Dust	2	
Terrorism/Agro - Terrorism/Civil Disorder	3	
Tornado	1	BUS ROUTE RECALL AND SHELTER PLACEMENT IS A CONCERN
Utility/Infrastructure Failure	1	USD 423 HAS EXPERIENCED POWER FAILURE 2-3 TIMES OVER THE PAST 16 MONTHS
Wildfire/Urban Fire	3	
Windstorm	2	
Winter Storm	2	

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.13.3 identifies the vulnerable sites in the Moundridge USD 423 school district.

Table 3.13. 3 – USD 423 Vulnerable Sites

Name of Building	Address	Estimated Replacement Cost	Size of Building (Sq. Ft.)	Contents Value
MOUNDRIDGE MIDDLE SCHOOL/HIGH SCHOOL/DISTRICT OFFICE	526 EAST COLE STREET	$14,191,297	115,000	$2,400,584
MOUNDRIDGE ELEMENTARY SCHOOL	207 SOUTH DRUCILLA	$4,233,889	36,600	$320,387
GREER GYM	316 EAST COLE STREET	$2,094,112	18,750	$46,305

Public Safety Information

The following table identifies the assets available to the school district.

Table 3.13. 4 – USD 423 Public Safety Information

Area	Sufficiently Staffed Minimally Staffed Community Assets	Sufficiently Equipped Minimally Equipped Not Equipped	Response Time (estimated) On Call 24/7
Police	COMMUNITY ASSETS	SUFFICIENTLY EQUIPPED	5 MINUTES
Fire	COMMUNITY ASSETS	SUFFICIENTLY EQUIPPED	5 MINUTES
Emergency Medical Services	COMMUNITY ASSETS	SUFFICIENTLY EQUIPPED	5 MINUTES
Environmental Health & Safety	COMMUNITY ASSETS	N/A	N/A
Risk Management	COMMUNITY ASSETS	N/A	N/A

Personnel Information

This section will identify the personnel resources available to Moundridge USD 423. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.13.5 identifies personnel resources for USD 423.

Table 3.13. 5 – USD 423 Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	SUPERINTENDENT
Grant Writer	CONTRACTED
Public Information Officer	SUPERINTENDENT

Financial Resources

This section will identify the financial resources available to the school district. It is fundamental to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.13.6 identifies the financial resources for Moundridge USD 423.

Table 3.13. 6 – USD 423 Financial Resources

Financial Resources	Year/Amount	Comments
Is Institution Insured?	CURRENT	
Capital Improvements Project Funding	ANNUAL/$150,000	CAPITAL OUTLAY LEVY
Local Funds (Percentage)	100%	

Financial Resources	Year/Amount	Comments
General Obligation Bonds	2007/$3,000,000	
State and Federal Funds	ANNUAL/$4,300,000	

Mapped Resources

The following table identifies the school district's mapped areas.

Table 3.13. 7 – USD 423 Mapped Resources

Facilities
Classroom buildings and conference sites
Parking Areas

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Moundridge USD 423 plans to adopt.

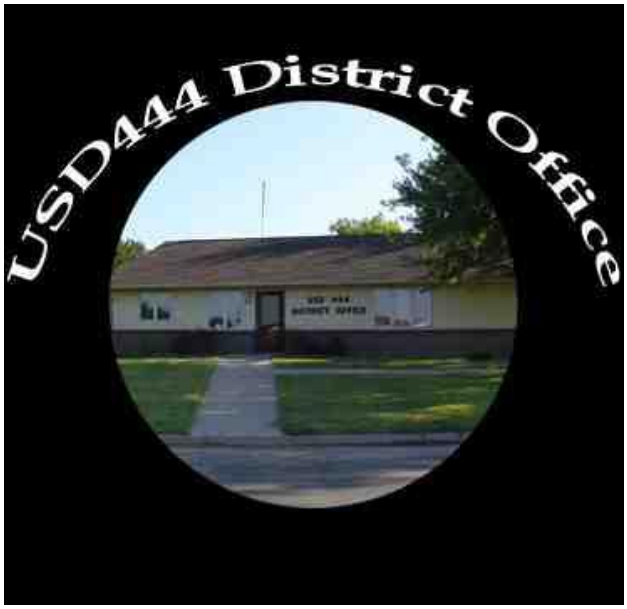
2010 Mitigation Actions	
Lead Agency: MOUNDRIDGE USD 423	**Project Title:** EMERGENCY BACKUP GENERATORS
Project Description: LOOK INTO FUNDING FOR THE PURCHASE OF EMERGENCYBACKUP GENERATORS TO ENSURE CONTINUITY OF OPERATIONS DURING TIMES OF POWER FAILURE	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL/GRANT	
Estimated Cost: $10,000-$15,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): BENEFIT: CONTINUITY OF OPERATION AVOID: LOSS OF POWER	**Completion Date:** WITHIN NEXT 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR THE PURCHASE OF EMERGENCYBACKUP GENERATORS TO ENSURE CONTINUITY OF OPERATIONS DURING TIMES OF POWER FAILURE, PURCHASE AND INSTALL GENERATOR	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: MOUNDRIDGE USD 423	**Project Title:** COMMUNICATION SYSTEM PROJECT
Project Description: INSTALL NEW COMMUNICATION SYSTEM TO INCLUDE RADIOS FOR VEHICLES AND SCHOOLS AS WELL AS A NEW INTRA-SCHOOL SYSTEM (INTERCOM) FOR ALL BUILDINGS	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL/GRANT	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): BENEFIT: ALL STAFF WILL BE BETTER INFORMED	**Completion Date:** WITHIN NEXT 5 YEARS
Plan for Implementation and Administration: LOOK INTO FUNDING FOR THE PURCHASE OF COMMUNICATION SYSTEM TO INCLUDE RADIOS FOR VEHICLES AND SCHOOLS AS WELL AS A NEW INTRA-SCHOOL SYSTEM (INTERCOM) FOR ALL BUILDINGS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Little River USD 444			
Counties In Service Area	McPherson & Rice County	**Website Address:**	http://www.usd444.com



Little River USD 444
526 E Cole
Windom, KS 67107-0588

Administrators:

Superintendent	Dr. Milt Dougherty	email: mdougherty@usd444.com
Windom Principal	Jon Paden	email: jpaden@usd444.com
Little River Jr/Sr High Principal	Dawn Johnson	email: djohnson@usd444.com
District Clerk of the Board	Marsha Heinly	
Board Treasurer	Julie Stephenson	
District Technology Coordinator	Fred Howie Jr.	

Open Buildings

Windom Elementary
101 East Olive Avenue
Box 67
Windom, KS 67491-0067
Building #: 6734
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 148
Building Type: Elementary
Year Built: 1954
Date Opened: 8/1/1954
Date Closed: Open

Little River Junior High
430 Waverly
Box 8
Little River, KS 67457-0008
Building # 6726
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 74
Building Type: Middle School
Year Built: 1937
Date Opened: 8/1/1937
Date Closed: Open

Little River High
430 Waverly
Box 8
Little River, KS 67457-0008
Building #6728
Current Accreditation Status: Accredited
Total Enrollment 2009-2010:86
Building Type: High School
Year Built: 1937
Date Opened: 8/1/1937

2010-2011 Student Enrollment

There are 350 students enrolled in the school district for the 2010-2011 school year.

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that Little River USD 444 identified that may affect their institutions.

Table 3.14. 1 – USD 444 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	USD 444 has not been affected by hazard
Dam and Levee Failure	3	USD 444 has not been affected by hazard
Drought	3	USD 444 has not been affected by hazard
Earthquake	3	USD 444 has not been affected by hazard
Expansive Soils	3	USD 444 has not been affected by hazard
Extreme Temperatures	2	School activities are occasionally affected by the extreme winter temperatures
Flood	3	USD 444 has not been affected by hazard
Fog	2	Fog is always a concern for the school buses
Hailstorm	2	Hail is also a concern because of school buses as well as children waiting at bus stops
Hazardous Materials	3	USD 444 has not been affected by hazard
Land Subsidence	3	USD 444 has not been affected by hazard
Landslide	3	USD 444 has not been affected by hazard
Lightning	3	Lightning storms are concerning when school children are waiting for buses
Major Disease Outbreak	2	USD 444 has not experienced any major disease outbreaks but it is always a concern
Radiological	3	USD 444 has not been affected by hazard
Soil Erosion and Dust	3	USD 444 has not been affected by hazard
Terrorism/Agro - Terrorism/Civil Disorder	3	USD 444 has not been affected by hazard
Tornado	2	USD 444 has not experienced any damage as a result of a tornado but it is always a concern
Utility/Infrastructure Failure	3	USD 444 has not been affected by hazard
Wildfire/Urban Fire	3	USD 444 has not been affected by hazard
Windstorm	3	USD 444 has not been affected by hazard
Winter Storm	2	School had to be closed a couple of years ago but there was no damage

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.14.3 identifies the vulnerable sites in the Little River USD 444 school district.

Table 3.14. 2 – USD 444 Vulnerable Sites

Name of Building	Address	Estimated Replacement Cost
District Office	455 W. Prairie, Little River, KS 67457	$123,991
District Office Garage	455 W. Prairie, Little River, KS 67457	$26,985
Little River School	430 Waverly, Little River, KS 67457	$8,449,247
Bus Garage	425 Waverly, Little River, KS 67457	$129,389
Concession Stand	444 E. Walker, Little River, KS 67457	$70,833
Storage Shed	444 E. Walker, Little River, KS 67457	$10,500
Little River Learning Center	315 W. Prairie, Little River, KS 67457	$385,875
Windom Elementary School	101 E. Olive Avenue, Windom, KS 67491	$3,288,039
Windom Elementary School Shop & Storage	101 E. Olive Avenue, Windom, KS 67491	$21,000

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Little River USD 444 plans to adopt.

2010 Mitigation Actions	
Lead Agency: LITTLE RIVER USD 444	**Project Title:** FEMA APPROVED SAFE ROOM
Project Description: LOOK INTO FUNDING FOR FEMA APPROVED SAFEROOMS FOR SCHOOL BUILDINGS IN THE DISTRICT	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/HMGP FUNDS	
Estimated Cost: $150,000 - $350,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LOSS OF HUMAN LIFE OR PERSONAL INJURY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: SECURE FUNDING SECURED THROUGH FEMA HMGP GRANT PROGRAM AND LOCAL FUNDS. CONSTRUCT	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: LITTLE RIVER USD 444	**Project Title:** PUBLIC AWARENESS
Project Description: CONTINUE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON HAZARDS	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS CAMPAIGNS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Inman USD 448			
Counties In Service Area	McPherson County	**Website Address:**	http://www.usd448.com/Inman-Schools.html

Inman USD 448
119 South Main
Box 129
Inman, KS 67456

Administrators:

Superintendent	Mr. Kevin E. Case	email: kcase@usd448.com
Clerk of the Board	Mr. Scott Schriner	email: sschriner@usd448.com
Secretary/Treasurer	Donna Maurer	email: dmaurer@usd448.com
Secretary	Nancy Oard	email: noard@usd448.com

Open Buildings

Inman Elementary
101 East Olive Avenue
207 North Maple
PO Box 277
Inman, KS 67456
Building #: 6896
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 233
Building Type: Elementary
Year Built: 1954
Date Opened: 8/1/1954
Date Closed: Open

Inman Junior/Senior High
404 South Main
PO Box 279
Inman, KS 67456
Building # 6898
Current Accreditation Status: Accredited
Total Enrollment 2009-2010: 74
Building Type: High School
Year Built: 1929
Date Opened: 8/1/1929
Date Closed: Open

Regulatory Tools

This section will identify an inventory of regulatory tools available to Inman USD 448. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.15.1 identifies the regulatory tools for the school district.

Table 3.15. 1 – USD 448 Regulatory Tools

Regulatory Tools	Year Adopted	Comments
Hazard Waste & Disposal Policy	DECEMBER 13, 1990	REVISED FEBRUARY 17, 1992
Blood Borne Pathogen Exposure Control Plan	OCTOBER 18, 1993	N/A
Weapons Policy	JULY 17, 1995	REVISED AUGUST 13, 2001
Drug Policy	NOVEMBER 16, 2009	N/A
Communicable Diseases Policy	DECEMBER 13, 1984	REVISED NOVEMBER 16, 2009

Hazards That May Impact the Institution

Each school district indentified the threat level for each hazard that may affect the district. The table below is the hazards that Inman USD 448 identified that may affect their institutions.

Table 3.15. 2 – USD 448 Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects or Concerns
Agricultural Infestation	3	
Dam and Levee Failure	3	
Drought	3	
Earthquake	3	
Expansive Soils	3	
Extreme Temperatures	2	THIS HAZARD IS CONCERNING FOR THE KIDS THAT HAVE TO WAIT FOR BUSES TO BE TRANSPORTED
Flood	3	
Fog	2	CONCERN FOR TRANSPORTATION DANGER
Hailstorm	2	POTENTIAL DAMAGE TO BUILDING AND BUSES
Hazardous Materials	3	PLAN IN PLACE FOR HAZARD WASTE & DISPOSAL
Land Subsidence	3	
Landslide	3	
Lightning	2	CONCERN DUE TO KIDS WAITING FOR BUSES AND BECAUSE OF ELECTRONIC EQUIPMENT LOCATED IN SCHOOL BUILDINGS
Major Disease Outbreak	3	POLICY IN PLACE FOR COMMUNICABLE DISEASES
Radiological	3	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	3	
Tornado	1	SCHOOL DISTRICT CURRENTLY DOES NOT HAVE FEMA APPROVED SHELTER
Utility/Infrastructure Failure	2	CONCERN FOR LOSS OF POWER AND USE OF TECHNOLOGY
Wildfire/Urban Fire	3	

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects or Concerns
Windstorm	2	CONCERN FOR LOSS OF POWER AND USE OF TECHNOLOGY
Winter Storm	1	CONCERN FOR TRANSPORTING STUDENTS SAFELY

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located within the school district.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.15.3 identifies the vulnerable sites in the Inman USD 448 school district.

Table 3.15. 3 – USD 448 Vulnerable Sites

Name of Building	Address	Estimated Replacement Cost	Occupancy	Size of Building (Sq. Ft.)	Contents Value
INMAN ELEMENTARY SCHOOL	207 NORTH MAPLE	$7,797,000	400	46,606	$1,947,000
INMAN HIGH SCHOOL	400 SOUTH MAIN	$13,919,000	1350	128,909	$3,525,000
PLAY AREAS AT HIGH SCHOOL	400 SOUTH MAIN	$50,000	N/A	N/A	N/A
BALLFIELDS AT HIGH SCHOOL	400 SOUTH MAIN	$60,000	N/A	N/A	N/A

Personnel Information

This section will identify the personnel resources available to Inman USD 448. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.15.5 identifies personnel resources for USD 448.

Table 3.15. 4 – USD 448 Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	PRINCIPALS
Grant Writer	CONTRACTED THROUGH ESSDACK – SERVICE CENTER
Public Information Officer	SUPERINTENDENT/PRINCIPAL

Financial Resources

This section will identify the financial resources available to the school district. It is fundamental to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.15.6 identifies the financial resources for Inman USD 448.

Table 3.15. 5 – USD 448 Financial Resources

Financial Resources	Comments
Is Institution Self Insured?	INSURED THROUGH EMC
Capital Improvements Project Funding	CAPITAL OUTLAY BALANCE $425,000
General Obligation Bonds	$1,310,000 OUTSTANDING OF $4,000,000

Financial Resources	Comments
State and Federal Funds	$92,000 YEARLY – TITLE 1 FEDERAL RESOURCES

Mapped Resources

Table 3.15.6 identifies the school district's mapped areas. Figure 3.15.1 identifies the school district boundaries.

Table 3.15. 6 – USD 448 Mapped Resources

Facilities
Classroom buildings and conference sites
Offices
Libraries
Food Service
Parking Areas

Figure 3.15. 1 – Inman Unified School District 448 Boundaries

Past Mitigation Initiatives

The school district identified the past mitigation initiatives. The mitigation actions for Inman USD 448 are listed below. Please complete the following table for Mitigation Actions put in place in the past.

Table 3.15. 7 – USD 448 Past Mitigation Initiatives

Mitigation Measures Implemented	Year	Brief Explanation
Evacuation Training for staff and students	2010	CONDUCTED EVACUATION DRILL AT INMAN ELEMENTARY SCHOOL IN OCTOBER, 2010

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Inman USD 448 plans to adopt.

2010 Mitigation Actions	
Lead Agency: INMAN USD 448	**Project Title:** EMERGENCY NOTIFICATION SYSTEM
Project Description: USD 448 IS CURRENTLY IN THE PROCESS OF LOOKING INTO AN EMERGENCY NOTIFICATION SYSTEM TO HELP MORE EFFECTIVELY COMMUNICATE WITH THE GENERAL POPULAITON IN THE EVENT OF AN EMERGENCY	
Type of Project: EMERGENCY SERVICES	
Funding Description: LOCAL FUNDS	
Estimated Cost: $1,500	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): POPULATION WILL BE INFORMEDDURING EMERGENCY INCIDENTS	**Completion Date:** JANUARY 1, 2011
Plan for Implementation and Administration: CURRENTLY IN DISCUSSION PHASE OF PLANNING & IMPLEMENTING	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

2010 Mitigation Actions	
Lead Agency: INMAN USD 448	**Project Title:** FEMA APPROVED SAFE ROOM
Project Description: LOOK INTO FUNDING FOR FEMA APPROVED SAFEROOMS FOR SCHOOL BUILDINGS IN THE DISTRICT	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/HMGP FUNDS	
Estimated Cost: $150,000 - $350,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LOSS OF HUMAN LIFE OR PERSONAL INJURY	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: SECURE FUNDING SECURED THROUGH FEMA HMGP GRANT PROGRAM AND LOCAL FUNDS. BEGIN CONSTRUCTION.	

STAPLEE Criteria	Yes/No
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: McPherson College
Website Address: http://www.mcpherson.edu/

McPherson College
1600 East Euclid
McPherson, Kansas 67460

History

Chartered in 1887 by leaders of the Church of the Brethren, McPherson College has a distinguished history of providing excellent liberal arts and career-oriented education shaped by the essential values of its founding denomination. The College welcomes students of all cultural, economic and religious backgrounds.

McPherson College has redefined the traditional liberal arts education by engaging students in a career-oriented curriculum that incorporates real-life experiences to supplement and complement classroom learning. We care about what happens to you after graduation. Through internships, international travel and interdisciplinary studies, athletics and special interest groups, our students experience an educational setting unlike any other. Regardless of their academic majors, our students explore – they step outside their own experiences and their own cultures as they prepare for the ever-changing world in which they will live and work. Our focus on "career" prepares students to earn a living while our liberal arts foundation prepares them for life.

Approximately 550 Students from 33 states and 6 foreign countries are enrolled at McPherson College, providing a diverse and welcoming community.

As a member of the North Central Association, McPherson College is accredited by the Higher Learning Commission (HLC Self Study.pdf). Our teacher education program is certified by the Kansas State Department of Education and the National Council for Accreditation of Teacher Education. The College holds numerous memberships with other professional agencies and organizations.

Regulatory Tools

This section will identify an inventory of regulatory tools available to McPherson College. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.16.1 identifies the regulatory tools for the college.

Table 3.16. 1 – McPherson College Regulatory Tools

Regulatory Tools	Yes/No	Comments
Master Plan	YES	IN PROCESS OF DEVELOPING
Emergency Plan Includes: • Shelter In Place Protocols • Evacuation Protocols • Sample Collection Protocols • Chain Of Custody Protocols • Site Security Protocols • Special Event Emergency Plan • Communicable Disease Containment Plan	YES	IN PROCESS OF DEVELOPING EMERGENCY PLAN
Critical Facilities have Been: • Identified/designated • Inventoried • Mapped • Assessed for risks/security	YES	CRITICAL FACILITIES ARE IN THE PROCESS OF BEING INDENTIFIED, MAPPED, AND ASSESSED FOR RISKS

Hazards That May Impact the Institution

Each college ranked each hazard and provided information on the hazards that may affect the college. The table below is the hazards that McPherson College identified that may affect their institutions.

Table 3.16. 2 – McPherson College Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	
Dam and Levee Failure	3	NO PERCEIVED THREAT
Drought	3	
Earthquake	3	
Expansive Soils	3	NO PERCEIVED THREAT
Extreme Temperatures	2	HAVE HAD TO TREAT CAMPUS PERSONNEL AND STUDENTS IN THE PAST FOR EXTREME HEAT
Flood	3	
Fog	3	
Hailstorm	1	THE COLLEGE HAS EXPERIENCED DAMAGE TO ROOFS, VEHICLES, AND WINDOWS AS A RESULT OF HAILSTORMS IN THE PAST
Hazardous Materials	2	THE COLLEGE HAS EXPERIENCED HAZARDOUS MATERIALS INCIDENTS IN THE LABS AND THE NCRA OIL REFINERY IS IN TOWN. THEREFORE, IT IS A CONCERN THAT THEY COULD HAVE AN INCIDENT CAUSING EVACUATION.
Land Subsidence	3	NO PERCEIVED THREAT
Landslide	3	NO PERCEIVED THREAT
Lightning	1	LIGHTNING HAS CAUSED DAMAGE TO COMPUTER SYSTEMS IN THE PAST
Major Disease Outbreak	2	HAVE HAD TO TREAT STUDENTS FOR INFLUENZA IN THE PAST

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Radiological	3	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	2	
Tornado	1	TORNADO IS A CONCERN BECAUSE OF DAMAGE TO PROPERTY AND CARING FOR THE INJURED
Utility/Infrastructure Failure	1	COLLEGE HAS EXPERIENCED INTERUPTION OF COMPUTER SERVICES AS A RESULT OF POWER FAILURE
Wildfire/Urban Fire	2	
Windstorm	3	
Winter Storm	2	

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located on each college campus.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.16.3 identifies the vulnerable sites on the McPherson College campus.

Table 3.16. 3 – McPherson College Vulnerable Sites

Name of Building	Address	Value of Structure	Occupancy	Size of Building (Sq. Ft.)	Contents Value
BEEGHLY HALL	1701 GORDON	$981,727	OFFICE	8,100	$94,125
MILLER LIBRARY	1519 E. EUCLID	$5,255,652	LIBRARY	37,946	$3,965,855
HESS FINE ARTS CENTER	1705 GORDON	$3,077,417	OFFICE & CLASSROOM	39,390	$823,835
MELHORN SCIENCE HALL	315 N LEHMER	$7,729,223	OFFICE & CLASSROOM	43,031	$8,891,523
FURNAS FACILITY MANAGEMENT	320 N LEHMER	$981,727	MAINTENANCE	6,126	$208,100
FORNEY HALL	1725 E. EUCLID	$300,419	HEATING PLANT	1,856	$306,919
MOHLER HALL	1600 E. EUCLID	$2,649,054	OFFICE & CLASSROOM	22,515	$2,996,654
SPORTS CENTER	325 ESHELMAN	$5,022,367	GYMNASIUM	44,197	$5,158,467
MORRISON HALL	1811 GORDON	$1,178,073	DORMITORY	12,006	$1,287,273
BITTINGER HALL	1812 E. EUCLID	$1,178,073	DORMITORY	12,006	$1,287,273
MCPHERSON STADIUM	438 ESHELMAN	$3,019,228	STADIUM	9,270	$3,085,828
HOFFMAN STUDENT UNION	1605 GORDON	$2,240,816	CAFETERIA & STUDENT UNION	13,736	$2,339,116
BROWN/FRIENDSHIP/MINGENBACK	1608 E. EUCLID	$5,240,195	THEATER	24,831	$6,142,895
METZLER HALL	1808 E. EUCLID	$3,216,850	DORMITORY	33,456	$3,349,950
DOTZOUR HALL	1515 GORDON	$4,327,926	DORMITORY	38,308	$4,426,226
TEMPLETON HALL	1809 E. EUCLID	$2,735,969	AUTO RESTORATION	39,792	$2,945,369
PRESIDENT'S HOUSE	1000 E. EUCLID	$565,432	RESIDENCE	3,000	$615,432
MAC SHACK	CAMPUS	$40,751	STORAGE	1,459	$40,751
GAZEBO	CAMPUS	$39,524	N/A	359	$39,524
BAER ST. APARTMENT	431 N BAER	$140,000	MULTI-FAMILY RESIDENCE	N/A	$148,000
BAER ST. APARTMENT	441 N BAER	$140,000	MULTI-FAMILY RESIDENCE	N/A	$148,000

Name of Building	Address	Value of Structure	Occupancy	Size of Building (Sq. Ft.)	Contents Value
HARNLY GARDEN	CAMPUS	$109,790	N/A	N/A	$109,790
CHILLER UNIT	CAMPUS	N/A	UTILITIES	N/A	$353,381
ELECTRICAL SYSTEM	CAMPUS	N/A	UTILITIES	N/A	$152,611
CAMPUS LIGHTING	CAMPUS	N/A	UTILITIES	N/A	$83,607
TOTAL					**$49,000,504**

Public Safety Information

The following table identifies the assets available to the college.

Table 3.16. 4 – McPherson College Public Safety Information

Area	Sufficiently Staffed Minimally Staffed Community Assets	Response Time (estimated) On Call 24/7
Police	SUFFICIENT	LESS THAN 5 MINUTES
Fire	SUFFICIENT	LESS THAN 5 MINUTES
Emergency Medical Services	SUFFICIENT	LESS THAN 5 MINUTES

Personnel Information

This section will identify the personnel resources available to McPherson College. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.16.5 identifies personnel resources for the college.

Table 3.16. 5 – McPherson College Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	ON-CALL MAINTENANCE TECHNICIAN
Emergency Manager	IN PROGRESS OF DEVELOPING POSITION

Mapped Resources

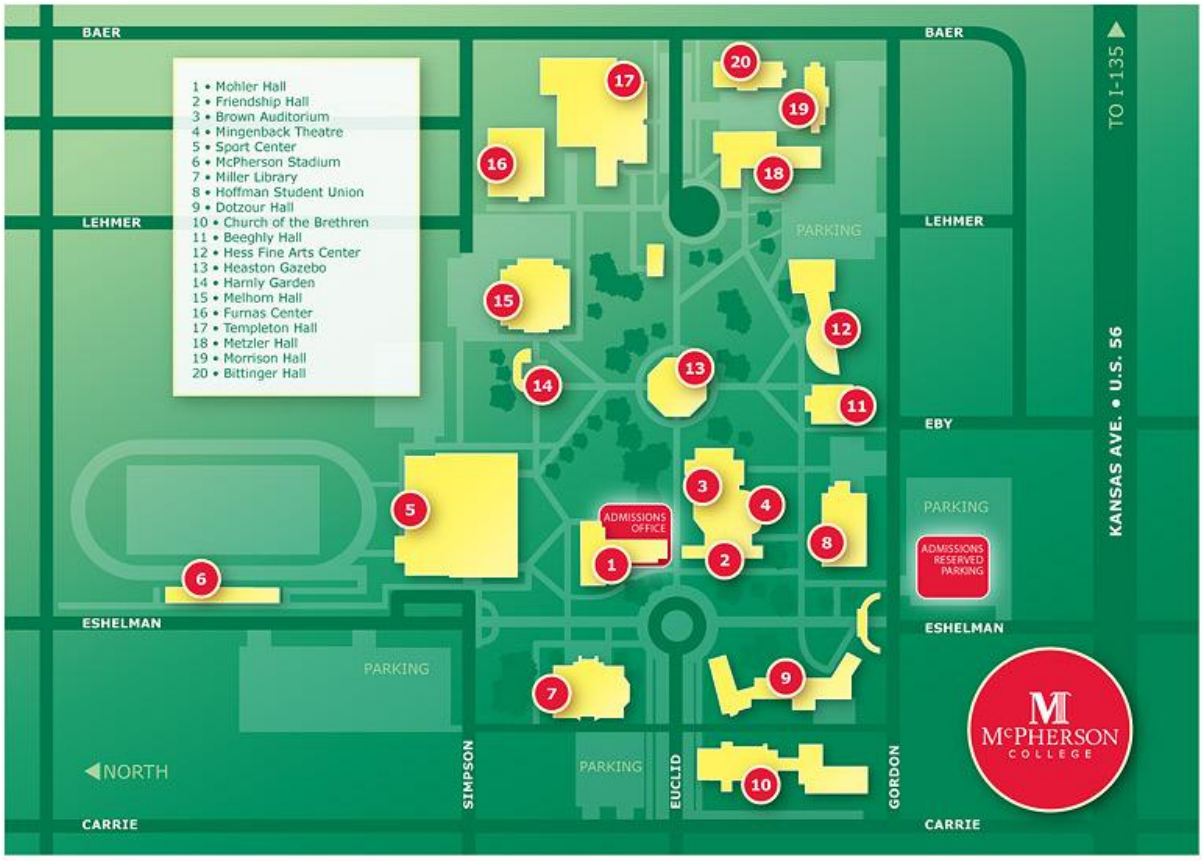
The following table identifies the college's mapped areas.

Table 3.16. 6 – McPherson College Mapped Resources

Facilities
Classroom buildings and conference sites
Dormitories
Communications and computer facilities
Laboratories
Offices
Libraries
Food Service
Parking Areas

Essential Services
Fire – COMMUNITY
Police - COMMUNITY
Emergency Communications – IN PROGRESS
Medical Facilities – LOCAL HOSPITAL
Shelters - ID ADA compliant shelters
Locations of hazardous materials and biological agent storage and use areas
Critical Infrastructures
Roads
Water
Power
Communication
Wastewater Lines
Campus-related Facilities
Residential Areas

Table 3.10. 1 – McPherson College Campus Map



2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions McPherson College plans to adopt.

2010 Mitigation Actions	
Lead Agency: MCPHERSON COLLEGE	**Project Title:** FEMA APPROVED SAFE ROOM
Project Description: LOOK INTO FUNDING FOR A FEMA APPROVED SAFE ROOM	
Type of Project: STRUCTURAL PROJECT	
Funding Description: LOCAL/GRANT	
Estimated Cost: $100,000 - $250,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	TORNADOES
Benefits (Losses Avoided): LIFE SAFETY	**Completion Date:** WITHIN NEXT 5 YEARS
Plan for Implementation and Administration: THE COLLEGE WILL LOOK INTO THE NECESSARY STEPS FOR CONSTRUCTING A FEMA APPROVED SAFE ROOM(S) FOR THE CAMPUS	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Hutchinson Community College
Website Address: http://www.hutchcc.edu/

Hutchinson Community College and Area Vocational School
2208 East Kansas Street
McPherson, Kansas 67501

McPherson Campus

History

In the spring of 1928, Hutchinson voters approved the establishment of a two-year co-educational college to be known as the Hutchinson Junior College. The college held its first classes that fall. Enrollment was 187 students – 172 freshmen, 15 sophomores. Classes were held on the second and third floors of a newly constructed addition to Hutchinson High School at Seventh and Walnut.

In February 1938, the Board of Education acquired land on Plum Street and built Lockman Hall. Since then, a technical education building, athletic field, stadium, tennis courts, maintenance and warehouse buildings, a student union with two additions, two residence halls, a library, science building, fine arts building and an athletic complex have been added to the campus. The college also utilizes the Hutchinson Sports Arena, providing maintenance of the building in exchange for its use.

On July 1, 1965, the college's name was changed to Hutchinson Community Junior College and governance was transferred to an elected board of trustees. The name was changed again in 1980 to Hutchinson Community College.

In 1966, the John F. Kennedy Library and Kopke Science Hall were completed.

In the fall of 1967, Elland Hall and Kent Hall, residence halls for men and women were opened.

In April 1970, the college acquired 425 acres of land and buildings from the Hutchinson Air National Guard. They are used primarily for agricultural, emergency medical science, fire science, building construction and technical education courses. This location is called South Campus.

Awing was added to Lockman Hall in 1975. The college acquired Davis Hall (Ninth and Walnut) from Hutchinson Hospital Corporation in 1980. It is used for allied health curricula, Radio Kansas (HCC's public radio station), Retired Senior Volunteer Program (RSVP), Kansas Small Mine Safety and Occupational Safety.

Stringer Fine Arts Center was opened in January of 1989.

On July 1, 1993, HCC merged with the local vocational school and was renamed Hutchinson Community College and Area Vocational School.

Another major addition to the Parker Student Union was completed in 1996.

In 1999 the college built the Shears Technology Center, which houses vocational programs and technical labs.

On April 27, 2003, after major renovation, the library was renamed the Rimmer Learning Resource Center, after John Rimmer, chairman of HUBCO and a major contributor to the college.

The college has two off-campus sites: McPherson and Newton. A licensed practical nursing program is offered by HCC at McPherson Memorial Hospital. The Newton site is housed in the Axtell Educational Center.

Regulatory Tools

This section will identify an inventory of regulatory tools available to Hutchinson Community College. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.17.1 identifies the regulatory tools for the college.

Table 3.17. 1 – Hutchinson Community College Regulatory Tools

Regulatory Tools	Year Adopted
Emergency Plan Includes: • Shelter In Place Protocols • Evacuation Protocols • Sample Collection Protocols • Chain Of Custody Protocols • Site Security Protocols • Special Event Emergency Plan • Communicable Disease Containment Plan	2007
Weapons Policy	2008
Maximum Occupancy Policy	N/A

Hazards That May Impact the Institution

Each college ranked each hazard and provided information on the hazards that may affect the district. The table below is the hazards that Hutchinson Community College identified that may affect their institutions.

Table 3.17. 2 – Hutchinson Community College Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	
Dam and Levee Failure	3	
Drought	3	
Earthquake	3	
Expansive Soils	3	
Extreme Temperatures	1	EXTREME COLD TEMPERATURES ARE A CONCERN
Flood	2	EXPERIENCE FLASH FLOODING IN PARKING AREA ON OCCASION
Fog	2	
Hailstorm	2	
Hazardous Materials	2	HAZARDOUS MATERIALS SPILLS IN THE AREA ARE A CONCERN
Land Subsidence	3	
Landslide	3	
Lightning	2	LIGHTNING IS A CONCERN DUE TO THE ELECTRONIC EQUIPMENT
Major Disease Outbreak	2	
Radiological	3	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	3	
Tornado	2	
Utility/Infrastructure Failure	3	
Wildfire/Urban Fire	3	
Windstorm	2	
Winter Storm	1	

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located on the college campus.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.17.3 identifies the vulnerable sites on the Hutchinson Community College campus.

Table 3.17. 3 – Hutchinson Community College Vulnerable Sites

Name of Building	Address
HUTCHINSON COMMUNITY COLLEGE AND AREA VOCATIONAL SCHOOL	2208 East Kansas Street

Past Mitigation Initiatives

The college identified the past mitigation initiatives. The mitigation actions for Hutchinson Community College are listed below. Please complete the following table for Mitigation Actions put in place in the past.

Table 3.10. 1 – Hutchinson Community College past Mitigation Initiatives

Mitigation Measures Implemented	Year/Cost	Local, State or Federal Funds (Was project paid for with disaster funds)	Brief Explanation
Emergency Notification System	2007	NO COST	IN HOUSE DEVELOPMENT
Emergency Awareness Campaign	2008	NO COST	N/A
Evacuation Training for staff	2008	NO COST	N/A
Security Training for staff	2008	NO COST	N/A

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Hutchinson Community College plans to adopt.

2010 Mitigation Actions	
Lead Agency: HUTCHINSON COMMUNITY COLLEGE	**Project Title:** PUBLIC AWARENESS PROJECT
Project Description: CONTINUE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON HAZARDS	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS CAMPAIGNS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Central Christian College
Website Address: http://www.centralchristian.edu/

Central Christian College
1200 South Main
PO Box 1403
McPherson, Kansas 67460

History

Orleans Seminary, the forerunner of Central Christian College, was founded on the Nebraska plains in 1884 by Free Methodist preacher Rev. C.M. Damon and his wife. (At that time, "seminary" designated a Christian school regardless of grade levels.) The school endured years of small enrollments, repeated faculty turnover, and deteriorating facilities. In a letter written by Mable Moore Gilbert, she recalls the living facilities and campus life during her time as a student (circa 1912):

There was no central heating, indoor plumbing, or electricity. The rooms were furnished with a double bed, study table, two chairs, heater (the students furnished the coal and provided a lamp and the coal oil in it). There was a closet made of an upright foot board and another foot board for the top. It was usually wedged in neatly behind the door, the closet door was a curtain furnished by the student. The lavatory, generally a couple of wooden orange crates, boasted a curtain door, water pail and wash pan, all furnished by the student. Even then we had our labor and civil rights problems. Fellows and girls worked side by side in the kitchen and dining room sweeping floors, washing dishes, pealing (sic) potatoes and helping with other meal preparations. The girls felt they were being discriminated against for the boys received ten cents an hour and they got eight cents although they had had more training in these skills than the boys. They weren't complaining because the boys received ten cents an hour to feed the hogs, milk the cows or even to mix the huge batch of bread in the morning. In spite of the fact that some girls had more training in the technique of bread-kneading than the amateur, they lacked the strength....but we didn't go on strike, we went to our employer, stated our case and asked for a raise. After considering the matter we got two cents an hour pay raise.

Because of deteriorating facilities and a more central location in the support area, Orleans Seminary was moved to McPherson, Kansas, in 1914. The relocated school was named Central Academy and College. Along with its elementary and secondary grades, Central added the first two years of college to its curriculum at this time. Occupying a four-story brick building left by the relocated Covenant Church affiliated Walden College, Science Hall was a welcome change to the faculty and students of Central.

The first president of Central Academy and College was L. Glenn Lewis, and the first principal, Charles H. Watson. In 1918, Central received accreditation from the Kansas Department of Education becoming the oldest accredited junior college in Kansas.

Charles A. Stoll became president in 1923, presiding until his untimely death in an automobile accident in 1939. In an English Composition paper written in 1950 by student Joy Fisher entitled A Place Where Many Love to Gather, Miss Fisher affectionately recalls a story about President Stoll.

Former students remember President Stoll hurrying along the sidewalk toward Science Hall, limping slightly because of burns received in his youth, carrying an umbrella if it looked slightly rainy, trying to arrive at his class on time. In spite of the fact that he was usually a little late to class, he was a very outstanding social science teacher. During the depression years, when some colleges took bankruptcy and paid only thirty to forty cents per dollar on their debts, President Stoll always paid all debts one hundred cents to the dollar. In fact he can be characterized by that: always one hundred cents to the dollar in every phase of his life.

Alumnus Lyle Martin, writing in 1964, recalls Dr. Stoll's "admonition in a chapel service during my student days. I can hear him yet saying with an emphasis borne of deep personal conviction, 'young people, if you want to be truly great, find some small but worthy cause in this world and give your life to it!' He himself lived that way, when those of us who knew him were aware he could have walked in the courts of government with kings. He was aided and abetted by a helpmate who likewise could have walked with grace and dignity in high places, but chose rather to walk among us as guide and counselor to Kansas farmers' children." A residence hall, built in 1927and remodeled in recent years, bears his name.

Orville S. Walters assumed the presidency from 1939-44. During the war years, Dr. Walters was able to successfully complete a $40,000 debt elimination campaign, upgrade facilities, and change the official name from Central Academy and College to Central College. Dr. Walters inspired a number of young men to enter the field of medicine. He resigned as president in 1944 to practice medicine and serve as the school physician. It was during President Walters' administration that the first intercollegiate athletic program (basketball) was begun after the Free Methodist Church lifted a ban against interscholastic athletics in their affiliated colleges. By 1950, Central boasted men's basketball, baseball, track, and ping pong.

During a period of transition, Warren McMullen and Charles V. Fairbairn served successively as acting presidents in 1944-45.

Mendal B. Miller, serving as president from 1945-53, was also mentioned by Joy Fisher in her English paper, reporting that "students and faculty alike appreciate his keen sense of humor, his kind consideration, and his spirit of prayer." She speaks of his broad vision regarding the responsibility of Central to our society when she quotes him by saying

The lack of a positive set of standards and of the knowledge of ultimate values in the world today places a heavy responsibility on the Christian college to define a way of life that holds hope. The demand is so great as to make the sum total of all our denominational programs seem but a drop in a bucket. The Christian college should feel itself a part of a great world community to which it owes the obligation of Christian leadership.

Following President Miller in 1953 was Edgar Whiteman who served two years, resigning in 1955. During the term of Elmer E. Parsons (1956-64), the name Central College was changed to Central College of The Free Methodist Church. Under President Parsons' leadership, the college was able to construct a gymnasium, fine arts addition, and student center. A residence hall, built in 1965, bears his name. In 1957, tragedy struck the campus when volunteer workers left some rags in the auditorium which were damp with linseed oil from polishing the stage. The rags caught on fire overnight and resulted in the burning of the auditorium, taking with it the entire music department facilities. A young staff member overheard President Parsons reflect on the devastation saying, "The Lord has taken this away from us; He must have something better in store for us." Thirty years later, out of the

ashes of the old auditorium like the fabled Phoenix, came the Wesley Black Fine Arts Center, a beautiful facility housing the music and drama departments. Following his service to Central, President Parsons was further distinguished as president of Japan's Ozaka Christian College and as a bishop of the Free Methodist Church.

Bruce L. Kline took office in 1964 and served through 1980. It was during Dr. Kline's tenure that the high school was closed. The elementary grades had closed earlier. In addition to a new classroom building constructed during his administration housing the science and home economics departments, Dr. Kline orchestrated the college's push toward regional accreditation. In 1974, a team of educators representing the North Central Association granted Central regional accreditation forever strengthening the academic programs at the College. A residence hall, built in 1992, bears his name.

After Dr. Kline resigned to become the General Secretary of Higher Education in the Free Methodist Church denomination, Dr. Dorsey Brause became president. He served from 1980 to 1987. During his leadership, a capital campaign was completed raising the funds to construct three new buildings. These buildings included the industrial technology center, the fine arts center and auditorium, and the library/business center facility. Dr. Brause resigned in 1987 to become president of Spring Arbor College, a sister college to Central.

Harvey L. Ludwick was elected president in 1987 and served until 1990. Having served most of his career as a school superintendent in several school districts around the state of Kansas and as Secretary of Human Resources for the State of Kansas, Dr. Ludwick's tenure saw the historic granting by the North Central Association of the first bachelor degree offered by Central, the Bachelor of Science in Ministry degree.

Dr. John A. Martin became president in 1990 serving until 1996. Under Dr. Martin's leadership, a second bachelor degree, this one in business, was approved in 1995. It was during Dr. Martin's tenure that the movement began to expand Central's curriculum to a four-year college. A nationally known and respected speaker, Dr. Martin has taken leadership as president of another sister college to Central, Roberts Wesleyan College.

Dr. Donald L. Mason took office in 1996. Following several years of strategic planning, on May 23, 1999, Central College became Central Christian College of Kansas. With this name change and a new mission statement, the College signaled to the world its desire to be an evangelical Christian college. During this time Central developed a third, innovative bachelor program, namely the Bachelor of Science - Liberal Studies major. The athletic program began competing at the four-year level in 1999. In 2000, the Carnegie Foundation officially recognized Central Christian College as a four-year college. In 2004, the Higher Learning Commission - North Central Association awarded Central ten years of continued accreditation and approved seven additional majors, namely Communications, Exercise Science, Music, Natural Science, Psychology, Social Science, and Sport Management. The College also completed a successful $5.8 million capital campaign raising funds for student scholarships and facilities.

Dr. Dwight B. Reimer took office in the fall of 2005 and served through December 2008. Under Dr. Reimer's leadership, the College continued enrollment growth, campus expansions, enhanced facilities and curriculum additions including Teacher Education certification in Elementary Education, Secondary History/Government Education, and PreK-12 Physical Education.

In January 2009, Dr. Jerry E. Alexander assumed the duties of Interim President. A Presidential Search Committee is actively seeking qualified candidates. To inquire about the position, contact the President's Secretary at carolyn.nelson@centralchristian.edu.

Throughout the college's history, the driving force has been the same. At each major crisis and with each major step, there has been a reaffirmation of faith that Central exists to provide a quality education from a Christian worldview. Our purpose is to produce Christian servant leaders who will be salt and light in our society and in the world.

Regulatory Tools

This section will identify an inventory of regulatory tools available to Central Christian College. It is essential to ensure that proposed mitigation actions are deemed practical considering the jurisdiction's ability to implement them. It will help build the general foundation for determining the type of mitigation strategy the jurisdiction develops and ultimately adopts. Table 3.18.1 identifies the regulatory tools for the college.

Table 3.18. 1 – Central Christian College Regulatory Tools

Regulatory Tools	Year Adopted	Comments
Master Plan	FALL 2009	CCC CAMPUS EMERGENCY PLAN
Emergency Plan Includes: • Shelter In Place Protocols • Evacuation Protocols • HazMat • Site Security Protocols • Special Event Emergency Plan • Communicable Disease Containment Plan	FALL 2009	
Weapons Policy	YES	IN STUDENT HANDBOOK
Maximum Occupancy Policy	YES	RESIDENCE HALL & APPROPRIATE BUILDINGS
Critical Facilities have Been: • Identified/designated • Inventoried • Mapped • Assessed for risks/security	YES	

Hazards That May Impact the Institution

The college ranked each hazard and provided information on the hazards that may affect the district. The table below is the hazards that Central Christian College identified that may affect their institutions.

Table 3.18. 2 – Central Christian College Hazard Threat Rating

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Agricultural Infestation	3	
Dam and Levee Failure	3	
Drought	3	THIS HAZARD HAS AFFECTED THE CAMPUS GROUNDS BUT NOT ANY MAJOR DAMAGE
Earthquake	2	NO MAJOR DAMAGE A RESULT OF EARTHQUAKE
Expansive Soils	3	
Extreme Temperatures	3	
Flood	2	GILLESPIE HALL HAD TAKEN ON WATER A FEW TIMES IN THE PAST. THE BUILDING REQUIRED A THOROUGH CLEANIN AFTERWARDS.
Fog	3	
Hailstorm	1	THERE HAVE BEEN A LOT OF MAJOR CLAIMS FOR THE PAST 20 YEARS
Hazardous Materials	2	AS PART OF NORMAL DUE COURSE, THE COLLEGE HANDLES HAZARDOUS MATERIALS SUCH AS CLEANING MATERIALS, CHEMICALS & BIOTYPICAL MATERIALS, ETC.
Land Subsidence	3	
Landslide	3	
Lightning	2	NO MAJOR DAMAGE AS A RESULT BUT IS DANGEROUS FOR STUDENTS WALKING ON CAMPUS DURING STORMS

McPherson County Identified Hazards	Threat Rating 1= Significant 2= Moderate 3= Negligible	Past Hazard Affects
Major Disease Outbreak	2	EXPERIENCED A FEW CASES OF H1N1 IN FALL 2009
Radiological	3	
Soil Erosion and Dust	3	
Terrorism/Agro - Terrorism/Civil Disorder	3	THIS HAZARD IS A CONCERN BECAUSE OF SAFETY OF STUDENTS, HAVE NOT EXPERIENCED ANY PAST OCCURRENCES
Tornado	1	THERE WAS NO MAJOR DAMAGE REPORTED, HOWEVER THIS HAZARD IS A CONCERN FOR THE SAFETY OF STUDENTS AND FACULTY
Utility/Infrastructure Failure	2	NO REPORTED DAMAGE
Wildfire	3	
Windstorm	3	
Winter Storm	3	

Vulnerable Sites

An essential component of the McPherson County Hazard Mitigation Plan is the identification and inventory of the vulnerable facilities located on each college campus.

The purpose of the vulnerable sites inventory is to provide information and location data on buildings and infrastructure in the school district. Table 3.18.3 identifies the vulnerable sites on the Central Christian College campus.

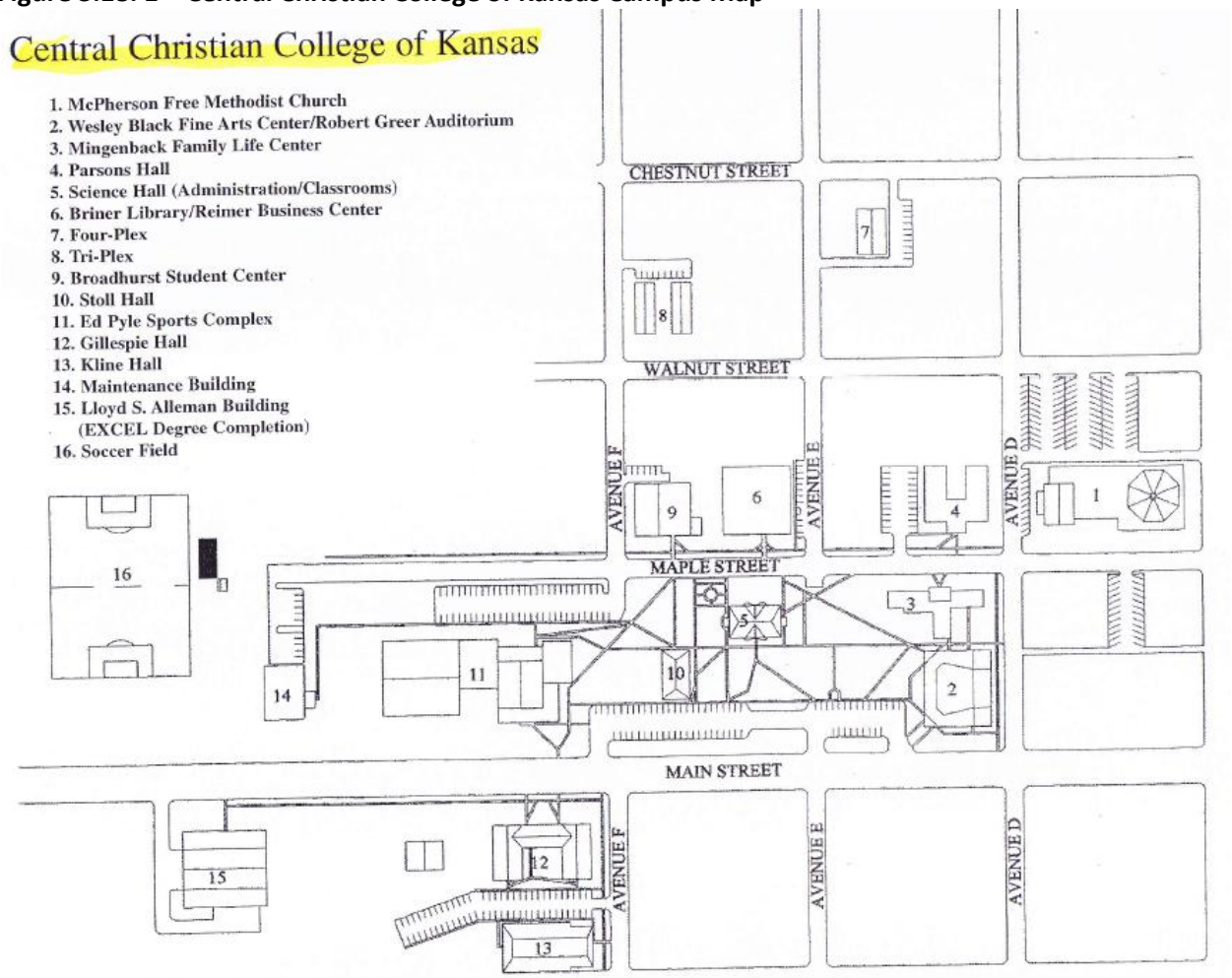
Table 3.18. 3 – Central Christian College Vulnerable Sites

Name of Building	Address	Estimated Replacement Cost ($)	Occupancy	Size of Building (Sq. Ft.)
GILLESPIE HALL	1301 SOUTH MAIN STREET	$2,320,500	88	20,998
KLINE HALL	110 EAST AVENUE F	$1,701,000	76	17,628
PARSONS HALL	100 SOUTH MAPLE	$2,250,000	68	17,221
STOLL HALL	1220 SOUTH MAIN	$2,000,000	44	12,150
TRI-PLEX APARTMENTS (2)	1318 & 1322 SOUTH WALNUT	N/A	6 APTS	3,908
FOUR-PLEX	310 WEST AVENUE E	N/A	N/A	3,952
BACON HOUSE (NELSON)	1204 SOUTH WALNUT	N/A	N/A	825
RUTH SINGER HOUSE (REIMER)	1324 SOUTH MAPLE	N/A	N/A	1,736
GLADYS MALAN HOUSE (BROWN)	1328 SOUTH MAPLE	N/A	N/A	1,993
PRESIDENT'S HOME	700 SOUTH MAPLE	N/A	N/A	4,171
BRINER LIBRARY/REIMER BUSINESS CENTER	1200 SOUTH MAPLE	N/A	N/A	21,216
CONTEMPORARY CHRISTIAN MUSIC BUILDING	1123 SOUTH MAIN	N/A	N/A	2,347
BROADHURST STUDENT CENTER	1220 SOUTH MAPLE STREET	N/A	N/A	15,443
CCM WAREHOUSE	107 EAST AVENUE E	N/A	N/A	2,000
MAINTENANCE BUILDING	1340 SOUTH MAIN	N/A	N/A	8,820
WESLEY BLACK FINE ARTS CENTER/ROBERT GREER AUDITORIUM	100 SOUTH MAIN	N/A	N/A	19,055
SCIENCE HALL (ADMINISTRATION/CLASSROOMS)	1200 SOUTH MAIN STREET	N/A	N/A	23,773
LLOYD S. ALLEMAN BUILDING (EXCEL DEGREE COMPLETION)	1365 SOUTHMAIN STREET	N/A	N/A	13,636

Name of Building	Address	Estimated Replacement Cost ($)	Occupancy	Size of Building (Sq. Ft.)
METAL STORAGE BUILDING	1111 SOUTH MAIN	1,664		
MCPHERSON FREE METHODIST CHURCH	AVENUE D & MAPLE STREET	N/A	N/A	N/A
MINGENBACK FAMILY LIFE CENTER	1105 SOUTH MAPLE	N/A	N/A	8,226
ED PYLE SPORTS COMPLEX	1300 SOUTH MAIN STREET	N/A	N/A	35,547
SOCCER FIELD	MAPLE STREET	N/A	N/A	N/A

Figure 3.18.1 is a map identifying the locations of the buildings listed above

Figure 3.18. 1 – Central Christian College of Kansas Campus Map



Public Safety Information

The following table identifies the public safety resources that are available to the school.

Table 3.18. 4 – Central Christian College Public Safety Information

Area	Sufficiently Staffed Minimally Staffed Well Staffed Community Assets	Equipment Sufficiently Minimally Equipped Not Equipped	Response Time (estimated)
Police	WELL STAFFED	SUFFICIENTLY EQUIPPED	On Call 24/7
Fire	WELL STAFFED	SUFFICIENTLY EQUIPPED	On Call 24/7
Emergency Medical Services	WELL STAFFED	SUFFICIENTLY EQUIPPED	On Call 24/7
Environmental Health & Safety	WELL STAFFED	SUFFICIENTLY EQUIPPED	On Call 24/7
Risk Management	WELL STAFFED	N/A	On Call 24/7

Personnel Information

This section will identify the personnel resources available to Central Christian College. It is vital to ensure that adequate staffing is available to a jurisdiction for implementing proposed mitigation actions. Table 3.18.5 identifies personnel resources for the college.

Table 3.18. 5 – Central Christian College Personnel Information

Personnel Resources	Department/Position
Full-Time Building Official	VARIES BY BUILDING
Emergency Manager	VICE PRESIDENT OF FINANCE
Public Information Officer	COLLEGE RELATING

Financial Resources

This section will identify the financial resources available to the college. It is fundamental to ensure that adequate financial resources are available to a jurisdiction for implementing proposed mitigation actions. Table 3.18.6 identifies the financial resources for Central Christian College.

Table 3.18. 6 – Central Christian College Financial Resources

Financial Resources	Year/Amount	Comments
Is Institution Self Insured?	2010	EACH BUILDING IS COVERED FOR REPLACEMENT COST
Capital Improvements Project Funding	2010/2011	FUNDRAISING OCCURRING FOR GYNASIUM AND CAMPUS MALL
Local Funds (Percentage)	N/A	
General Obligation Bonds	N/A	
Special Tax Bonds	N/A	
Private Activities/Donations	CURRENT/ON-GOING	DEVELOPMENT OFFICE RGULARLY RAISES FUNDS
State and Federal Funds	N/A	

Mapped Resources

The following table identifies the college's mapped areas.

Table 3.18. 7 – Central Christian College Mapped Resources

Facilities
Classroom buildings and conference sites
Dormitories
Communications and computer facilities
Libraries
Food Service
Essential Services
Fire
Police

Past Mitigation Initiatives

The college identified the past mitigation initiatives. They are listed in the table below.

Table 3.18. 8 – Central Christian College Past Mitigation Initiatives

Mitigation Measures Implemented	Brief Explanation
Safe Rooms	SEVERAL BUILDS HAVE BASEMENTS FOR TORNADO SHELTER
Emergency Notification System	RESIDENCE HALLS & SCIENCE HALL ARE MONITORED
Fire Suppression System	KITCHEN AND WESLEY BLACK FINE ARTS CENTER HAVE FIRE SUPPRESSION SYSTEMS
Emergency Awareness Campaign	PART OF CAMPUS EMERGENCY PLAN – ADOPTED FALL 2009
Informational programs on fire safety, household/family disaster preparedness, responsible water use, etc.	PROVIDED THROUGH DORM MEETINGS AND FACULTY/STAFF WORKSHOPS
Evacuation Training for staff and students	PROVIDED THROUGH DORM MEETINGS AND FACULTY/STAFF WORKSHOPS
Fire Safety inspection training for staff	CONDUCTED MONTHLY – COMPLIANCE CHECKS IN RESIDENCE HALLS. RESIDENCE HALL STAFF ARE REGULARLY TRAINED.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Central Christian College plans to adopt.

2010 Mitigation Actions	
Lead Agency: CENTRAL CHRISTIAN COLLEGE	**Project Title:** PUBLIC AWARENESS CAMPAIGN
Project Description: PROMOTE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON ALL HAZARDS	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	ALL HAZARDS
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS THROUGH EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

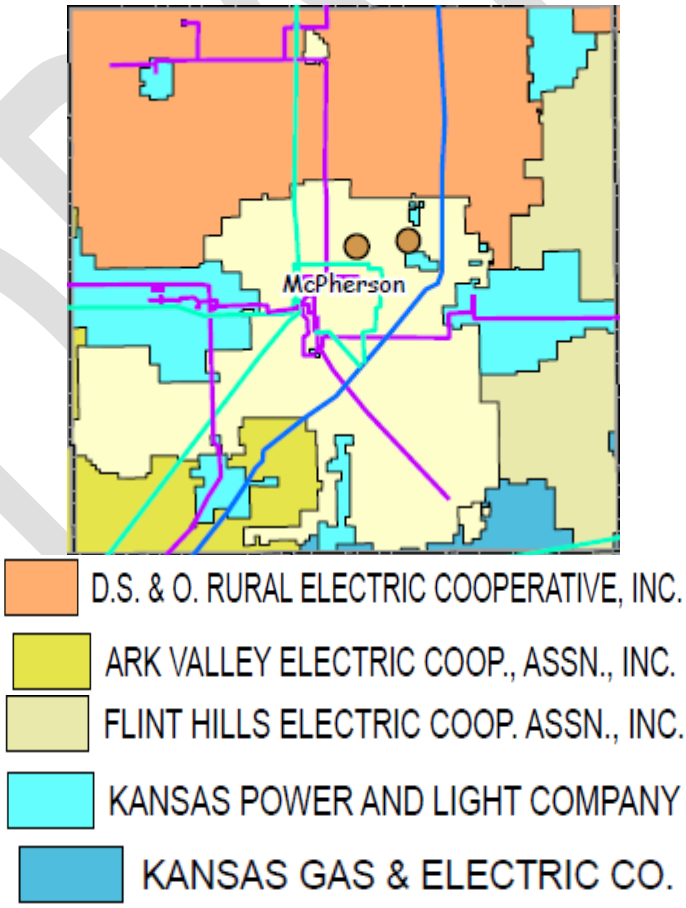
Rural Electric Cooperatives

According to the FEMA *Local Multi-Hazard Mitigation Planning Guidance* July 1, 2008 edition Rural Electric Cooperatives (RECs) are considered utility private nonprofit organizations (PNPs). PNPs, such as RECs, special utility districts, or other multi-jurisdictional utilities, FEMA identifies two ways they may meet the mitigation planning requirement to ensure that projects funded by HMGP are consistent with the mitigation strategies of the State and/or local jurisdiction in which the project is located.

1. The local jurisdiction(s) within which the REC mitigation project is located must have a FEMA-approved Mitigation Plan under 44 CFR §201.6. FEMA strongly encourages PNPs to participate in the development of Local Mitigation Plans.
2. Under 44 CFR §201.4, the FEMA approved Stat e Mitigation Plan must address RECs.

The McPherson Board of Public Utilities (BPU) is located in McPherson, Kansas. The BPU provides electric and water service to all homes and industries in the city limits of McPherson and 1,200 rural customers outside the city. Customers are billed monthly for water and electric service. Charges for trash pickup and sewer service are included on the BPU monthly billing for city residents. The BPU is a municipally owned utility with approximately 8,000 customers. We boast the lowest electric rates in the state of Kansas and rank among the lowest nationwide.

There are a total of five electric companies that serve the McPherson County area. They are D.S. &O. Rural Electric Cooperative Association, Flint Hills Rural Electric, Ark Valley Rural Electric, Kansas Power and Light Company, and Kansas Gas & Electric Company. All three of the rural electric cooperatives participated in this hazard mitigation planning process and are therefore considered plan participants.



Jurisdiction: DS&O Electric Cooperative, Inc.

Counties in Service Area: Dickinson, Saline, Ottawa, McPherson, Geary, Cloud, Marion and Morris Counties

History

DS&O Electric Cooperative (DS&O) was founded in December, 1936. The office is located at 129 West Main Street, Solomon, Kansas. The original plant value, funded by the first REA loan in Kansas, was $254,000 and has grown to over $42,000,000 today. DS&O Electric Coop provides electric power to residential, commercial, and industrial accounts in Dickinson, Saline, Ottawa, McPherson, Geary, Cloud, Marion and Morris Counties.

The REC is owned by members of the community and governed by a Board of Directors elected by the members. They supply power to 8,159 meters through 2,469 miles of transmission and distribution lines and own 18 substations of delivery points. Through membership in the Kansas Electric Power Cooperative, DS&O REC owns part of the nuclear generating facility at Wolf Creek, part of the new Iatan coal fired plant at Weston, MO and rights to federal hydropower through the Southwest Power Administration. Primary financing is done through the USDA's Rural Utility Service and the National Rural Utilities Cooperative Finance Cooperation.

Capabilities

DS&O has 38 full-time employees including 18 full-time linemen/servicemen to cover the service area. There is 24-hour answering service and linemen on-call after hours every day of the year.

The REC has 18 substations or delivery points across the service area.

Safety meetings are conducted monthly and the REC is evaluated annually by Kansas Electric Cooperatives, Inc. and Federated Rural Electric Insurance. A disaster drill is held annually.

DS&O has an Emergency Response Plan which was developed in 2000. This plan is in place because the DS&O recognizes that even in the safest environments, emergency situations arise. They are concerned with the safety of its employees, visitors, and the community; therefore, they desire to minimize the effects of any emergency situation. The plan is updated annually and addresses emergency plans due to fire, inclement weather, bomb threats, terroristic threats, disgruntled employees, robbery, chemical spills, oil spills, vehicular accidents, employee injuries and information technology problems. DS&O is prepared to protect safety and reduce the time and effort required to restore normal business functions following an emergency.

Vulnerabilities

The infrastructure for DS&O is vulnerable to natural and man-made hazards. High winds, ice and snow storms are among the top threats to the 13 miles of transmission and 2,456 miles of distribution (89 miles of which are underground). DS&O has an estimated 3.3 customers per mile. The service territory includes areas that are highly populated, as well as areas with a very low population density.

DS&O continually reviews and upgrades construction standards, including but not limited to, underground service, stronger poles, and stronger conductors. The REC is striving to provide backup power to all substations and delivery points. Due to rural areas, some of the substations and metering points still rely upon a single power source, which makes them vulnerable to more frequent and longer power outages.

2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions DS&O Electric Cooperative plans to adopt.

2010 Mitigation Actions	
Lead Agency: DS&O ELECTRIC COOPERATIVE	**Project Title:** PUBLIC AWARENESS CAMPAIGN
Project Description: PROMOTE PUBLIC AWARENESS AND EDUCATIONAL PROGRAMS ON UTILITY FAILURE	
Type of Project: PUBLIC EDUCATION AND AWARENESS	
Funding Description: LOCAL BUDGET	
Estimated Cost: N/A	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): INFORMED PUBLIC/LIFE SAFETY	**Completion Date:** ON-GOING
Plan for Implementation and Administration: CONTINUE TO PROMOTE PUBLIC AWARENESS THROUGH EDUCATIONAL PROGRAMS ON ALL HAZARDS	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Flint Hills Rural Electric Cooperative Association

Counties in Service Area: McPherson, Marion, Harvey, Dickinson, Chase, Morris, Lyon, Wabaunsee, and Geary

History

With the help of Franklin D. Roosevelt, who established the Rural Electrification Administration in 1935, families and neighbors joined together to create a new kind of electric utility, where the voice of every person makes a difference.

Electric cooperatives are owned by their members and focus on local priorities and their member's needs. They are an essential part of the communities they serve. The cooperative business model guarantees every customer a voice in business decisions.

Electric cooperatives were not created to make profits, but simply to deliver electricity. Electric cooperatives are located in the communities they serve, making them easily accessible and receptive to individual customer's needs. They work hard to obtain a better quality of life for consumer-owners.

Benefits of membership include a better quality of life through the dependable delivery of electric service, the return of margins through the retirement of capital credits, local control and direction of the cooperative and personal attention to member's electric service needs.

Membership responsibilities include voting for candidates nominated to the Board of Directors and when possible, accepting an active role by serving as a board member. Twelve board members are responsible for the direction of the cooperative, but the general manager is entrusted to overlook the direction. Daily functions of the cooperative are the responsibility of department managers, staff and employees.

Each year, Flint Hills Rural Electric holds an Annual Meeting of the Members. The meeting is conducted as a means of informing the members on the financial situation of the cooperative and the status of projects that took place throughout the year.

Flint Hills Rural Electric Cooperative provides electric service into ten counties in our area. Our dedicated employees provide customer service to approximately 6,400 services over 2,500 miles of distribution line.

The cooperative offers additional values of membership including electric water heater and heat pump rebates; complete home surge protection, standby generation switches, and much more. Membership values offered by the cooperative are designed to make life safer and more convenient. The cooperative is devoted to providing exceptional electric service and superior membership value.

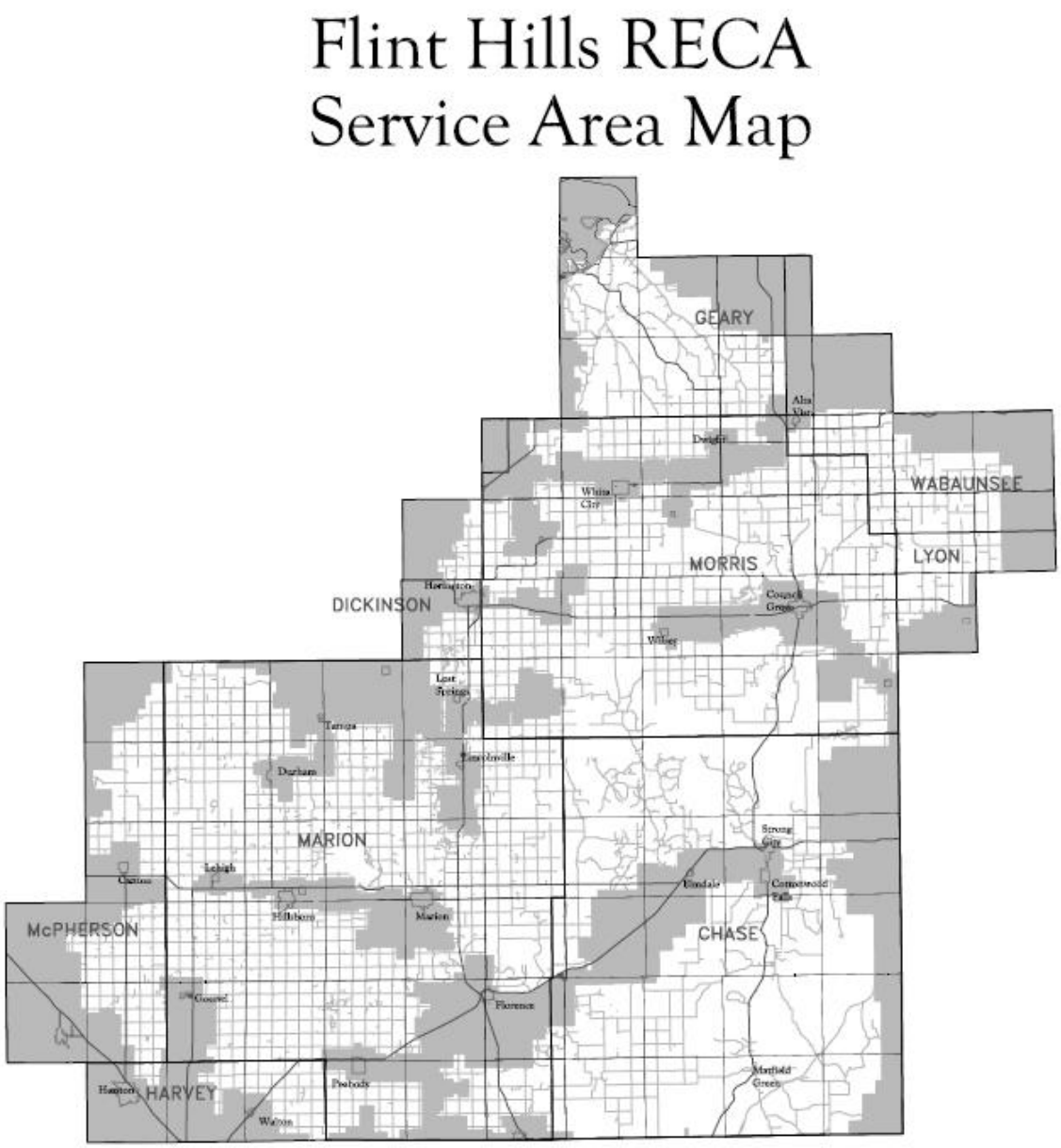
The Board of Trustees adopted a net metering and parallel service rider for the cooperative at their Jan 18th meeting. These riders will be available to members operating their own renewable generation resource, such as a small wind turbine. Members must enter into an interconnection agreement with the cooperative to qualify for the rider.

Net metering, as the name implies, is a metering process designed primarily to allow a member to offset some or all of their electrical requirements with their own generation. If any time during the day, the wind turbine produces more power than the member is currently using, these kWh (Kilowatt hours) would be put back in the grid. The meter will measure the kWh the member "uses" and the kWh the member "gave back". The kWh difference between the "used" and "gave back" (net) is what will be used for billing purposes at the end of each month. The net kWh cannot be less than zero. If a member supplies more than he uses during the month (net is less than zero), he is not compensated for the excess kWh.

Members desiring to be compensated for generation in excess of what they supply might gain more advantage by interconnecting under the cooperative's parallel generation riders. Under parallel generation,

the purchase rate for excess energy from a renewable resource is 150 percent of the cooperative's monthly system average cost of energy, as required by Kansas state law. In either case, the member must pay the standard monthly customer charge required of other members.

The following map identifies the service area for Flint Hills Rural Electric Cooperative Association.



2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Flint Hills Rural Electric Cooperative Association plans to adopt.

2010 Mitigation Actions	
Lead Agency: FLINT HILLS RECA	**Project Title:** MCPHERSON COUNTY RECONDUCTOR PROJECT
Project Description: RETROFIT 40 MILES OF EXISTING ELECTRICAL DISTRIBUTIONS SYSTEMS THAT WERE CONSTRUCTED PRIOR TO CURRENT CONSTRUCTION STANDARDS ESTABLISHED BY THE COOPERATIVE AND APPROVED BY FEMA PUBLIC ASSISTANCE PROGRAM	
Type of Project: PROPERTY PROTECTION	
Funding Description: LOCAL BUDGET/GRANT	
Estimated Cost: $2,000,000	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): CUSTOMER OUTAGES WILL BE REDUCED DURING WINTER STORM CONDITIONS	**Completion Date:** 2015
Plan for Implementation and Administration: COMMIT TO REPLACING ELECTRICAL DISTRIBUTION SYSTEMS THAT HAVE THE HIGHEST RISK OF FAILURE DURING EXTREME ICE LOADING EVENTS IN MCPHERSON COUNTY.	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Jurisdiction: Ark Valley Electric Cooperative, Inc.

Counties in Service Area: McPherson, Saline, Ellsworth, Lyons, Reno, Kingman, Stafford, Barton, and Harvey

History

During the early 1930's many of the conveniences that we generally take for granted were not available to most people living in rural America. Electricity generally was not available to rural citizens. There were no electric motors, so feed and grain was shoveled by hand. Hay was also pitched by hand. Dairy farmers did their milking by hand in the dim light of a flickering kerosene lantern. There was no refrigeration, so the milk had to be kept on ice. On the milk pick up day, the milk cans were carried out to the road. However, if the pickup was not on time, the milk would become too warm and the farmer would watch his long hours of labor result in nothing gained.

The farm wife also struggled through her days without electricity. Kitchen work frequently involved laboring over the searing heat of a wood stove. Whether it was the long hours of canning fruits and vegetables, wash day, or ironing with the six to seven pound wedge of iron, the wood stove had to be burning, often making the kitchen almost unbearably hot.

On May 11, 1935 President Franklin D. Roosevelt created the Rural Electrification Administration (REA). This agency became the primary source of low interest loans that would help bring electricity and a better life to rural America.

During the late 1930's rural electrification was building steam in Kansas. Early in January 1939 farmers living in the Plevna area decided to try to form a new REA Cooperative in rural Rice and Reno Counties. Following a meeting with the REA field representative the first organizational meeting was held on the night of February 7, 1939 at the Mennonite schoolhouse, in Walnut Township in Reno County. The temperature hovered near zero, but the schoolhouse was packed with enthusiastic people. At the conclusion of the meeting, blocks of territory had been outlined with teams consisting of two men, each being assigned to an area. Each block consisted of an area 1 mile wide by 8 miles long. The goal for each team was to interview every resident in each block of territory. George Sidwell, the Rice County Agent, and Don Ingle, the Reno County Agent, were very instrumental in signing up new members during the early years.

Joseph Fliginger was the first man to sign an application and in two days applications were coming in rapidly. Organization continued and the Ark Valley Rural Electric Cooperative Association was incorporated. The Articles of Incorporation were filed on March 16, 1939 designating Plevna, Kansas as the principle place of business. A board of directors was named consisting of these men: George Griffin, Nickerson, President; Ed Flickinger, Sterling, Vice-President; Darrel Dunn, Langdon, Secretary; Clarence Fox, Sterling, Treasurer; E. E. Birkey, Plevna; Melville Davidson, Plevna; and Luther McMurphy, Sterling. Rupert G. Martin was selected as counsel for the cooperative. On May 19, 1939 the first loan from REA was received in the amount on $251,000. This was to build 300 miles of line to serve 629 customers. This was later amended to add another 113 miles of line for 162 customers.

Finally on Thursday afternoon, November 23, 1939 the first pole was set. Appropriately, this pole was set by the Mennonite schoolhouse where the first organizational meeting was held.

Power lines spread across the countryside and on May 17, 1940 the first lines were energized. A big celebration was held in Sterling to commemorate the occasion. On May 9, 1940 the Sterling, Kansas Bulletin published a special edition that was sent to each of the 1,360 cooperative members. A cordial invitation was extended to attend a big barbecue at Sterling Lake with family and friends, with the thought that at least some of those would be able to go home to do their milking and chores by electric light. It truly was a day for celebration.

A budding organization, the board established the first permanent office in the Zimmerman Building, 210 South Broadway in Sterling. The board also hired A. B. "Jack" Davis as Project Superintendent for the cooperative. In preparation for energizing the lines the first rate schedule was adopted. The rate was as follows:

First 40 kWh, or less, per month	@	$3.50 per month
Next 40 kWh per month	@	.05 per kWh
Next 120 kWh per month	@	.03 per kWh
Over 200 kWh per month	@	.0175 per kWh

An agreement was also signed to buy wholesale power for the cooperative from the municipal power plant in Sterling.

In those early days it was difficult for some people to imagine all the ways electricity could be used. It was not uncommon for people to wonder how they would use 40 kWh per month. The records show that there were many members who did not use their 40 kWh minimum each month. In some cases the yard light was left on all night so that the 40 kWh would be used.

On May 15, 1940 the board approved the purchase of a new one ton truck with a winch. The purchase totaled $1,060.00. Subsequently, Harold Bruer was hired as the first lineman for the Co-op.

While some people were enjoying the conveniences of electricity, others were still waiting. The waiting was sometimes difficult and frustrating.

The Co-op grew rapidly during the first few years. It did not take long for the people to realize what electricity could do for them and their usage of this new service is demonstrated in these figures:

	May 1941 1st Anniv. of lines energized	**May 1942 2nd Anniv. of lines energized**
Members connected	691	1,352
Avg. kWh usage/month	82	69
Avg. bill/month	$4.74	$4.60
KWh sold (May)	56,885	93,864
Miles of line energized	412	919

The original "substation" for the cooperative consisted of bank of 75 kva transformers located behind the Sterling generating plant. By mid-1941 the capacity of these transformers was already being pressed, so in September 1941 a new bank of 250 kva transformers was installed replacing the old bank.

World War II began making its presence known in mid-1941 as construction materials became hard to find. Projects were delayed largely due to lack of wire. During the height of the war, materials were almost impossible to find and very little system construction was done. In fact, even the monthly newsletter was ultimately eliminated due to the difficulty in getting paper.

In spite of the war difficulties the co-op moved forward. In June 1943 the old post office building at the corner of Walnut and Sherman in Hutchinson was purchased as a new headquarters building. In August of that year the office was moved to Hutchinson.

A new wholesale power contract for a lower wholesale power rate was negotiated and signed on February 17, 1944. With the implementation of this contract, Kansas Power and Light Company became the new wholesale power supplier for Ark Valley.

When WW II finally wound to a close, the springs of construction material began to trickle again. In March 1945 the first two substations, for Arlington and Sterling, were purchased. By early 1947 line construction was once again spreading.

The Cooperative established another "first" for the Hutchinson area in March 1948 when a two-way radio system was installed.

This represented a significant step forward in improving response time and service to the cooperative's membership.

Prior to the onset of REA in 1935, only 10% of the nation's farms had been electrified. By 1950, only 15 years hence, that percentage had risen to 75%.

The 1950's started a period of time where much effort was spent on showing people the many innovations which electricity could bring to the farm. Home economists with kitchen parties and demonstrations were standard bill of fare for the day. The response was overwhelming and the kWh usage outdistanced even the most optimistic projections. An improvement in the standard of living and overall health of rural citizens was attributed to electrification. The survival and production rate of livestock also rose.

During 1953 and 1954 Ark Valley Electric was active in starting the Reno Telephone Association, a rural telephone cooperative where Jack Davis also was the original manager. The telephone association was later sold to the Continental Telephone Company.

A change in management of Ark Valley occurred in June 1956 when Curtis Stubbs was promoted by the board to General Manager. Mr. Stubbs had been a long time employee of the cooperative starting in 1939 as a wiring inspector. A change in legal counsel also came about in 1956 when Rupert Martin, who had served the co-op since its very beginnings, resigned and was replaced by Harry Dunn. The year of 1956 also was a milestone in that it was the first year that the co-op closed its books with a positive margin. In accordance with the by-laws, a capital credit allocation system was set up to allocate the margins back to the membership.

The 1960's dawned and a change in the makeup of the co-op was noted in the annual report. The total number of services had grown to 2,827. Out of that total, 17% were commercial services, but those commercials accounted for 30% of the total revenue.

The financial condition of the co-op improved to the point where in October 1961 the board authorized payment of capital credits to estates. Promotion of various electrical appliances intensified and included the total electric, Gold Medallion Homes.

In October 1964 the old headquarters building was sold to the City of Hutchinson and the co-op in turn bought the present headquarters site at 10 E. 10th Street in South Hutchinson from the Woodie Seat estate. Following the construction of additional garage and storage facilities, the move to the new offices was made in May 1965.

April 1968 marked the start of the lowest rates in Ark Valley's history. The wintertime rate for residential customers was set at 1.0 cent per kWh for all usage over 1,000 kWh per month. The drop in rates spurred new growth in kWh sales.

The old trends seemed to continue, until the 1973 Arab Oil Embargo rewrote the energy textbooks. Little did the energy industry know how far reaching the ramifications would extend. For the first time in the co-op's history there was talk about the need for energy conservation. Inflation drove up the cost of materials and the wholesale power suppliers piled rate increases on top of each other. With the vision of having "our say" in the future cost of wholesale power, Ark Valley joined the Kansas Electric Power Cooperative (KEPCo) in 1975.

New terms such as Load Management, Peak Demand, Energy Audits, etc. became regular parts of our vocabulary. Then in the late 1970's two federal laws were passed that affected Ark Valley Electric Co-op. The Public Utilities Regulatory Policies Act (PURPA) influenced the sales picture and the Power Plant and Industrial Fuels Use Act affected the wholesale power cost picture.

The PURPA was an effort by the federal government to make American citizens more energy conscious. The oil embargo of the early 1970's had shown America that it had to become more energy independent. The PURPA essentially banned the promotion of the use of energy and initiated an extensive energy conservation plan. It also encouraged state regulatory agencies to change rate design to discourage electricity use. The regulatory agencies essentially forced the cooperative to abolish the "more you use, the cheaper it gets" rates and implement the type of rates we have today. This action was very detrimental to a number of loads that the co-op had worked very hard over the years to develop.

The Power Plant and Industrial Fuels Use Act (PPIFUA) required that power plants and industry restrict the use of oil and natural gas for fuel and move toward the use of coal-related sources of energy supply. As generation plants converted to coal, huge amounts of natural gas were available in the market place. The predicted natural gas shortage never materialized and in 1986 the PPIFUA was essentially repealed by Congress. It was too late, however, to reverse many of the act's damaging consequences.

Effective January 2, 1979 Delbert Tyler was hired as General Manager of the cooperative following the retirement of Curtis Stubbs. Mr. Tyler came to Ark Valley with previous experience in rural electrification at Panola-Harrison Electric Cooperative, Marshall, Texas and Eastern Power Cooperative, Paxton, Illinois. Later in January 1979, Richard A. Benjes was named as the new attorney for the cooperative.

A side effect of the rise in foreign oil prices was that the price of domestic crude also rose to new highs. The unprecedented high price of crude oil made many marginal stripper wells economical to produce. During the early 1980's many of these wells were connected to Ark Valley's system. Frequently these installations had a high horsepower requirement and portions of the system had to be rebuilt in order to handle the load. For the next several years numerous improvements were made throughout the cooperative's electrical distribution system in order to improve service reliability and meet the demands for electric power. The new system improvements were at more costly construction prices, and Ark Valley's cost of electric distribution lines escalated dramatically. Ark Valley's total investment in electric distribution systems grew from $7.4 million in 1979 to $16.9 million in 1986. Interest rates paid on that investment more than doubled with changes in the REA program. The cost of wholesale power mushroomed greatly as KEPCo's share of Wolf Creek Nuclear Generating Station came on line.

In 1986, world oil prices came crashing down. Many of the marginal oil leases were no longer economical to produce at the lower crude prices. While the lower crude oil prices have been beneficial to some areas of the U.S. economy, the depths to which the price dropped had a very negative impact on the kWh sales of the cooperative. So while Ark Valley's costs had been escalating, Ark Valley's energy sales were decreasing, and there were fewer sales units over which to spread the costs.

A highlight for 1988 came when the board authorized the first general refund of capital credits in the cooperative's history. Capital credits that had been allocated in 1956 through 1959 were refunded and checks totaling over $143,000 were written. In addition, settlements were made with numerous estates. Since 1988 the following refunds of capital credits have been sent out to the Cooperative's members.

	General	Estates
1989	$ 34,000	$ 35,000
1990		31,000
1991	45,000	27,000
1992		22,000
1993		27,000
1994		32,000
1995		17,000
1996		29,000
1997	249,000	74,000
1998	297,000	60,000
1999	523,000	48,000
2000	392,000	48,000
2001	438,000	55,000
2002	417,000	79,000
2003		45,000
2004	437,000	45,000
2005		83,000
2006		81,000
2007	507,000	38,000
2008		128,000
Totals	$ 3,339,000	$ 1,004,000

In 1992 Kansas changed its regulatory laws to allow cooperatives' members to vote their cooperative out from under the regulation of the Kansas Corporation Commission. Regulation by the KCC had very high direct costs of annual State KCC expense assessments, burdensome monthly and annual reporting requirements, legal fees, and consultant fees for dealing with the KCC, as well as the indirect costs of KCC policies that were contrary to the interests of Ark Valley's members and rate payers. In early 1993 Ark Valley's members deregulated Ark Valley, by 76% of those voting in a mail ballot, and on February 22, 1993 the Cooperative was officially deregulated by KCC order. As the Cooperative's elected Board of Trustees took over regulation of the Cooperative, the members were proven to be right in their decision to deregulate, because rates have not been increased since 1986, financial results have improved, and capital credits have been paid.

A change in management of Ark Valley occurred February 12, 1996 when the Board promoted Bob Hall to be Interim Manager. On July 29, 1996 the Board promoted Bob Hall to be General Manager. Hall had been Office Manager at the Cooperative since March 1981, and prior to starting at Ark Valley, Hall had experience at Kansas Nebraska Natural Gas Company, the South Dakota Public Utilities Commission, and a CPA firm in Iowa.

In its constant efforts to become more and better for its customer/owner/members Ark Valley explored merger ideas with several of its neighboring electric utilities. Also the Board made new programs and options available to the members when on April 28, 1997 they approved the Coop-Power Plus credit card program and the Homeguard surge protection program. The Coop-Power Plus credit card is a VISA card which gives rebates including a 3% rebate on any electricity bills charged to the card. The Homeguard is a surge protection system that abates the damage of lightening and electrical surges and offers some warranty protection for appliances if an electrical surge does get past the surge protection.

The Board, employees, and management of Ark Valley became interested in steel poles as a way to improve reliability and life of poles. The first steel pole was set directly north of Kingman on July 25, 1997, and by 2001 more than 300 steel poles were in service. (It is estimated Ark Valley has a total of more than 65,000 poles in service on its 2,080 miles of rural electric line serving 4,900 meters in nine counties.) While the steel poles are higher in price than wood poles, it is expected they will be much less expensive in the long run.

Ark Valley Electric Cooperative became a Touchstone Energy Cooperative on April 27, 1998 when the Board authorized participation. Touchstone Energy is a marketing alliance for the many electric cooperatives across America. Touchstone Energy Cooperatives have to meet certain standards to belong, and Touchstone Energy reminds us that if combined together the cooperatives are the biggest electric utility in the United States.

In the year 1999 the Cooperative had five bucket trucks, two digger derricks, and one winch truck. In contrast to the winch truck bought in 1940 for $1,060, the Cooperative bought a new digger derrick truck in the year 1999 at a cost of $127,792. Safety and work efficiency have made bucket trucks a desirable improvement over pole climbing. The Cooperative got its first bucket truck in 1967.

From the start in 1939 the reason for Ark Valley Electric's existence is still the same, to efficiently serve its customers. The Cooperative has brought new technologies to bear on service over the years, starting with electricity. On March 29, 1999 the Board of Trustees approved one of the most recent technological advances at Ark Valley, acquisition of the first automatic meter reading "AMR" devices. The brand name was Turtles, a power line carrier remote AMR device. The first Turtles were installed in the Noblesville substation June 2, 1999 and in the Sand Hills substation May 2, 2000.

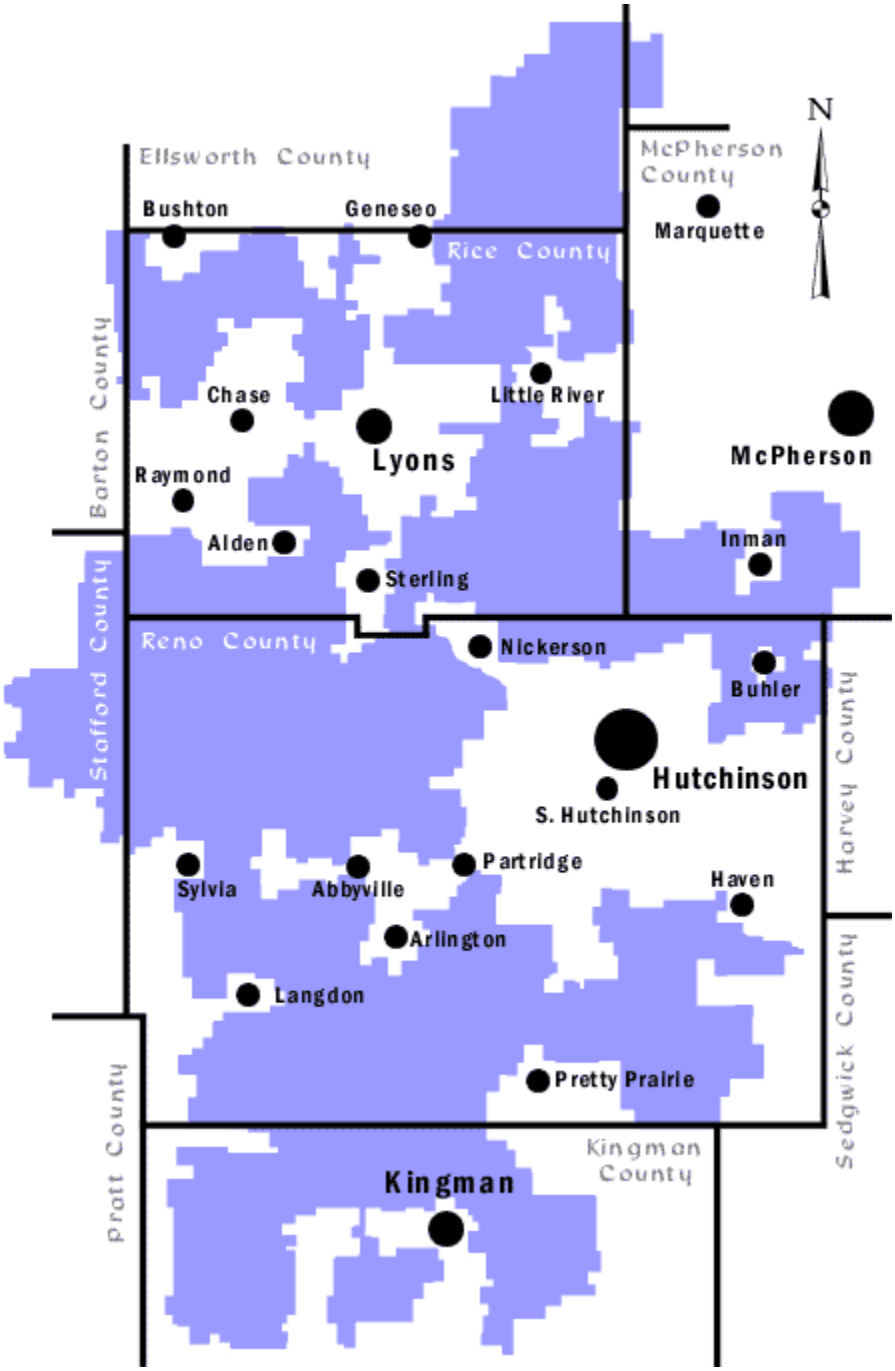
Another existing technology coming into widespread use is the ground source heat pump. They are called "ground source" or "water source" or "geothermal" heat pumps because they use the natural constant underground temperature to help heat and cool the home, resulting in big savings of energy. Increased use of geothermal heat pumps promises to change the Cooperative into the future. They will decrease electric load on the summer peak, which will lower the Cooperative's wholesale power costs, and those lower costs will reflect in lower rates to the consumers. While heat pumps are safer and healthier, the biggest reason more new homes are going geothermal is the giant savings for cheaper energy costs every month of the entire life of the house. The lower electric rates for heat pump customers and rebates for installation are shown in the rates section of this web page.

So while heat pump customers start right out saving money on energy, they are also causing downward pressure on their own rates, which will cause their savings to be still greater in future years. The increase in the number of new homes being built in the country bodes well for the Cooperative and so does the fact that consumers are discovering energy conservation through geothermal heating. It is a smart choice for today that will reap even greater benefits for tomorrow.

Cooperatives are leaders in using new technology, because of being governed by consumers. And the old saying that "necessity is the mother of invention" holds true especially in the country. We can't predict every good thing that may happen in the future, but we can predict that consumers will always be taking advantage of the future through the use of their Cooperative.

Rural America would not have had electric service in 1939, nor would they have it now, if they hadn't banded together in the Cooperative to build their own electric lines. The Cooperative is about people banding together to get something they can't buy alone, and to get it by collective bargaining whereby the Cooperative buys wholesale power in a bigger unit trying for the best price for its members. With possibilities such as fuel cells being used to avoid expensive new line construction, the members may very well think of expanded uses for their Cooperative in the future, but as long as it exists, the philosophy will not change. The Cooperative will always exist solely to serve its member-owners. Figure 3.19.1 identifies the service area for Ark Valley Electric Cooperative.

Figure 3.19. 1 – Ark Valley Electric Cooperative Service Area Map



2010 Mitigation Actions

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one mitigation action item. During the development of action items, the jurisdiction must look at how the actions can reduce the effects of hazards on existing, as well as future buildings and infrastructure. The following tables are the mitigation actions Ark Valley Electric Cooperative Association plans to adopt.

2010 Mitigation Actions	
Lead Agency: ARK VALLEY ELECTRIC COOPERATIVE ASSOCIATION, INC.,	**Project Title:** DISTRIBUTION LINE UPGRADE
Project Description: REPLACE AND UPGRADE AN UNDETERMINED NUMBER OF MILES OF DISTRIBUTION LINE	
Type of Project: PROPERTY PROTECTION	
Funding Description: LOCAL/GRANT	
Estimated Cost: UNKNOWN	
Does the jurisdiction have the authority required to implement the proposed project?	YES
Which hazard will be eliminated, diminished or controlled?	UTILITY/INFRASTRUCTURE FAILURE
Benefits (Losses Avoided): PREVENT BLACK-OUT FAILURE	**Completion Date:** WITHIN 5 YEARS
Plan for Implementation and Administration: OBTAIN RECONDUCTORING GRANT FROM FEMA, DETERMINE LINES IN NEED OF UPGRADE, REPLACE/UPGRADE DISTRIBUTION LINE	

STAPLEE Criteria	**Yes/No**
Social: Is the proposed strategy socially acceptable to the community?	YES
Technical: Will the proposed strategy work?	YES
Administrative: Is there someone to coordinate and lead the effort?	YES
Political: Is there public support both to implement and to maintain the project?	YES
Legal: Is there a clear legal basis or precedent for this activity?	YES
Economic: Does the cost seem reasonable for the size of the problem and the likely benefits?	YES
Environmental: Will the strategy need environmental regulatory approvals?	NO

Chapter 4 – Mitigation Strategy and Plan Maintenance

The mitigation strategy is an ongoing plan for reducing losses identified in the risk assessment portion of this plan. This strategy includes the development of goals, objectives, and mitigation actions that have been identified, analyzed and prioritized by the McPherson County HMPC. This Chapter is divided into 5 subsections:

- Implementation of National Flood Insurance Program
- Local Hazard Mitigation Goals and Objectives
- Identification and Analysis of Mitigation Actions
- Implementation of Mitigation Actions
    - Multi-Jurisdictional Mitigation Actions
    - McPherson County Mitigation Actions
- Plan Maintenance Process
    - Method and schedule for monitoring, evaluating, and updating the plan
    - Maintenance Schedule
    - Incorporation into Existing Planning Mechanisms, and
    - Continued Public Involvement

Implementation of National Flood Insurance Program

Federal requirement €201.6(c) (3) (ii) states: "the mitigation strategy must also address the jurisdiction's participation in the NFIP, and continued compliance with the NFIP requirement, as appropriate."

The NFIP provides the maps and regulatory basis for local floodplain management. It is also the primary source of insurance protection for flood prone properties. Involvement in the National Flood Insurance Program (NFIP) is based on an agreement between local jurisdictions and FEMA. The NFIP has 3 basic areas of focus:

- Floodplain identification and mapping – Participation in the NFIP requires communities to adopt the flood maps. By mapping the flood hazards, a broad-based awareness of the flood hazards is provided. It also provides the statistics needed to administer floodplain management programs and to actuarially rate new construction for flood insurance.
- Floodplain management – The NFIP requires communities to adopt and enforce minimum floodplain management regulations that help mitigate the effects of flooding on new and improved structures.
- Flood insurance – The NFIP enables property owners to purchase insurance as a protection measure against flood losses in exchange for State and community floodplain management regulations.

The NFIP is based on a mutual agreement between the Federal Government and the community. Standard homeowners insurance does not cover flooding. Therefore, congress created the NFIP to help provide a way for property owners to protect themselves from flood damage. Federally guaranteed flood insurance is made available to communities that agree to regulate development in their mapped floodplain to reduce the risk of flooding. For more information please refer to Chapter 2 – Risk Assessment: Flood.

The *Local Multi-Hazard Mitigation Planning Guidance (2008)* stipulates that all local mitigation plans approved by FEMA after October 1, 2008, must describe each jurisdiction's participation in the NFIP and must identify, analyze, and prioritize actions related to continued compliance with the NFIP. Please refer to the **Table 4. 2 – McPherson County Action Items** table for the actions related to NFIP compliance. The action items relating to NFIP compliance are also provided in each participating jurisdiction's profile in Chapter 3: Jurisdiction Profiles.

The following table includes a list of NFIP participants, the date of the initial Flood Hazard Boundary Map (FHBM), the initial Flood Insurance Rate Map (FIRM) and the current effective map date for the planning area.

Table 4. 1 – Community NFIP Participation

Communities Participating in the NFIP					
Community Identification #	**Community Name**	**Initial FHBM Identified**	**Initial FIRM Identified**	**Current Effective Map Date**	**Reg. - Emergency Date**
200497#	City of Galva	8/15/1975	11/17/1982	1/16/2009	11/17/1982
200509#	City of Inman	N/A	1/16/2009	NSFHA	12/31/2008
200215#	City of Lindsborg	12/17/1973	5/15/1978	1/16/2009	5/15/1978
200216#	City of Marquette	12/17/1973	8/1/1978	1/16/2009	8/1/1978
200214#	McPherson County	6/28/1977	4/4/1983	1/16/2009	4/4/1983
200217#	City of McPherson	3/15/1975	3/16/1983	1/16/2009	3/16/1983
200218#	City of Moundridge	3/8/1974	12/15/1982	1/16/2009	12/15/1982
Communities Not Participating in the NFIP					
Community Identification #	**Community Name**	**Initial FHBM Identified**	**Initial FIRM Identified**	**Current Effective Map Date**	**Sanction Date**
N/A	City of Canton	N/A	N/A	N/A	N/A
N/A	City of Windom	N/A	N/A	N/A	N/A

(NSFHA)= No Special Flood Hazard Area – All Zone C

Local Hazard Mitigation Goals and Objectives

The *Local Multi-Hazard Mitigation Planning Guidance (2008)* defines goals as broad policy statements that explain what is to be achieved. Communities are encouraged by FEMA to include objectives developed to achieve goals. This helps the plan reviewer to understand the connection between goals, objectives, and actions. According to the *Planning Guidance*, objectives should be based on findings of the local and state risk assessments and represent long-term ideas for hazard reduction or improvement of mitigation capabilities.

An important phase in the mitigation planning process is to develop goals and objectives. Mitigation goals should express the community's need to protect people and structures, reduce costs associated with disaster response and recovery, and minimize the disruption to the community following a disaster. Goals should not identify specific mitigation actions, but identify the overall improvement the community wants to achieve. Goals are broad, forward-looking statements that sufficiently describe the community's intentions.

FEMA does not require objectives to be developed for each goal. However, objectives are measurable and connect the goals with the mitigation actions. The objectives are more specific statements than goals.

In order to ensure the goals and objectives are consistent with the ones of the State of Kansas, there was a review of the 2007 Kansas Hazard Mitigation Plan goals and objectives. The hazard mitigation goals and objective in this plan also need to be consistent with those set forth in other plans in the community. For that reason, a review of the 2005 McPherson County Strategic Plan and the McPherson County Comprehensive Plan: 2004-2014 was done.

After careful review of the goals and objectives in the previously mentioned plans, the 2010 McPherson County Goals and Objectives were developed. Several of the State of Kansas mitigation goals and objectives are consistent with the ones in McPherson County. As a result, they were used as a basis for the goals developed here, with some modification. The McPherson County goals and objectives are as follows:

Goal 1: Reduce the vulnerability of the people, property, environment, and economy of McPherson County to the impacts of natural and manmade hazards.

Objective 1.1 – Encourage life and property protection measures for structures located in hazard areas.

Objective 1.2 – Reduce potential damage to future buildings and infrastructure through maintaining current building code standards.

Objective 1.3 – Encourage the incorporation of mitigation actions into repairs, redevelopment, and capital improvement projects.

Objective 1.4 – Encourage the incorporation of hazard mitigation concepts into existing and future planning efforts for the county, as well as individual municipalities.

Objective 1.5 – Increase community participation in the National Flood Insurance Program (NFIP)

Objective 1.6 – Use most effective approaches to protect buildings from flooding, including acquisition or relocation where warranted.

Goal 2: Increase public preparedness, understanding, support, and demand for hazard mitigation.

Objective 2.1 – Identify hazard specific issues and needs.

Objective 2.2 – Improve public understanding of hazards and risks by providing awareness, preparedness, and mitigation information through various channels of communication.

Goal 3: Protect and preserve environmental resources.

Objective 3.1 – Develop/maintain hazard mitigation policies that protect the environment

Goal 4: Ensure that public funds are used in the most efficient manner.

Objective 4.1 – Maximize the use of outside sources of funding.

Objective 4.2 – Encourage property-owner self-protection measures.

Objective 4.3 – Indentify financial incentives and funding opportunities

Objective 4.4 – Prioritize mitigation projects, starting with sites facing the greatest threat to life, health, and property

The HMPC developed a list of action items, as well as alternative mitigation actions during the second hazard mitigation planning meeting that could potentially be implemented to reduce the impact of hazards. A complete list of all action items considered is attached in Appendix 10- 2nd Meeting Minutes.

Identification and Analysis of Mitigation Actions

Federal Requirement 201.6(c)(3)(ii) states: The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. The actions adopted by each jurisdiction represent actions that can be executed by using local resources, like capital improvements budgets and special district funds. These actions can also be accomplished by making changes to ordinances, policies, or procedures.

In multi-jurisdictional plans, it is necessary for each participating jurisdiction to adopt and implement at least one action item. Therefore, the HMPC developed action items as a group at the second meeting. After the meeting,

each participating jurisdiction returned to their respective communities and developed specific actions for their particular jurisdiction.

In the third meeting, the HMPC had the task of developing and prioritizing the action items to determine the feasibility of implementation. Some of the actions proposed were determined not to be feasible at this time; therefore, some of the actions were not adopted by the jurisdictions. The technique used for prioritizing the mitigation actions was the STAPLEE method.

The STAPLEE was used in analyzing and ranking the mitigation actions, with an emphasis on cost effectiveness and the protection of human lives and property. The STAPLEE method is as follows:

S – Social	The public must support the overall implementation strategy and specific mitigation actions. The projects were evaluated in terms of community acceptance.
T – Technical	It is important to determine if the proposed action is technically feasible, will help reduce losses in the long-term, and has minimal secondary impacts. The HMPC determined whether the alternative action was the whole or part of the solution, or not a solution at all.
A – Administrative	Under this part of the evaluation criteria, examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the action or whether outside help will be needed.
P – Political	Understanding how the community and State political leadership feels about issues related to the environment, economic development, safety, and emergency management. This will provide valuable insight into the level of political support for mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability.
L – Legal	Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, determine whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. As a general rule, most local governments operate under enabling legislation that gives them the power to engage in different activities. The unit of government is identified for undertaking the mitigation action, and include an analysis of interrelationships between local, regional, State, and Federal governments. Legal authority is likely to have a significant role later in the process when the State or community will have to determine how mitigation activities can best be carried out, and to what extent mitigation policies and programs can be enforced.
E – Economic	Every local and State government experiences budget constraints. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. States and local communities with tight budgets or budget shortfalls may be more willing to, at least in part, be outside sources.

"Big-ticket" mitigation actions, such as large-scale acquisitions and relocations are often considered for implementation in a post-disaster scenario when additional Federal and State funding for mitigation is available.

E – Environmental Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities and the many statutory considerations, such as NEPA, to keep in mind when using Federal funds. There is a need to evaluate whether implementation of mitigation actions would cause negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

The following considerations were also made during the evaluation process:

- Compatibility with the goals and objectives identified in the Kansas Hazard Mitigation Plan
- Compatibility with the goals and objectives identified in the local mitigation strategy
- Affects of mitigation actions on other jurisdictions in the surrounding area
- Cost effectiveness of proposed actions
- Funding priorities identified in the Kansas Hazard Mitigation Plan

Implementation of Mitigation Actions

The manner in which the STAPLEE was used to prioritize the actions will be discussed in this section. While prioritizing the actions the HMPC considered the benefits that would result from mitigation actions versus the cost of those actions.

The STAPLEE score for each action item was totaled. The STAPLEE was divided into 10 different criteria considerations, which were then added together to get a total for each action item. Please refer to Appendix 11 for the actual STAPLEE that was completed during the meeting. The totals were then evaluated and divided into three categories: High, Moderate, and Low. The actions with a total of 20 to 24 were rated as "High", the actions totaling 15 to 19 were considered to be "Moderate", and the actions totaling less than 15 were rated as "Low." The actions that were rated as "High" are the actions that the participating jurisdictions adopted and plan to implement. The actions rated "Moderate" or "Low" are considered to be important, but are not feasible to implement at this time. The modified STAPLEE criteria considerations are as follows:

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals				

The action items contained in this chapter are the actions adopted by the participating jurisdictions. The actions that the HMPC determined were not feasible at this time are not included in this list. For a complete list of all actions considered please refer to Appendix 11.

Multi-Jurisdictional Mitigation Actions

According to the *Local Multi-Hazard Mitigation Planning Guidance*, each participating jurisdiction must identify the specific actions they will agree to implement for each hazard profiled. Some actions may apply to more than one jurisdiction. As previously stated, a wide realm of mitigation actions was considered, however only the actions listed in this chapter are considered to be feasible at this time. For the complete list of mitigation actions considered please refer to Appendix 10.

The following table is the mitigation actions for all jurisdictions, the STAPLEE priority ranking, the entities that adopted each action item, the goals the action item addresses, and the hazards the actions mitigate. For details on the individual jurisdiction actions (plan for implementation, the lead agency, potential funding sources, cost for implementation, and timeline) please refer to Chapter 3 – Jurisdiction Profiles.

Table 4. 2 – McPherson County Action Items

Mitigation Actions for All Jurisdictions	STAPLEE Priority Level	Goals Supported	Jurisdictions Adopted	Hazards Mitigated Against
Maintain compliance with the National Flood Insurance Program (NFIP) requirements.	21	1,3,4	McPherson County, Cities of Galva, Inman, Lindsborg, Marquette, McPherson, and Moundridge	Flood
Look into joining the National Flood Insurance Program (NFIP)	21	1,3,4	City of Windom	Flood
Emergency communication in potential disaster situations – Handheld Radio Purchase	20	1,4	McPherson County	All Hazards
Mitigate Potential Terrorist Attacks Or Acts Of Violence	20	1,4	McPherson County	Terrorism/Agri-Terrorism/Civil Disorder
Special Weapons And Tactical	20	1,4	McPherson County	Terrorism/Agri-Terrorism/Civil Disorder
McPherson County Courthouse Security	20	1,4	McPherson County	Terrorism/Agri-Terrorism/Civil Disorder
Law Enforcement Center Expansion And Upgrade	20	1.4	McPherson County	All Hazards
Look into funding to construct FEMA approved Community Safe Room	24	1,2,4	Cities of Canton, Inman, Lindsborg, and McPherson	Tornado
Install drainage culverts	22	1,3,4	City of Canton	Flood
Drainage ditch dredging	22	1,3,4	City of Canton	Flood
Install/Upgrade outdoor storm sirens	24	1,2,4	Cities of Canton, Inman, Lindsborg, Marquette, and Windom	Tornado
Emergency backup generator for critical facilities	23	1,4	Cities of Canton, Inman, McPherson and USD 423	Utility/Infrastructure Failure
Conduct hydrology study	23	1,3,4	City of Galva	Flood
Develop Emergency Preparedness Plan	21	1,2,3,4	City of Inman	All Hazards
City well house elevation	23	1,3,4	City of Inman	Flood

Mitigation Actions for All Jurisdictions	STAPLEE Priority Level	Goals Supported	Jurisdictions Adopted	Hazards Mitigated Against
Radio System Purchase	20	1,4	City of Inman	All Hazards
Equip patrol cars with mountable laptops and wireless cards	20	1,4	City of Inman	All Hazards
Cow Creek Flash Flooding Mitigation	24	1,3,4	City of Lindsborg	Flood
Facilitate an incident command center	21	1,4	City of Lindsborg	All Hazards
Develop Hazardous Materials Plan	21	1,4	City of Lindsborg	Hazardous Materials
Fire Equipment upgrade/purchase	23	1,3,4	City of Marquette	All Hazards
Security system for hospital, annex, and EMS facility	22	1,4	City of McPherson	Terrorism/Agri-Terrorism/Civil Disorder
Upgrade communication system for hospital and EMS	22	1, 4	City of McPherson	Utility/Infrastructure Failure
Water line replacement project	22	1, 4	City of Windom	Utility/Infrastructure Failure
Look into funding to construct FEMA approved Safe Room	24	1,2,4	USD 400, USD 418, USD 419, USD 444, USD 448, and McPherson College	Tornado
Public awareness project	21	1,2,4	City of Moundridge, USD 400, USD 418, USD 444, Hutchinson Community College, Central Christian College, and DS&O Electric Cooperative, Inc	All Hazards
HVAC & building fire detection upgrade	22	1,4	USD 418	Fire
Communication System Project	21	1, 4	USD 423	Utility/Infrastructure Failure
Emergency notification system	22	1,2,4	USD 448	All Hazards
McPherson County Reconductor Project	24	1,3,4	Flint Hills Rural Electric Cooperative Association	Utility/Infrastructure Failure
Distribution line upgrade	24	1,3,4	Ark Valley Electric Cooperative, Inc.	Utility/Infrastructure Failure

Plan Maintenance Process

Local hazard mitigation plans are approved by the Federal Emergency Management Agency for a period of five years. During the five years between required updates, municipalities are encouraged to review and validate the plan as needed. The adoption of a formal plan maintenance process ensures that the mitigation plan will remain an active and relevant document. This section includes:

- Method and schedule for monitoring, evaluating, and updating the plan
- Maintenance Schedule
- Incorporation into Existing Planning Mechanisms, and
- Continued Public Involvement

The McPherson County Hazard Mitigation Planning Committee developed specific objectives and tasks in the third planning meeting to ensure that appropriate monitoring protocols are in place to facilitate future plan review and updates.

The development of this multi-jurisdictional hazard mitigation plan was the first step in implementing a comprehensive mitigation process in McPherson County. The second step will be to engage in a plan maintenance process to ensure the ease of future plan updates.

Monitoring, Evaluating, and Updating the Plan

In accordance with hazard mitigation assistance program regulations and guidance, local governments, acting as subgrantees, must have a FEMA approved local hazard mitigation plan in order to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

FEMA will not disperse funds for the previously mentioned program grants for projects to jurisdictions with a lapsed local mitigation plan. The lapsed period for local mitigation plans is defined as beginning on the first day after the mitigation plan expires and ending on the last date before the updated plan is approved.

The McPherson County Emergency Management will remain the lead agency in ensuring the compliance of the maintenance process. The principal task of the McPherson County Emergency Management Agency in relation to this plan is to ensure it is successfully carried out and to report to community governing boards and public on the status of plan implementation and mitigation opportunities. Other tasks include reviewing and promoting mitigation proposals, listening to concerns about hazard mitigation, forwarding concerns to appropriate entities, and publishing relevant information on the County website.

The HMPC will identify and assess changes in policy, participation and new opportunities for mitigation activities. This requires a continued awareness of the triggers that may require changes in the mitigation plan. The triggers may include, but are not limited to, the following:

- The need to include a non-participating jurisdiction in the already approved plan
- Changes to the mitigation actions adopted or the gathering of additional information based on changes to the federal programs
- Changes in jurisdictional boundaries for participating municipalities

During the annual review process the following specific areas of emphasis need to be addressed:

- Status of mitigation actions
- Applicability of mitigation goals and objectives

• Additions to the list of disaster events in the planning area
• Changes to the municipal profiles, including boundary changes, capability enhancements and newly identified vulnerabilities

In order to remain committed to improving the update process, the HMPC developed the following schedule for implementation of the review process.

Table 4. 3 – McPherson County Hazard Mitigation Maintenance Schedule

Year	Requirement	Action	Outcome
2010	Begin development of 2010-2015 Hazard Mitigation Plan Submit to FEMA for approval	Plan development process began in February, 2010 and will be completed in December, 2010	Plan development process in progress Federal approval received on _____
2011	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions
2012	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions

Year	Requirement	Action	Outcome
2013	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions
2014	Begin the 5-year update of the 2010-2015 Hazard Mitigation Plan Update began on _____	• Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction • Apply for planning grant funds, if appropriate • Evaluate new mitigation planning requirements issued by the Federal government and the State of Kansas • Hold a HMPC planning meeting and establish a project timeline • Identify and notify potential eligible applicants and stakeholders • Develop a schedule to host a series of planning and stakeholder meetings	• HMPC members reconvene and encourage additional plan participation in the update • Submit notice to all potential eligible applicants • Ensure a minimum of two public input opportunities • Document direct or indirect participation
2015	Submit updated multi-jurisdictional plan for approval Date updated plan was submitted to FEMA for approval _____	Complete a draft update of the plan and submit it to FEMA, no later than October 1, 2015	Adopt the FEMA approved plan before expiration of the 2010-2015 McPherson County Multi-Hazard Mitigation plan

By adopting this plan the HMPC and the McPherson County Emergency Management Agency agree to:

- Meet annually to monitor and evaluate the accomplishments of the plan;
- Meet after a disaster event to update the information in the plan;
- Act as a place for discussion about hazard mitigation issues;
- Circulate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high priority, low- or no-cost recommended actions;
- Monitor opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Incorporate the hazard mitigation plan into community goals, plans, and activities that coincide, effect, or directly have an impact on community vulnerability to disasters;
- Report on plan progress and recommended changes to the LEPC; and
- Inform and request input from the public.

Incorporation Into Existing Planning Mechanisms

According to Federal Requirement €201.6(c)(4)(ii): *the plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements when appropriate.*

The McPherson County HMPC reviewed and assessed existing plans, data reports, and studies. Some of the plans utilized in the development of this plan include:

- *Local Multi-Hazard Mitigation Planning Guidance (2008)*
- National Flood Insurance Program's Community Information System reports
- National Flood Insurance Program Insurance reports
- Emergency Preparedness Guidebook
- 2007 Kansas Hazard Mitigation Plan
- USDA, Kansas Field Office Crop Progress and Condition Report
- Kansas Climate Summary and Drought Report – Current Conditions, Drought Impacts and Outlook (January 2010)
- Kansas Department of Commerce 2008 Annual Report
- Kansas Water Plan
- Kansas Association of Conservation Districts Five Year Strategic Plan 2009-2013
- 2009 Managing the Risk Report by the Kansas Commission on Emergency Planning and Response
- 2009 Kansas Severe Weather Awareness Week Information Packet
- 2008 Kansas Department of Transportation Quick Facts Report
- McPherson County Regulations and Ordinances
- McPherson County Hydrology Study
- McPherson County Comprehensive Plan: 2004-2014
- 2005 McPherson County Strategic Plan
- McPherson County Commissioners Meeting Minutes
- Zoning Regulations of McPherson County, Kansas
- Subdivision Regulations of McPherson County, Kansas
- Soil Survey of McPherson County, Kansas

The policies, goals, objectives and actions adopted as part of this plan are intended to be integrated into the development and future updates of various plans and codes. Such integration will facilitate risk prevention

practices, and support the achievement of the goals, objectives and actions outlined in this plan. Some of the existing plans, codes, and regulations that this 2010 Hazard Mitigation Plan shall be integrated into include but certainly not limited to the following:

- Local Emergency Operations Plan
- General Land Use Plan
- Capital Improvements Plan
- Post-Disaster Redevelopment/Recovery Plan
- Regional Development Plans
- Comprehensive Emergency Management Plan
- Evacuation Plan
- Zoning Ordinances
- Subdivision Regulations
- Solid Waste & Hazardous Materials Waste Regulations
- Property Deed Restrictions
- Site Plan Review
- Storm Water Management
- Soil Erosion Ordinance
- Historic Preservation Programs
- Construction/Retrofit Program
- Transportation Improvement/Retrofit Program
- School District Facilities Plan
- Economic Development Authority
- Land Buyout Program
- Local and/or Regional Evacuation Programs
- Fire Rescue Long-Range Programs
- Mutual Aid Agreement
- Temporary Animal Relocation Program

Continued Public Involvement

McPherson County Emergency Management will distribute the annual plan review to the HMPC members, and will also make the information available to the public. For future updates it is recommended to look for more opportunities to include the public, such as televising the public planning meetings.

Appendices

Canton Fire Department
Attention: Dave McMannis
PO Box 397
Canton, KS 67428

Conway Fire Department
Attention: Sean Wilson
1354 Conway Trail
McPherson, KS 67460

Galva Fire Department
Attention: Wayne Williams
PO Box 62
Galva, KS 67443

Inman Fire Department
Attention: Dennis Schroeder
PO Box 426
Inman, KS 67546

Lindsborg Fire Department
Attention: Willard Keding
PO Box 70
Lindsborg, KS 67456

Marquette Fire Department
Attention: Kerry Linder
428 N. Washington
Marquette, KS 67464

McPherson Fire Department
Attention: Dennis Thrower
312 E. Kansas Avenue
McPherson, KS 67460

Moundridge Fire Department
Attention: Ron Blaylock
PO Box 456
Moundridge, KS 67107

Roxbury Fire Department
Attention: Michael Becker
PO box 116
Roxbury, KS 67476

Windom Fire Department
Attention: Mike Smyres
702 Main
Windom, KS 67491

Canton EMS
201 S. Main
PO Box 524
Canton, KS 67428

Marquette EMS
111 S. Washington
PO Box 26
Marquette, KS 67464

McPherson EMS
315 W. 4th St
McPherson, KS 67460

Moundridge EMS
225 N. Wedel
PO Box 28
Moundridge, KS 67107

Canton Police Department
104 W. Allen
PO Box 476
Canton, KS 67428

Galva Police Department
208 S. Main St.
PO Box 223
Galva, KS 67443

Inman Police Department
117 S. Main St.
PO Box 177
Inman, KS 67546

Marquette Police Department
113 N. Washington
PO Box 53
Marquette, KS 67464

McPherson Police Department

McPherson Sheriff's Department

Moundridge Police Department
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Windom Police Department
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Edinburgh Manor
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Sterling House
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Tom Chandler
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McPherson, KS 67460

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Moundridge, KS 67107

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National Weather Service
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KDOT
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1601 N. Main
McPherson, KS 67460

Bethany Home
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Lindsborg, KS 67456

Moundridge Manor
710 N. Christian
Moundridge, KS 67107

Pleasant View Home
108 N. Walnut
Inman, KS 67546

KBBE/KNGL
411 E. Euclid
McPherson, KS 67460

The Ledger
135 S. Christian Avenue
Moundridge, KS 67107

Lindsborg News-Record
114 S. Main
Lindsborg, KS 67456

Marquette Tribune
112 N. Washington
Marquette, KS 67464

The McPherson Sentinel
301 S. Main
McPherson, KS 67460

Lindsborg Community Hospital
605 W. Lincoln
Lindsborg, KS 67456

Memorial Hospital
1000 Hospital Drive
McPherson, KS 67460

Mercy Hospital
218 E. Pack
Moundridge, KS 67107

Lindsborg Senior Center
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Lindsborg, KS 67456

Marquette Senior Center
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Windom, KS 67491

Canton Senior Center
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Canton, KS 67428

Galva Senior Center
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Marion, KS 66861

Reno County Emergency Mgmt
210 W. First
Hutchinson, KS 67501

Harvey County Emergency Mgmt
PO Box 231
Newton, KS 67114

Ellsworth County Emer. Mgmt
212 N. Kansas
Ellsworth, KS 67439

Rice County Emergency Mgmt
1482 US Hwy 56
Lyons, Ks 67554

Saline County Emergency Mgmt
251 N. 10th
Salina, KS 67402

Dickinson County Emer. Mgmt.
109 East First
Abilene, KS 67410

McPHERSON COUNTY

TO: Partners in Disaster Planning

RE: Hazard Mitigation Plan

FROM: McPherson County & LEPC

Greetings;

The Federal government offers assistance for certain activities that prevent or minimize the recurrence of natural hazards or the impact of future disasters.

FEMA, the Federal Emergency Management Agency, recently awarded Kansas with over $100 million in hazard mitigation funds to be implemented at the State and local level., through the Hazard Mitigation Grant Program. McPherson County, local municipalities, special districts and agencies who decide to join in the process are eligible to receive mitigation funds within the coming five year period.

Your jurisdiction, district or organization has been identified as critical to the development of a County-wide plan, a requirement for all eligible entities in the County to become qualified for pre-disaster funding.

If you join us, you will be asked to participate in planning meetings – up to three times in the coming 6-9 month period. This is a federal requirement. During these meetings, you will have the opportunity to help rate the hazards that threaten your jurisdiction and the County.

You will also be asked to share information, develop a profile, adopt an action or initiative, attain public input and to adopt the overall plan. This is a great opportunity to analyze the County's pre-disaster needs and the needs of individual agencies and jurisdictions.

You, or a representative, are invited to attend the "Kick-Off Meeting".

Where – McPherson Community Building – 122 East Marlin, McPherson
When – Thursday, February 4th at 6:30 p.m.

If you have questions or do not want to participate in the process, contact the Emergency Management Office at 620-245-1260 or 1261. Join us at the "Kick-Off Meeting"

Dillard S. Webster
Office of Emergency Management
McPherson County

1177 West Woodside
McPherson, KS 67460-0498

EMERGENCY MANAGEMENT AGENCY

Fax - (620) 245-1269
Business - (620) 245-1260
Emergency - (620) 245-1266

Print

From: Emergency Mngmt Secretary (mcemaa@sbcglobal.net)
To: Michele Abbott-Becker; Sheldon Anderson; Mike Androes; Kevin A Beakey; Brenda Becker; Tim Berggren; Ron Blaylock; Tom Brown; Gary Brown; Dianna L Carter; Ron Classen; Kenny Cook; Lauren DeMott; Randy Easter; Darrell Elvin; Lorraine Emler; Dr. Charles Englund; BJ Fictum; Darren Frazier; Dennis Friesen; KT Gent; Nick Gregory; Richard Hayden; Chance Hayes; Bob Herron; Fern Hess; Joe Hoffman; Steve Johnson; Jim Johnston; Jim Jones; James Jumonville; Jay Kessler; Tom Kramer; Dale Ladd; Jim Leftwich; Ron Loomis; Ray Lund; Vida Mann; Joe McCartney; Julie McClure; Julie McClure; Dave McMannis; DAVID MCMURRAY; Susan Meng; Joe Palic; Daryl Patrick; Duane Patrick; Gerald Pelnar; Larry Powell; Vince Rocco; Jon Sauer; Dennis Schroeder; Dennis Shaw; Larry Smith; Chancy Smith; Tara Souder; Stan Stephenson; Katie Stockstill; De Sullivan; Mike Terry; Harris Terry; Dennis Thrower; Dr. Rick Upshaw; Larry VanDerWege; Angie Vickrey; Dale Vickrey; Chantel Warren; Dr. Randy Watson; Dillard Webster; Alan Weinbrenner; Darin Werries; Wayne Williams; Sean Wilson; Rick D Witte; Marquette Fire Dept; Windom Fire Dept; Ledger; Lindsborg News
Date: Thu, February 18, 2010 9:24:08 AM
Subject: Hazard Mitigation Kick-Off Meeting

Just a reminder of the Hazard Mitigation Kick-Off Meeting scheduled for 630 pm tonight at the McPherson Community Building.

Hope to see you there.

Julie L. McClure
Administrative Assistant
McPherson County EMA and
McPherson County Communications ~ 911
(620) 245-1260 phone
(620) 245-7591 cell
(620) 245-1262 fax
mcemaa@sbcglobal.net

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Meeting Reminder

From: **Emergency Mngmt Secretary** (mcemaa@sbcglobal.net)
Sent: Tue 4/13/10 9:46 AM
To: Michele Abbott-Becker (mbecker@marioncoks.net); Mike Alkire (sandyandmike@cox.net); Sheldon Anderson (Sheldon.Anderson@McPherson.com); Mike Androes (mike.sentinel@gmail.com); Kevin A Beakey (kbeakey@mcphersoncountyks.us); Brenda Becker (bbecker@mcphersoncountyks.us); Tim Berggren (chief@lindsborgcity.org); Ron Blaylock (ronnie@mtelco.net); Tom Brown (tomb@mcpcity.com); Gary Brown (GaryB@mcphersonmemorial.org); Dianna L Carter (dcarter@mcphersoncountyks.us); Ron Classen (rclassen@moundridgemanor.net); Kenny Cook (kennyc@macpw.org); Lauren DeMott (lauren.sentinel@gmail.com); Randy Easter (randye@mcphersonmemorial.org); Darrell Elvin (snuggets@carrollsweb.com); Lorraine Emler (lemler@machealth.org); Dr. Charles Englund (charles.englund@cox.net); BJ Fictum (scema@diodecom.net); Darren Frazier (DarrenF@mcphersoncountyks.us); Dennis Friesen (dfriesen@ncra.coop); KT Gent (macpst81@hotmail.com); Nick Gregory (nickg@mcpcity.com); Richard Hayden (richardh@mcpcity.com); Chance Hayes (chance.hayes@noaa.gov); Bob Herron (psdcapone@yahoo.com); Fern Hess (fhess@machealth.org); Joe Hoffman (mpso604@yahoo.com); Ron Huxman (mdgecity@mtelco.net); Steve Johnson (sjohnson@machealth.org); Jim Johnston (mpso602@yahoo.com); James Jumonville (james.jumonville@hospira.com); Jay Kessler (police@moundridge.com); Ida Kirmse (ikirmse@cox.net); Tom Kramer (tomk@macpw.org); Dale Ladd (dladd@ksu.edu); Ledger (editor@ledgernewspaper.net); Jim Leftwich (jim.leftwich@tag.ks.gov); Carla Lehman (clehman@thecedars.org); Lindsborg News (dori@lindsborgnewsrecord.com); Ron Loomis (rloomis@hughes.net); Ray Lund (K0rfl@yahoo.com); Vida Mann (vidamann718@hotmail.com); Marquette Fire Dept (marquettefire@hotmail.com); Joe McCartney (Joe.McCartney@Williams.com); Julie McClure (jeff-julie@sbcglobal.net); Julie McClure (mcemaa@sbcglobal.net); Dave McMannis (d103mac@hotmail.com); DAVID MCMURRAY (DAVIDM@MCPCITY.COM); Susan Meng (smeng@mcphersoncountyks.us); Bob Moore (bob@elliottagency.com); Joe Palic (palic@ksdot.org); Daryl Patrick (darylp@mcphersonmemorial.org); Duane Patrick (patricklndsbrg@yahoo.com); Gerald Pelnar (wd0fyf@cox.net); Larry Powell (mpso601@yahoo.com); Vince Rocco (vincer@mcpcity.com); Jon Sauer (Jon.Sauer@oneok.com); Dennis Schroeder (dschroeder@ncra.coop); Dennis Shaw (denniss@mcpcity.com); Larry Smith (losmsu62@cox.net); Chancy Smith (csmith@dkcoks.org); Tara Souder (taras@mcphersonmemorial.org); Katie Stockstill (katie.sentinel@gmail.com); De Sullivan (sunflower.arc@sbcglobal.net); Mike Terry (terrymn2002@yahoo.com); Harris Terry (hfterry@sbcglobal.net); Dennis Thrower (dennist@mcpcity.com); Dr. Rick Upshaw (Dr_rick_upshaw@yahoo.com); Larry VanDerWege (LarryV@lindsborghospital.org); Angie Vickrey (angiev@moundridgeems.com); Dale Vickrey (birddog@mtelco.net); Chantel Warren (Chantel.W@sbcglobal.net); Dr. Randy Watson (randy.watson@mcpherson.com); Dillard Webster (mcema@sbcglobal.net); Alan Weinbrenner (ALANW@MCPBPU.COM); Darin Werries (darinw@mcphersonmemorial.org); Wayne Williams (galvafd@hometelco.net); Sean Wilson (SJwilson@Ks-usa.net); Angela wilson (angiewilson557@hotmail.com); Windom Fire Dept (WFD3@LRMUTUAL.COM); Rick D Witte (RWitte@mcphersoncountyks.us)

Just a reminder of the Hazard Mitigation Meeting scheduled for Thursday, April 15, 2010. This meeting is again being held at the McPherson Community Building, 122 East Marlin, and starts at 630 pm. Let me or Dillard know if you have any questions.

Julie L. McClure
Administrative Assistant
McPherson County EMA and

Meeting Minutes

From: **Emergency Mngmt Secretary** (mcemaa@sbcglobal.net)
Sent: Thu 5/06/10 9:32 AM
To: Mike Alkire (sandyandmike@cox.net); Sheldon Anderson (Sheldon.Anderson@McPherson.com); Mike Androes (mike.sentinel@gmail.com); Bob Baldwin (bbaldwin@thecedars.org); Kevin A Beakey (kbeakey@mcphersoncountyks.us); Brenda Becker (bbecker@mcphersoncountyks.us); Tim Berggren (chief@lindsborgcity.org); Ron Blaylock (ron6710@hotmail.com); Charles Boeckel (chuckg@flinthillsrec.com); Tom Brown (tomb@mcpcity.com); Gary Brown (GaryB@mcphersonmemorial.org); Dianna L Carter (dcarter@mcphersoncountyks.us); Tom Chandler (manager@mcphersonairport.com); Ron Classen (rclassen@moundridgemanor.net); Kenny Cook (kennyc@macpw.org); Staci D Curl (citgalva@hometelco.net); Lauren DeMott (lauren.demott@mcphersonsentinel.com); Randy Easter (randye@mcphersonmemorial.org); Rick Edwards (Rick.Edwards@centralchristian.edu); Darrell Elvin (snuggets@carrollsweb.com); Lorraine Emler (lemler@machealth.org); Dr. Charles Englund (charles.englund@cox.net); David Ferrell (David.Ferrell@centralchristian.edu); Darren Frazier (DarrenF@mcphersoncountyks.us); Dennis Friesen (dfriesen@ncra.coop); KT Gent (macpst81@hotmail.com); Nick Gregory (nickg@mcpcity.com); Mike Harold (mharold@thecedars.org); Richard Hayden (richardh@mcpcity.com); Chance Hayes (chance.hayes@noaa.gov); Don Hellwig (dhellwig@dsoelectric.com); Bob Herron (psdcapone@yahoo.com); Fern Hess (fhess@machealth.org); Ron Huxman (mdgecity@mtelco.net); Randy Jirak (jirakr@bethanylb.edu); Steve Johnson (sjohnson@machealth.org); Jim Johnston (mpso602@yahoo.com); James Jumonville (james.jumonville@hospira.com); Jay Kessler (police@moundridge.com); Delwin Koons (dkoons@bethanyhome.com); Tom Kramer (tomk@macpw.org); Dale Ladd (dladd@ksu.edu); Gail Lauderdale (cityofwindomks@embarqmail.com); Ledger (editor@ledgernewspaper.net); Jim Leftwich (jim.leftwich@tag.ks.gov); Carla Lehman (clehman@thecedars.org); Alan Lindfors (alindfors@mfsb.com); Lindsborg News (dori@lindsborgnewsrecord.com); Ron Loomis (rloomis@hughes.net); Ray Lund (K0rfl@yahoo.com); Vida Mann (vidamann718@hotmail.com); Marquette Fire Dept (marquettefire@hotmail.com); Joe McCartney (Joe.McCartney@Williams.com); Dave McMannis (d103mac@hotmail.com); DAVID MCMURRAY (DAVIDM@MCPCITY.COM); Susan Meng (smeng@mcphersoncountyks.us); Bob Moore (bob@elliottagency.com); Leland Nelson (lnelson@ksdot.org); Shane Netherton (netherts@mcpherson.edu); Joe Palic (palic@ksdot.org); Daryl Patrick (darylp@mcphersonmemorial.org); Duane Patrick (patricklndsbrg@yahoo.com); Gerald Pelnar (wd0fyf@cox.net); Brenda Peters (brenda.peters@ks.nacdnet.net); Larry Powell (mpso601@yahoo.com); Vince Rocco (vincer@mcpcity.com); Derrick Rutherford (drutherford@dsoelectric.com); Steve Samuelson (steve.samuelson@kda.ks.gov); Dennis Schroeder (dschroeder@ncra.coop); Dennis Shaw (denniss@mcpcity.com); Baron Shively (Baron.shively@ks.usda.gov); Linda Skiles-Hadduck (lindamcca@att.net); Larry Smith (losmsu62@cox.net); Tara Souder (taras@mcphersonmemorial.org); Katie Stockstill (katie.sentinel@gmail.com); De Sullivan (sunflower.arc@sbcglobal.net); Harris Terry (hfterry@sbcglobal.net); Dennis Thrower (dennist@mcpcity.com); Dr. Rick Upshaw (Dr_rick_upshaw@yahoo.com); Larry VanDerWege (LarryV@lindsborghospital.org); Angie Vickrey (angiev@moundridgeems.com); Dale Vickrey (birddog@mtelco.net); Chantel Warren (Chantel.W@sbcglobal.net); Dr. Randy Watson (randy.watson@mcpherson.com); Dillard Webster (mcema@sbcglobal.net); Alan Weinbrenner (ALANW@MCPBPU.COM); Wayne Williams (galvafd@hometelco.net); Sean Wilson (SJwilson@Ks-usa.net); Angela wilson (angiewilson557@hotmail.com); Windom Fire Dept (WFD3@LRMUTUAL.COM); Judith Wineland (jwineland@thecedars.com); Rick D Witte (RWitte@mcphersoncountyks.us)
Attachments:
Meeting #1 Minutes.pdf (708.7 KB), MP Maintenance Schedule.pdf (195.8 KB), MPAction_Worksheet.pdf (393.3 KB)

Attached to this email you will find Meeting Minutes and other information that was distributed at the last Hazard Mitigation Meeting.

The 3rd and final meeting will be held on June 4, 2010 starting at 0900 am in the training room in the basement of the Law Enforcement Center, 1177 West Woodside St, McPherson. This will be a come and go meeting so everyone will have a chance to speak one on one with the representatives from State and Local Emergency Management Consultants, LLC. They are planning on being in our office until 11 or 12 and then they will be going out in the field to make contact with the agencies that have not yet had a representative at one of the other two meetings. If you prefer to contact them in advance to schedule a time for them to come to your office you can contact Angela Wilson at 785-393-5510 or by email at angiewilson557@hotmail.com.

If you have any questions please do not hesitate to contact Dillard or myself. I will send out a reminder for the June 4th meeting a couple days prior.

Julie L. McClure
Administrative Assistant
McPherson County EMA and
McPherson County Communications ~ 911
(620) 245-1260 phone
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McPherson County Hazard Mitigation Planning Meeting

From: **Angela wilson** (angiewilson557@hotmail.com)
Sent: Tue 3/30/10 2:48 PM
To: Steve Samuelson DWR (steve.samuelson@kda.ks.gov); Brad Moeller (brad.moeller@tag.ks.gov); Jason Hartman Kansas Forest Service (hartmanj@ksu.edu); Jacob Gray - KDEM (jacob.gray@tag.ks.gov); Joe Chandler (joe.chandler@dhs.gov); Joe Koch II Saline County EM (joe.koch@saline.org); csmith@dkcoks.org; mbecker@marioncoks.net; bill.guy@renogov.org; lbuller@harveycounty.com; terry.riceems@sbcglobal.net; kendani@eaglecom.net; Ida Kirmse (ikirmse@cox.net); jay wilson (jdwilson111@hotmail.com); Dillard Webster (mcema@sbcglobal.net)

Dillard Webster, McPherson County Emergency Management, will host a hazard mitigation planning meeting. McPherson County would like to extend an invitation to you, and ask you to represent your agency as a key mitigation partner in the development of this plan.

Meeting Information
Date: Thursday, April 15, 2010
Time: 6:30p.m.
Location: McPherson Community Building
Address: 122 East Marlin, McPherson, KS

Please confirm your attendance in advance. You may do so by e-mailing Dillard at mcema@sbcglobal.net or by replying to this message. We look forward to seeing you at the meeting.

Sincerely,
Angela Wilson
State and Local Emergency Management Consultants, LLC
Cell: (785) 393-5510
Fax: (800) 881-3040

Note:
Agencies invited to participate include:

- National Weather Service
- Kansas Department of Agriculture, Division of Water Resources
- Kansas Division of Emergency Managemen
- Kansas Forestry Service
- Federal Emergency Management Agency
- Neighboring Counties

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Project:	McPherson County Emergency Operations Plan	**Meeting Date:**	February 18, 2010
Event:	Planning Committee Meeting	**Place/Room:**	

Jamie Bernd	Windom Fire Dept #3 City of Windom	620 245 7967	Jamie Bernd
Ken Armbrust	1114 EAST HWY McPh KS 67460	620 841-0843	Ken Armbrust
Roger Boecker	Inman Fire #5 Inman KS	620-585 3422	Roger Boecker
Dennis Shaw	McPherson P.D	620245 1200	[illegible]
Dennis Thomas	McPherson Fire	2452505	[illegible]
Bobby Herron	Inman P.D.	620-585 2109	[illegible]
Stan Stephenson	McPherson Auxiliary Radio	316-3594051	[illegible]
Chris Biehler	McPherson Fire	620-245-2200	Chris W. Biehler

Project:	McPherson County Emergency Operations Plan	**Meeting Date:**	February 18, 2010
Event:	Planning Committee Meeting	**Place/Room:**	

Darren Frazier	911 Communications	darrenf@mcphersonckso.com	245-1265
Julie McClure	911 - EMA	mcemea@stelglobal.net	245-1260
Craig Deloney	Moundridge EMS	craigdeloney@moundridgeems.com	345 3651
James Jumonville	Hospira	james.jumonville@hospira.com	2456143
Jerry Stiggins	Amateur Radio	JStiggins@Hotmail.com	
Ronny Eash	EMS - McPherson	reash@mcphersonhospital.com	
Michael Terry	McPherson PD	—	245-1200
Rick Upshaw	CART	dr.rick.upshaw@yahoo.com	620-755 5777
Alan Weinbrenner	BPU	alanw@mcpbpu.com	620.245-2524
Jim Lefthwich	KS Emergency Mgt	jim.lefthwich@kdes.ks.gov	316-833 0498

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

			PLEASE SELECT ONE			
			PUBLIC	COMPANY	EPC	
Don Holling	dholling@dsoelectric.com	785-655-2011		DSO		DS+O Electric Coop
Randall Kaufman		620 834-2341	✓			McPherson Co Fire dist #3
Baron Shively	Baron.shively@ks.usda.gov	620-241-1450				USDA-Natural Resources Conservation Service
Tom Brown	tomb@mcpcity.com	620-755-2541	✓			City of McPherson
Sheldon Anderson	sheldon.anderson@mcpherson.com	620 241 9700 c/89?	✓			McPherson USD 418

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

[redacted]			PLEASE SELECT ONE			
			PUBLIC	COMPANY	LEPC	
Leland Nelson	lnelson@ksdot.org	241-1462	X			KDOT
Linda Stiles-Haddock	mcp_coa@yahoo.com	241-1848	X			McPherson County Council on Aging
DENNIS FRIESEN	djfriesen@sbcglobal.net	342-7702		X		NERA
David Ferrell	David.Ferrell@centralchristian.edu	241-0723 Ext 307	X			Central Christian College
Ron Huxman	mdgecity@mtelco.net	345-2661	X			City of Moundridge
Derrick Rutherford	drutherford@dsoelectric.com	655-2011				DSO Electric
Brenda Peters	brenda.peterson@nccnet.net	241-1836		X		McP Co. Conservation
Tom Chandler	manager@mcphersonairport.com	241-0684	X			McP Airport
RANDY JIRAK	JIRAKR@BETHANYLB.EDU	785-227-3380 Ext 8316		X		BETHANY COLLEGE
MAX BOFFINGER		785-542-2506				MARQUETTE EMS

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

			PLEASE SELECT ONE			
			PUBLIC	COMPANY	LEPC	
Bobby D. Herron	Inman PD@Yahoo.com	620 585-2109			-	Inman P.D.
Troy M Smyres	tksmyres@lemutual.com	620-664-4520				Windom FD
Gary Snobren	garys@lindsborgcity.org	785-227-3355				City of Lindsborg
Tim Berggren	chief@lindsborgcity.org	785 227 2988				City of Lindsborg
Jay Stephenson	S-stephenson@sbc.[illegible]	[illegible]				McPherson Daystar Radio
Lauren DeMott	lauren.demott@mcphersonsentinel.com	620-241 2922				McPherson Sentinel
Mike Strouse	wrkford@ntelco.net	620-386 4346				Moundridge Fire
Jim Leftwich	jim.leftwich@tag.ks.gov	316-833 0498				Ks Emergency Mgt.

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

			PLEASE SELECT ONE			
			PUBLIC	COMPANY	LEPC	
Janis Bernd	107 E. N. Ave Box 3 Windom Ks 67491	620 245 7967		✓		City of Windom Fire & McPherson #3 Windom
James Timmonville				✓	✓	Hospital
Wayne Miller	galvafdg hometelco.net	620-245 8443				McP RFD #9
Jeremy Stiggins	JStiggins@Hotmail.com					Amateur Radio
[illegible]	cityofwindom@[illegible]	620.489.6221				City of Windom
Kenny Cook	Kenc@macpu.org	620-241-2018	✓	✓		Mac County
Kevin Beakey	kbeakey@mcphersoncounty[illegible].org	241-6777				MAC COUNTY
Judith Wineland	jwineland@thecedars	241-0919 ext 125		✓		The Cedars
Roger Boesker	roger524@inmanks.net	620 585 2422	✓			Inman Fire
Randy O Easter	Randye@mcphersonmemorial.org	620 242-7037			✓	LEPC & McPherson EMS
Rick Upshaw	dr_rick_upshaw@yahoo.com	620-753 5722			✓	CART
Dennis Shall	Dennis@mycity.com	620 245 1200			✓	McPherson PD

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

			PLEASE SELECT ONE			
			PUBLIC	COMPANY	LEPC	
Dave Schmidt		654 6798				Canton Fire
Dale Vickrey		386-4672				Moundridge F.D.
Lorraine Emler		241-1753				McP Co. Health Dept
Debbie T. Koons	D.koons@bethany home.com	785-227-2334		~~Bethany Home~~		Bethany Home
Jay Kessler	Police@moundridge.com	620-345-2777				Moundridge PD
Rich Edwards	richedwards@kstatecollege.edu		Central Christian College	~~Central Christian~~		
Kerry Linder	marquettefire@hotmail.com	785-452-2717				McPherson Co. RFD #2
Bob Baldwin	bbaldwin@thecedars.org	620-241-0919				the Cedars
Harris Terry	hfterry@[illegible]	241-1711	✓			McPherson Co
Chris Biehler	chrisb@mcpcity.com	245-2505				McPherson Fire
Tim Blaylock		345-3557				Moundridge Fire
Charles Friedel	chuckf@flinthillsrec.com	620767 5144				Flint Hills REC

Hazard Mitigation Kick Off Meeting

Attendance Roster

2-18-10 McPherson Community Building

			PLEASE SELECT ONE			
			PUBLIC	COMPANY	LEPC	
Ken Armbrust	1117 EASTMOOR McPh. KS	620 241-0843			✓	
Darren Frazier		620 245-1265			✓	
Julie McClure		345-1260			✓	911-EMA
Angie Vickrey	angie@mundridgeems.com	345 3357			✓	Mundridge EMS
Josh McMannis		620 344-8279				Canton Fire
Mike Harold	mharold@thecedars.org			✓		The Cedars, Inc. McPherson
Roger Baesker	roger524@inmanks.net	620 585 2422			✓	Inman Fire
Gary Brown	garyb@mcphersonmemorial.org	620-755-7555				Memorial Hosp.
Michael Terry	—	245-7100			✓	[illegible]
Dennis K Thomas	clerk@mcpcity.com	245-2505			✓	McPherson Fire
KEITH MILLER	kmiller@farmersnationalbanks.com	620-585-6431	✓			CITY OF ELYRIA
Millie Smyres	344 Eisenhower Windom Kans	cell 245-8944 834-2966	✓			Windom Fire

Sign-In Sheet (Page __ of ___ Pages)		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: April 15, 2010
Event:	2nd Hazard Mitigation Planning Meeting	Place: 122 E. Marlin, McPherson, KS

Name (Please Print)	Agency	E-Mail Address	Phone #	Signature
Mike Sayer	Chief Windom Fire		cell 2458439 834-2362	Mike Sayer
Steve Samuelson	KS Dept Ag.	Steve. Samuelson @ Kda.ks.gov	785-296-4622	Steve Samuelson
Chris Biehler	MCP - Fire Dept	chrisb@mcpcity.com	245-2505	Chris W Biehler
Wayne Williams	Fire District #9 Galva	galvafd@hometel.net	654-3303	Wayne Williams
Dave Schmidt	Fire District #1 City of Canton		654 6798	Dave Schmidt
Tom Brown	McPherson Cit	tomb@mcpcity.com	245-2535	Thomas A Brown
Nick Bergen	City of McPherson	nicks@mcpcity.com	245-2535	Nick Bergen
Dennis Shaw	Police Dept " " "	Dennis@mcpcity.com	245-2535	Dennis Shaw
Dave McMannis	RFD#1 CANTON	d103mac@hotmail.com	344 8106	Dave McMannis
Alan Weinbrenner	McPherson BPH	alanw@mcpbph.com	242-9122	Alan D. Weinbrenner
Dwin T. Koons	Lindsborg	dkoons@bethany.edu	212-0965	Dwin T. Koons
Linda Stiles Hadlock	McPherson	lindamcca@att.net	241-1848	Linda Stiles Hadlock
Randy Jirak	Bethany College	JIRAKR@BETHANYLB.EDU	785-227-3380 EXT. 8316	[illegible]
Bobby D. Herron	Inman P.D.	inmanpd@yahoo.com	620-585 2109	Bobby D. Herron
Randy Easter	McPherson EMS	randye@mcphersonmemorial.org	620-242 7037	Randy Easter

Sign-In Sheet (Page __ of ___ Pages)		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: April 15, 2010
Event:	2nd Hazard Mitigation Planning Meeting	Place: 122 E. Marlin, McPherson, KS

Name (Please Print)	Agency	E-Mail Address	Phone #	Signature
Janis Bernd	Windom Fire City of Windom		489-6900 489-6221	Janis Bernd
* Community Shelter Gail Lauderdale	City of Windom	city of windom KS @ emcmail.com	489-6221	Gail Lauderdale
Derrick Rathbun	DSPO Electric	drathbun@dspoelectric.com	655-2011	Derrick Rathbun
Steve Johnson	McPherson County Health	sjohnson@mcpherhealth	241-8755	Steve Johnson
Tim Bergren	Lindsborg City Co	chief@lindsborgpd.org	785-227-2488	Tim Bergren
Kent Miller	Enterprise City Council	kmiller@lacadesa.com	620-382-2165 585-6431	Kent Miller
Rusty Johnson	Inman Kera Fire Department	rusty@nckcn.coop	620-245-6579	Rusty Johnson
Sheldon Cudney	McPherson USD 418	sheldon.cudney@mcpherson.com	620-241-5420 ext 124	Sheldon Cudney
James Jumonville	Hospira/LER	james.jumonville@hospira.com	620-245-6143	James Jumonville
Bob Hall	Ark Valley Electric Co-op	bob@arkvalley.com	620 662-6661	Bob Hall
Matt Dougherty	USD 444	mdougherty@usd444.com	620-897-6325	Matt Dougherty

Sign-In Sheet (Page __ of ___ Pages)

Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: April 15, 2010
Event:	2nd Hazard Mitigation Planning Meeting	Place: 122 E. Marlin, McPherson, KS

Name (Please Print)	Agency	E-Mail Address	Phone #	Signature
Gary Brown	Memorial Hosp	garyb@mcpherson memorial.org	620-755-7555	
David Ferrell	Central Christian College	David.Ferrell@centralchristian.edu	620-241-0723 Ext. 307	
Rick Edwards	"	Rick.Edwards@centralchristian.edu		

Sign-In Sheet (Page __ of ___ Pages)		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: April 15, 2010
Event:	2nd Hazard Mitigation Planning Meeting	Place: 122 E. Marlin, McPherson, KS

Name (Please Print)	Agency	E-Mail Address	Phone #	Signature
Staci D. Curl	Galva Police Dept City of Galva	citgalva@hometeko.net	6202654 35101	Staci D. Curl
Shane Netherton	McPherson College	netherts@mcphersoned.edu	620-242-0451	[illegible]
Alan Lindfors	City of Marquette	alindfors@mfsb.com	785-546-2292	[illegible]
Julie McClure	MP Co EMA	meemaa@sbcglobal.net	245-1260	Julie L McClure
Darrell Elvin	Marquette P.D.	snuggets@carrollsweb.com	785-227-5004	Darrell C. Elvin

Sign-In Sheet		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: June 4, 2010
Event:	3rd Hazard Mitigation Planning Meeting	Place/Room: 1177 W. Woodside St, McPherson, KS

Name (Please Print)	Agency/Organization	E-Mail Address	Phone #	Signature
Bobby D. Herzog	Inman Police Dept	inmancpd@yahoo.com	620 585-2109	
Bill Seidl	Canton-Galva USD419	bseidl@usd419.org	620 628-4901	Bill Seidl
Dave McMannis	McPherson Co RED#1 Canton	d103mac@hotmail.com	620 344-8106	
Diann Hrabe	City of Canton	cantoncity@hometelenet	620-628-4916	
Brad Smiley	cits of Canton	mayorsmiley@gmail.com	620 755-1470	
John Betzer	"	REZTEBJ@YAHOO.COM	620-628-4313	
Kristi Bohling-DaMetz	Hutchinson Community College McPherson Center	dametzk@hutchcc.edu	620-245-0202	
Kevin E. Case	USD No 448	kcase@usd448.com	620 585 6429	

Sign-In Sheet		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: June 4, 2010
Event:	3rd Hazard Mitigation Planning Meeting	Place/Room: 1177 W. Woodside St, McPherson, KS

Name (Please Print)	Agency/Organization	E-Mail Address	Phone #	Signature
Chris Smith	Central Christian College	chris.smith@centralchristian.edu	618-781-6490	Chris M Smith
David Ferrell	Central Christian College	David.Ferrell@centralchristian.edu	620-241-0723	David Ferrell
Rick Edwards	Central Christian College	rick.edwards@centralchristian.edu	620-241-0723 ext 374	Rick Edwards
TIM BRUTON	McPHERSON COLLEGE	brutont@mcpherson.edu	620-242-0472	TM Bruton
Kenneth Cook	McPherson County	kennyc@mcpw.org	620-241-2288	[illegible]
Chad Higgins	USD 423	higgins@usd423.org	620-345-5520	[illegible]
Brad Stucky	McPherson College	stuckyb@mcpherson.edu	620-242-0475	Brad Stucky
Leland Nelson	KDOT	lnelson@ksdot.org	620-241-1460	[illegible]
Sean Wilson	MCFD #4	sjwilson@ksusa.net	620 755 5264	[illegible]
Gary Rose	Memorial Hosp	garyr@mcphersonmemorial.org		[illegible]
Jim Brown	City of McPherson	tomb@mcpcity.com	620-245-2555	Jim Brown
Nick Gregory	City of McPherson	nickg@mcpcity.com	620 245-2535	[illegible]
Steve Johnson	McPherson Co Health Dept	sjohnson@mcphealth.org	620 241-1773	Steve Johnson
Danny Parr	City of Inman	dparr.inman@inmanks.net	620-585-6467	Danny Parr

Sign-In Sheet		
Project:	McPherson County Multi-Jurisdictional Hazard Mitigation Plan	Meeting Date: June 4, 2010
Event:	3rd Hazard Mitigation Planning Meeting	Place/Room: 1177 W. Woodside St, McPherson, KS

Name (Please Print)	Agency/Organization	E-Mail Address	Phone #	Signature
Dan Carr	Lindsborg Nyan-Reed	[illegible]	(785) 227-3394	[illegible]
DALE HOOSIER	Bethany Home Assoc.	dhoosier@bethanyhome.com	785-227-2721	[illegible]
Delwin Koons	Bethany Home Ass.	dkoons@bethanyhome.com	785-227-2324	[illegible]
Carolyn Hilson	Lindsborg Senior Center	@ACTIVE.1SENIORS Kscomnet.com	785-227-2783	[illegible]
Tim Berggren	City of Lindsborg			Tim Berggren
Glen Suppes	USD #400	gsuppes@smokyvalley.org	(785) 227-2981	[illegible]
GARY SHOBRON	City of LINDSBORG	garys@lindsborgcity.org	785 227-3355	[illegible]
Larry VanDerWege	Lindsborg Community Hospital	larryv@lindsborghospital.org	785 227-3368	[illegible]
Tim Dunn	City of LINDSBORG	tind@lindsborgcity.org	785-2273428	[illegible]
RANDY JIRAK	BETHANY COLLEGE	JIRARR@BETHANYLB.EDU	785-227-3780	[illegible]
Steve Peterson	Mid Kansas Co-op	speterson@mkcoop.com	785 212-2069	[illegible]

Kick-Off Meeting Date: Thursday, February 18, 2010
Next HMPC Meeting Date: Thursday, April 15, 2010

McPherson County Meeting Attendees

ENTITIES INVITED TO MEETING	MEETING 1 ATTENDANCE	JURISDICTION PROFILE RECEIVED	DATA RECEIVED
McPherson Co (unincorporated areas & townships)	X		
Cities			
City of Canton			
City of Galva			siren info
City of Inman	X	X	
City of Lindsborg	X		Siren info
City of McPherson	X		
City of Moundridge	X	X	
City of Marquette			
City of Windom	X		
Unified School Districts			
Saline County USD 306			
Smoky Valley USD 400			
Marion County USD 411			
McPherson USD 418	X		
Canton USD 419			
Moundridge USD 423			
Windom USD 444			
Inman USD 448			
Harvey County USD 460			
Private Schools			
St. Joseph Catholic Church School			
Colleges and Universities			
Central Christian College	X		
McPherson College			
Hutchinson Community College			
Bethany College	X		
Rural Electric Cooperatives			
DS&O Rural Electric Coop	X		
Flint Hills Rural Electric Coop	X		X
Ark Valley Electric Coop			
Fire Districts			
Canton Fire Department – RFD #1	X		
Conway Fire Department – RFD #4			
Galva Fire Department - RFD #9	X		
Inman Fire Department	X		
Lindsborg Fire Department			
Marquette Fire Department	X		X
McPherson Fire Department	X		
McPherson County RFD #2	X		X
McPherson County RFD #3	X		
Moundridge Fire Department	X		

Entities Invited to Meeting	Meeting 1 Attendance	Jurisdiction Profile Received	Data Received
Roxbury Fire Department			**Siren Info**
Windom Fire Department	X		
County Departments			
County Clerk			
LEPC	X		
Emergency Management	X		
Floodplain Manager			
County Commissioners			
Road and Bridge			
Engineer			
Extension Office			
Economic Development			
Health Care			
McPherson County Health Department	X		
The Cedars	X		
Edinburgh Manor			
Memorial Home			
Sterling House			
McPherson Care Center			
Bethany Home	X		
Moundridge Manor			
Pleasant View Home			
Lindsborg Community Hospital			
Memorial Hospital			
Mercy Hospital			
Lindsborg Senior Center			
Marquette Senior Center			
Windom Senior Center			
Canton Senior Center			
Galva Senior Center			
McPherson Senior Center			
Hospira	X		
McPherson Council on Aging	X		X
Special Districts			
Moundridge Municipal Airport			
McPherson Airport Authority	X		
John Manville Corporation			
NCRA Refinery	X		
McPherson Board of Public Utilities (BPU)	X		
McPherson County Conservation Department	X		
Canton EMS			
Marquette EMS	X		
McPherson EMS			

Entities Invited to Meeting	Meeting 1 Attendance	Jurisdiction Profile Received	Data Received
Moundridge EMS	X		
Canton Police Department			
Galva Police Department			
Inman Police Department	X		
Lindsborg Police Department			
Marquette Police Department			
McPherson Police Department	X		
Moundridge Police Department	X		
Windom Police Department			
911 Communication	X		
McPherson County Sheriff's Department			
Mid Kansas Co-op			
News Media			
KBBE/KNGL			
The Ledger			
McPherson Amateur Radio	X		
Lindsborg News-Record			
Marquette Tribune			
The McPherson Sentinel	X		
Neighboring Counties			
Saline County Emergency Management			
Dickinson County Emergency Management			
Marion County Emergency Management			
Harvey County Emergency Management			
Reno County Emergency Management			
Rice County Emergency Management			
Ellsworth County Emergency Management			
Other			
Kansas Division of Emergency Management	X		
Kansas Department of Homeland Security			
Kansas Department of Agriculture – DWR			
Kansas Forestry Service			
National Weather Service			
United States Department of Agriculture – Natural Resources Conservation Service	X		
Kansas Department of Transportation	X		
Kansas Department of Wildlife and Parks			
Sedgwick County Emergency Management			
State & Local Emergency Management Consultants	X		

Meeting Minutes

Meeting Objectives

- Define Hazard Mitigation
- Review Disaster Mitigation Act, and related planning requirements
- Discuss grant programs and funds availability (after plan approval)
- Jurisdiction participation
- General plan requirements
- Eligible applicants
- Public participation strategy
- Discuss hazards that threaten McPherson County
- Profile hazards
- Rank hazards
- Discussion of impact past hazard events have had on the planning area

McPherson County Emergency Manager, Dillard Webster welcomed the group of participants to the kick-off meeting for the McPherson County Hazard Mitigation Plan.

The initial action was to establish the McPherson County Hazard Mitigation Planning Committee (HMPC) to provide the leadership for the planning process. It was determined that the McPherson County Emergency Management would remain the lead agency in orchestrating the planning efforts.

Hazard Mitigation

The HMPC discussed the FEMA definition of hazard mitigation:
"Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."

PRE-disaster mitigation connects emergency management, economic development, planning and code enforcement functions with critical infrastructure owners (80-90% in private sector), stakeholders and elected officials.

The group discussed the importance of mitigating hazards, and the findings of a national study which reveal the potential to save $4 for every $1 spent on preventing and diminishing recurring hazards.

Disaster Mitigation Act of 2000 (DMA 2K)

The Disaster Mitigation Act of 2000 (DMA 2K), requires local governments to have a hazard mitigation plan approved by the Federal Emergency Management Agency (FEMA) before jurisdictions can be considered eligible for certain federal disaster assistance and hazard mitigation funding programs.

Hazard Mitigation Grant Programs

In accordance with hazard mitigation assistance program regulations and guidance, local governments, acting as subgrantees, must have a FEMA approved local mitigation plan in order to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Severe Repetitive Loss (SRL)

Jurisdiction Participation

To participate in the multi-jurisdictional plan, jurisdictions must complete the following steps:

- MUST designate a representative to serve on the McPherson County Hazard Mitigation Planning Committee,
- Assist in the risk assessment process
- Develop and/or adopt at least one mitigation action
- Provide decision-making data,
- Assist in informing the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan, and
- MUST formally adopt the mitigation plan.

What if a jurisdiction opts not to participate in the McPherson County plan?

- Counties, municipalities, cities, towns, school districts, special districts, councils of government, and tribal organizations that do not participate in the planning process as well as publicly funded colleges and universities will not be eligible applicants for certain FEMA mitigation funding programs. Cities and school districts deciding not to participate must provide a written statement explaining decision.
- Given the specific active participation requirements, HMPC members discussed ways to promote participation and the PROXY process. In the event a jurisdiction cannot participate in the meetings, they have the option to allow McPherson County Emergency Management act as their PROXY. It is necessary to attach a written proxy statement to the plan

Stakeholders and other Participants

The HMPC discussed the need to invite all entities that may be eligible as potential applicants for FEMA's HMGP funds and others that are stakeholders of this process. The type of entities considered as "stakeholders" of mitigation plans include:

- critical infrastructure owners,
- critical service providers,
- organizations that serve special need populations,
- key employers (large numbers of staff),
- cultural/historic assets, and
- facilities that may be particularly vulnerable to a potential hazard

Stakeholders do not have authority to levy taxes, therefore are not considered eligible applicants[1]. Stakeholders must rely on participating municipalities to submit mitigation projects on their behalf, and are not required to adopt the plan, but are encouraged to be part of the planning process. This ensures their needs and priorities are considered when the HMPC defines mitigation strategies, goals, objectives and activities. Stakeholders can assist in collecting and sharing information, coordinating public feedback, etc.

General plan requirements

- Documented planning process
- Public involvement
    - Must provide public comment period during drafting stage & prior to approval
- Opportunity for all stakeholders to be involved
- Risk assessment
    - Hazard identification and profile
    - Vulnerability analysis
    - Capability analysis
- Mitigation strategy
    - Goals and objectives

[1] Exception: Rural Electric Cooperatives must meet the same participation requirements as municipalities, and submit their own mitigation projects to FEMA.

    - Mitigation actions—a range of specific projects to reduce the effects of each hazard (each participating jurisdiction must have one action in the plan)
- Plan maintenance process
- Documentation of plan adoption

How often does a mitigation plan need to be reviewed and updated?

- Approved mitigation plans are good for 5 years
- Can be updated to add jurisdictions
- Must document that review process.
- Should conduct an annual meeting to review plan and status of mitigation actions

McPherson County – Eligible Applicants

- McPherson County – unincorporated areas and townships
- Cities
- Special Districts
    - School Districts
    - Rural Water districts
    - Rural Electric Cooperatives
    - Fire Districts
    - Hospital Districts
    - Library Districts
    - Levee Districts
    - Watershed Districts

Public Participation

Public participation is required by FEMA:

- During the draft stage
- Prior to final approval

The HMPC discussed the possible methods of promoting public participation. Some of the ways include:

- Websites
- Televise HMPC meetings
- Town meetings
- Public Surveys
- Newspaper advertisements
- Presentations to civic groups
- Stakeholder meetings
- Public libraries

McPherson County Emergency Management published a notice in the local newspaper informing residents of this meeting. The public was invited to attend this evenings meeting to learn what hazard mitigation is and get involved in the planning process. The location, date and time of the meeting was included in the public notice, which was submitted to the local news papers.

McPherson County Hazard Identification Discussion

The HMPC discussed the requirements for conducting an analysis of the risk to the planning area, including the use of MitigationPlan.com factors in ranking the identified or potential hazards. HMPC members agreed that hazards will be assigned a Calculated Priority Risk Index. This Hazard Ranking method uses a formula based on numeric assignments 1-4 for the following hazard elements:

- Probability
- Magnitude
- Warning Time
- Duration

(Probability x .45) + (Magnitude/Severity x .30) + (Warning Time x .15) + (Duration x .10) = CPRI

State of Kansas Identified Hazards

In the 2007 Hazard Mitigation Plan the State of Kansas identified the following hazards as a threat to the entire state:

Agricultural Infestation	Landslide
Dam and Levee Failure	Lightning
Drought	Major Disease Outbreak (Manmade/Technological Hazards)
Earthquake	Radiological (Manmade/Technological Hazards)
Expansive Soils	Soil Erosion and Dust
Extreme Temperatures	Terrorism/Agro -Terrorism/Civil Disorder (Manmade/Technological Hazards)
Flood	Tornado
Fog	Utility/Infrastructure Failure
Hailstorm	Wildfire
Hazardous Materials (Manmade/Technological Hazards)	Windstorm
Land Subsidence	Winter Storm

The McPherson County HMPC agreed that all hazards identified in the State of Kansas Hazard Mitigation Plan have the potential to impact the McPherson planning area.

Profiling Hazards

The McPherson County HMPC adopted the risk assessment methodology required by the State of Kansas. The process includes evaluating each hazard identified as a potential threat to the planning are and assigning it weighed factors to determine the probability, magnitude or scope, warning time and duration.

Factors Used in Determining Probability of Occurrence

- 4 - Highly Likely--History of events is greater than 33% likely per year. Event is "Highly Likely" to occur
- 3 – Likely--History of events is greater than 20% but less than or equal to 33% likely per year. Event is "Likely" to occur
- 2 – Occasional--History of events is greater than 10% but less than or equal to 20% likely per year. Event could "Possibly" occur
- 1 – Unlikely--History of events is less than or equal to 10% likely per year. Event is "Unlikely" but is possible of occurring

Factors Used in Determining Magnitude

4 – Catastrophic

- Multiple deaths
- Complete shutdown of facilities for 30 or more days
- Over 50% of property is severely damaged

3 – Critical

- Injuries and/or illnesses result in permanent disability
- Complete shutdown of critical facilities for at least 2 weeks
- 25-50% of property is severely damaged

2 – Limited

- Injuries and/or illnesses do not result in permanent disability
- Complete shutdown of critical

facilities for more than one week
- 10-25% of property is severely damaged

1 – Negligible
- Injuries and/or illnesses are treatable with first aid
- Minor quality of life lost
- Shutdown of critical facilities and services for 24-hours or less
- Less than 100% of property is severely damaged

Factors Used in Determining Warning Time
4 – Less than 6 hours
3 – 6-12 hours
2 – 12-24 hours
1 – 24+ hours

Factors Used in Determining Duration
4 – More than 1 week
3 – Less than 1 week
2 – Less than 1 day
1 – Less than 6 hours

McPherson County Calculated Priority Risk Index (CPRI)
Based on their CPRI, the hazards will be separated into three categories of planning significance:
- High (3.0-4.0),
- Moderate (2.0-2.9), and
- Low (1.1-1.9)

Hazard Ranking Session

Hazard Priority	Hazard	Probability	CPRI Outcome	Magnitude	CPRI Outcome	Warning Time	CPRI Outcome	Duration	CPRI Outcome	CPRI Hazard Ranking	Planning Significance
1	Tornado	4	1.80	4	1.20	4	0.60	2	0.20	3.80	High
2	Windstorm	4	1.80	3	0.90	4	0.60	3	0.30	3.60	High
3	Flood	4	1.80	3	0.90	4	0.60	3	0.30	3.60	High
4	Winter Storm	4	1.80	3	0.90	3	0.45	3	0.30	3.45	High
5	Utility/Infrastructure Failure	4	1.80	2	0.60	4	0.60	2	0.20	3.20	High
6	Wildfire	4	1.80	2	0.60	4	0.60	2	0.20	3.20	High
7	Hailstorm	4	1.80	2	0.60	4	0.60	1	0.10	3.10	High
8	Major Disease Outbreak (Manmade Hazards)	4	1.80	2	0.60	1	0.15	4	0.40	2.95	Moderate
9	Soil Erosion and Dust	4	1.80	2	0.60	1	0.15	4	0.40	2.95	Moderate
10	Hazardous Materials	3	1.35	2	0.60	4	0.60	3	0.30	2.85	Moderate
11	Lightning	4	1.80	1	0.30	4	0.60	1	0.10	2.80	Moderate
12	Expansive Soils	3	1.35	1	0.30	4	0.60	4	0.40	2.65	Moderate
13	Agricultural Infestation	3	1.35	2	0.60	1	0.15	4	0.40	2.50	Moderate
14	Land Subsidence - Sinkholes	3	1.35	2	0.60	1	0.15	4	0.40	2.50	Moderate
15	Extreme Temperatures	3	1.35	2	0.60	1	0.15	3	0.30	2.40	Moderate
16	Fog	4	1.80	1	0.30	1	0.15	1	0.10	2.35	Moderate
17	Terrorism/Agro-Terrorism/Civil Disorder (Manmade Hazards)	2	0.90	3	0.60	1	0.15	4	0.40	2.35	Moderate
18	Drought	2	0.90	2	0.60	1	0.15	4	0.40	2.05	Moderate
19	Earthquake	1	0.45	1	0.30	4	0.60	1	0.10	1.45	Low
20	Landslide	1	0.45	1	0.30	1	0.15	4	0.40	1.30	Low
21	Radiological	1	0.45	1	0.30	1	0.15	4	0.40	1.30	Low
22	Dam and Levee Failure	1	0.45	2	0.30	1	0.15	1	0.10	1.30	Low

Impact of Past Hazard Events

During the ranking of the hazards, each hazard was discussed in detail. The discussion revealed the County has experienced problems with several of the hazards. The outcome of the discussion is as follows:

- **Agriculture Infestation** – Nothing discussed
- **Dam and Levee Failure** – Dam failure in Kannapolis would affect the County
- **Drought** – The County has experienced crop and livestock losses due to drought conditions
- **Earthquake** – Have not experienced any earthquakes, but there is a fault line in Conway?
- **Expansive Soils** – there have been a lot of problems with basement walls and foundations cracking because of expansive soils
- **Extreme Temperatures** – There are no cooling stations or emergency facilities already designated for extreme temperature problems
- **Flood** – There are waterways that are silted and it chokes the flow of the water, an outlet at the north end of the City of McPherson in particular. There is a plan on how to alleviate the problem.
    - Gillespie Resident Hall on the campus at Central Christian College gets flooded often
    - Turkey Creek bottoms in Union Township experiences flooding
    - Several drainage districts are in the floodplain.
    - Canton has some structures that are in the floodplain, but the County is working with the State to have a restudy done – LiDAR mapping possibly being done in conjunction with some other counties
    - McPherson County has one repetitive loss property due to flooding
    - The City of Lindsborg determined that "Flooding" should be raised in the ranking for that particular city.
    - Kennel Creek in Moundridge floods – 4 houses in town get flooded 1-2 times about every 10 years.
- **Fog** – There have been several deaths at 56th & Plum from vehicle accidents due to fog. Sunshine on the east side of town is actually a problem in the mornings as far as visibility.
- **Hail** – Nothing discussed
- **Hazardous Materials** – A gasoline spill occurred near Conway Storage Caverns on Hwy 56 on February 4, 2010. 8500 gallons of gasoline was spilled at 7:30am. There were no deaths or injuries associated with the spill. Residents did not have to be evacuated but the highway was shut down until around 11:30pm. There were 3 fire departments, 2 law enforcement agencies, a private contractor, and several others involved in the response and clean up. The fumes were extremely bad from the incident. The length of time the highway had to be closed was a concern.
- **Land Subsidence –** Sinkholes are a definite problem for the planning area. Kenny Cook, Floodplain Manager, has more information in the Comp Plan (on the sinkholes in the area. A lot of them are on the roadways and many of the roadways are on Federal Aid Routes.
- **Landslides –** Nothing discussed
- **Major Disease Outbreak –** EMTs are at risk for Tuberculosis. The county has a Bioterrorism Plan (and there is an Emergency Operations Plan in place for the hospital
- **Radiological –** Transportation and the Hospitals are areas of concern
- **Soil Erosion and Dust** – Nothing discussed
- **Terrorism/Agro-Terrorism/Civil Disorder (Manmade Hazards) –** Economic repercussions of a terrorist attack, especially agro-terrorism would be devastating to the planning area. It could cause a shutdown of many businesses.
- **Tornado –** The hospitals in the County need community shelters. Several of the communities need new sirens. Several of the apartment complexes and nursing homes need community shelters.
- **Utility/Infrastructure Failure –** The County has a large number of people in the special needs population, they maintain a list. City of McPherson has its own power facilities. 2 years ago the County experienced 13 days without power.
- **Wildfire –** There has not been a Wildland Urban Interface study done on the County
- **Windstorm –** Nothing discussed

- **Winter storm –** Nothing Discussed

Next meeting

The McPherson County HMPC scheduled the next planning meeting for April 15, 2010 at 6:30p.m. The meeting will be held at the McPherson Community Building at 122 East Marlin, McPherson, KS.

The agenda for the next meeting will include:

- Review Kick-Off meeting minutes
- Identification of Goals & Objectives
- Develop possible mitigation action items for each hazard
- Develop mitigation strategy and maintenance schedule

2nd HMPC Meeting Date: Thursday, April 15, 2010
Next HMPC Meeting Date: Friday, June 4, 2010

McPherson County Meeting Attendees

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Jurisdiction Profile Received	Data Received
McPherson Co (unincorporated areas & townships)	X	X		
Cities				
City of Canton		X		
City of Galva		X		siren info
City of Inman	X	X	X	
City of Lindsborg	X	X		Siren info
City of McPherson	X	X		
City of Moundridge	X		X	
City of Marquette		X		
City of Windom	X	X	X	
Unified School Districts				
Smoky Valley USD 400				
McPherson USD 418	X			
Canton USD 419				
Moundridge USD 423				
Windom USD 444		X		
Inman USD 448				
Private Schools				
St. Joseph Catholic Church School				
Colleges and Universities				
Central Christian College	X	X		
McPherson College		X		
Hutchinson Community College				
Bethany College	X	X		
Rural Electric Cooperatives				
DS&O Rural Electric Coop	X	X		X
Flint Hills Rural Electric Coop	X			X
Ark Valley Electric Coop		X		
Fire Districts				
Canton Fire Department – RFD #1	X	X		
Conway Fire Department – RFD #4				
Galva Fire Department - RFD #9	X	X		
Inman Fire Department	X	X		
Lindsborg Fire Department				
Marquette Fire Department	X			X
McPherson Fire Department	X	X		
McPherson County RFD #2	X			X
McPherson County RFD #3	X			
Moundridge Fire Department	X			
Roxbury Fire Department				**Siren Info**
Windom Fire Department	X	X		X
County Departments				

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Jurisdiction Profile Received	Data Received
County Clerk				
LEPC	X	X		
Emergency Management	X	X		
Floodplain Manager	X			X
County Commissioners				
Road and Bridge				
Engineer				
Extension Office				
Economic Development				
Health Care				
McPherson County Health Department	X	X		X
The Cedars	X			
Edinburgh Manor				
Memorial Home				
Sterling House				
McPherson Care Center				
Bethany Home	X			X
Moundridge Manor				
Pleasant View Home				
Lindsborg Community Hospital				
Memorial Hospital		X		
Mercy Hospital				
Lindsborg Senior Center				
Marquette Senior Center				
Windom Senior Center				
Canton Senior Center				
Galva Senior Center				
McPherson Senior Center				
Hospira	X	X		
McPherson Council on Aging	X	X		X
Special Districts				
Moundridge Municipal Airport				
McPherson Airport Authority	X			
John Manville Corporation				
NCRA Refinery	X	X		
McPherson Board of Public Utilities (BPU)	X	X		
McPherson County Conservation Department	X			
Canton EMS				
Marquette EMS	X			
McPherson EMS		X		
Moundridge EMS	X			
Canton Police Department				
Galva Police Department		X		

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Jurisdiction Profile Received	Data Received
Inman Police Department	X	X		
Lindsborg Police Department		X		
Marquette Police Department		X		
McPherson Police Department	X	X		
Moundridge Police Department	X			
Windom Police Department				
911 Communication	X	X		
McPherson County Sheriff's Department				
Mid Kansas Co-op				
News Media				
KBBE/KNGL				
The Ledger				
McPherson Amateur Radio	X			
Lindsborg News-Record				
Marquette Tribune				
The McPherson Sentinel	X			
Neighboring Counties				
Saline County Emergency Management				
Dickinson County Emergency Management				
Marion County Emergency Management				
Harvey County Emergency Management				
Reno County Emergency Management				
Rice County Emergency Management				
Ellsworth County Emergency Management				
Other				
Kansas Division of Emergency Management	X			
Kansas Department of Homeland Security				
Kansas Department of Agriculture – DWR		X		
Kansas Forestry Service				
National Weather Service				
United States Department of Agriculture – Natural Resources Conservation Service	X			
Kansas Department of Transportation	X			
Kansas Department of Wildlife and Parks				
Sedgwick County Emergency Management				
State & Local Emergency Management Consultants	X	X		

Meeting Minutes

Meeting Objectives

- Review Kick-Off meeting minutes
- Identification of Goals & Objectives
- Develop possible mitigation action items for each hazard
- Develop mitigation strategy and maintenance schedule

Identification of Goals & Objectives

An important phase in the mitigation planning process is to develop goals and objectives. Mitigation goals should express the community's need to protect people and structures, reduce costs associated with disaster response and recovery, and minimize the disruption to the community following a disaster. Goals should not identify specific mitigation actions, but identify the overall improvement the community wants to achieve. Goals are broad, forward-looking statements that sufficiently describe the community's intentions.

In order to ensure the goals and objectives are consistent with the ones of the State of Kansas, there was a review of the 2007 Kansas Hazard Mitigation Plan goals and objectives. The State of Kansas goals and objectives are as follows (Kansas Hazard Mitigation Team):

Goal 1: Minimize the vulnerability of the people, property, environment, and economy of Kansas and its communities to the impacts of natural and manmade hazards.

Objective 1.1 – Encourage life and property protection measures for all communities and structures located in hazard areas.

Objective 1.2 – Protect critical facilities, infrastructure, and utility systems

Objective 1.3 – Reduce repetitive property losses due to flood, wildfire, and other hazards

Objective 1.4 – Reduce potential damage to future buildings and infrastructure

Objective 1.5 – Encourage the incorporation of mitigation measures into repairs, redevelopment, and capital improvement projects

Objective 1.6 – Preserve and restore natural systems to serve natural mitigation functions

Goal 2: Build the mitigation capabilities of local governments throughout Kansas in establishing and implementing effective mitigation plans, policies, and programs.

Objective 2.1 – Encourage all Kansas communities to develop, implement, and adopt a local hazard mitigation plan

Objective 2.2 – Increase community participation in the National Flood Insurance Program (NFIP)

Objective 2.3 – Encourage local governments to adopt and enforce building codes, mitigation-related ordinances, and land use planning

Objective 2.4 – Develop technical support programs and guidance materials to facilitate local planning projects

Objective 2.5 – Indentify and provide financial incentives and funding opportunities

Goal 3: Promote a state policy framework for effective hazard mitigation programming in the state.

Objective 3.1 – Promote coordination between federal, state, and local organizations, plans, and programs related to hazard mitigation

Objective 3.2 – Institutionalize the Kansas Hazard Mitigation Team as the entity responsible for monitoring, reviewing, and updating of the Kansas Hazard Mitigation Plan

Objective 3.3 – Incorporate mitigation concepts into existing and future policies and regulations of the State

Objective 3.4 – Implement, monitor, and assess the effectiveness of the mitigation plan and promote success

Objective 3.5 – Enhance capabilities to collect analyze, update, and exchange data and information to support risk assessment and mitigation needs.

Goal 4: Improve education and training in hazard mitigation and related programs for government officials, business, and the public.

Objective 4.1 – Identify and develop needed training and education to targeted audiences

Objective 4.2 – Strengthen outreach and partnerships with the private sector, nonprofit organizations, and the public

Objective 4.3 – Improve public understanding of hazards and risk by providing awareness, preparedness, and mitigation information through various channels of communications

The hazard mitigation goals and objective in this plan also need to be consistent with those set forth in other plans in the community. Therefore, a review of the 2005 McPherson County Strategic Plan and the McPherson County Comprehensive Plan: 2004-2014 was done.

The following information is from the 2005 McPherson County Strategic Plan:

Mission: The mission of McPherson County is to encourage each County resident to participate in all decisions that affect his or her quality of life. It is to enhance countywide cooperation in decision making while providing access to educational and economic opportunity. Factors driving the County are providing services to meet the needs of its residents; conservation and improvement of the natural environment and existing agricultural land. It is essential to develop and preserve our historic, cultural and scenic resources in order to maintain individual and cultural heritages. We must strengthen family and moral values while pursuing a spirit of cooperation among County communities that seeks to achieve the overall common good for County residents.

A. Strategy for Quality of Life: Study and implement services and programs that have the potential for long-term efficiency and effectiveness while meeting the needs of County constituents.

GOAL A-1: Achieve at least 40% recycling of all McPherson County solid waste by December 31, 2010.

GOAL A-2: Support McPherson County Health Department by holding an annual healthcare, wellness and/or ambulance service symposium to support the coordination of healthcare, ambulance service and eldercare throughout the County. Also seek a unified voice to lobby the federal government on rural healthcare reimbursement practices.

GOAL A-3: Develop a comprehensive facilities master plan for utilizing the office building purchased in the city of McPherson to increase the long-term efficiency of the County judicial process as well as the County government administration.

GOAL A-4: Develop a Subtitle D municipal waste landfill on the County property in the north central area of the County for use by 2010.

B. Strategy for Economic Vitality: Utilize a wide range of economic vitality partnerships to obtain human and financial resources available through local, county and state agencies and governments, non-profit organizations as well as assistance and funding from the private sector partnerships.

GOAL B-1: Utilize follow up to Vision 2010 to identify economic development programs and funding needs for McPherson County and develop a working relationship with each local community economic development entity.

GOAL B-2: Create a housing partnership that is countywide or has multi-county support to address the continuing needs for “affordable” housing, rehabilitation of existing housing stock, rental unit availability & affordability and infrastructure costs of new developments.

GOAL B-3: Establish an information clearinghouse for business internships and career opportunities for high school and college students in order to keep more young people in the County after graduation

GOAL B-4: Promote economic development and County heritage through tourism and the work of McPherson County Tourism, Events and Conventions Council.

GOAL B-5: Develop and implement alternative energy guidelines for McPherson County.

GOAL B-6: Present an information program to citizens at least biannually to assist their understanding of economic development, tax exemptions and industrial revenue bonds (IRB's) utilizing McPherson Industrial Development Company and local community economic development coordinators.

C. Strategy for Infrastructure: Maintain a vision of the future for technology changes that will improve communication and facilitate new methods of business and balance environmental issues with the affordability of utilities and a plentiful and safe supply of water.

GOAL C-1: Maintain and update a formal three-year roads & bridges program with annual revision and continue to improve communication of work planned or in progress through an annual brochure and weekly work schedule in County newspapers.

GOAL C- 2: Secure a safe and plentiful supply of water to meet McPherson County's anticipated needs through 2030.

The following information is from the McPherson County Comprehensive Plan: 2004-2014:

1. **Land Use**
   GOAL 1-1: Maintain the unincorporated area in primary land uses. In McPherson County, primary land uses include agriculture, mining, and extraction of oil and natural gas.

   GOAL 1-2: Promote a desirable rural atmosphere, character, and appearance in the county.

2. **Transportation**
   GOAL 2-1: Maintain a safe and balanced system of transportation facilities capable of serving the needs of all residents and supporting the economy.

3. **Facilities, Services and Planning and Zoning Administration Goals**
   GOAL 3-1: Encourage incorporated cities within the county to pursue the establishment of their own extraterritorial jurisdiction (ETJ) for both zoning and subdivision regulations, preparing the way for annexations by these cities and providing city public services.

4. **Environmental**
   GOAL 4-1: Maintain the county's air and water resources to high quality standards.

5. **Housing**
   GOAL 5-1: Make an effort to see that residents have opportunities in choices of housing types that are adequate and that meet health and safety requirements.

After careful review of the goals and objectives in the previously mentioned plans, the 2010 McPherson County Goals and Objectives were developed. Several of the State of Kansas mitigation goals and objectives are consistent with the ones in McPherson County. As a result, they were used as a basis for the goals developed here, with some modification. The McPherson County goals and objectives are as follows:

Goal 1: Reduce the vulnerability of the people, property, environment, and economy of McPherson County to the impacts of natural and manmade hazards.

Objective 1.1 – Encourage life and property protection measures for structures located in hazard areas.

Objective 1.2 – Reduce potential damage to future buildings and infrastructure through maintaining current building code standards.

Objective 1.3 – Encourage the incorporation of mitigation actions into repairs, redevelopment, and capital improvement projects.

Objective 1.4 – Encourage the incorporation of hazard mitigation concepts into existing and future planning efforts for the county, as well as individual municipalities.

Objective 1.5 – Increase community participation in the National Flood Insurance Program (NFIP)

Objective 1.6 – Use most effective approaches to protect buildings from flooding, including acquisition or relocation where warranted.

Goal 2: Increase public preparedness, understanding, support, and demand for hazard mitigation.

Objective 2.1 – Identify hazard specific issues and needs.

Objective 2.2 – Improve public understanding of hazards and risks by providing awareness, preparedness, and mitigation information through various channels of communication.

Goal 3: Protect and preserve environmental resources.

Objective 3.1 – Develop/maintain hazard mitigation policies that protect the environment

Goal 4: Ensure that public funds are used in the most efficient manner.

Objective 4.1 – Maximize the use of outside sources of funding.

Objective 4.2 – Encourage property-owner self-protection measures.

Objective 4.3 – Indentify financial incentives and funding opportunities

Objective 4.4 – Prioritize mitigation projects, starting with sites facing the greatest threat to life, health, and property

Possible Mitigation Actions for Each Hazard

The following mitigation actions were presented by State and Local Emergency Management Consultants, LLC as possible mitigation actions to be considered for implementation. The HMPC was asked to determine the relevance of each action item, based on if the action should be implemented, in the process of being implemented, or has been completed. The worksheets were completed during the meeting and collected at the end. After the meeting the worksheets were then analyzed. The table below is the mitigation actions presented along with the HMPC collective results.

Yes	On-going	Completed	Mitigation Actions
			Agricultural Infestation
14%	7%		Promote use of disease resistant crops through incentives and/or rebate programs
21%	14%		Ensure that existing monitoring capabilities at the State and County level are integrated to provide an early warning of an outbreak, blight, or infestation in the County's animal or plant populations
21%	7%		Begin an animal disease, blight, or infestation public awareness and educational campaign under the County education and outreach program
			Drought
21%	7%		Adopt/enforce water conservation ordinances
14%	7%	21%	Enforcement of Zoning and Building Code Ordinances through current site plan, subdivision, and building permit review processes to reduce the effects of drought
14%			Create cooperative Federal/non-Federal drought contingency plans for rapid implementation during water shortages

			Earthquake
7%			Develop earthquake evacuation plans
7%			Indentify areas at risk for earthquakes
Yes	**On-going**	**Completed**	**Extreme Temperatures**
28%		14%	Create and implement a plan for providing cooling stations during extreme heat conditions
21%	7%	7%	Create and implement a plan for providing shelters during extreme cold temperatures
14%	14%		Educate public on extreme temperature hazards and precautions
			Expansive Soils
7%			Identify areas of expansive soils
7%			Encourage communities to adopt building codes regarding expansive soils
			Flood
14%		7%	Enhance/Build drainage culverts
7%		7%	Clear and deepen ditches
		X	Update flood maps (Completed January 2009)
7%			Conduct hydrology studies
14%		7%	Construct and improve berms
21%			Construct storm sewer drainage
7%			Elevate or relocate structures in flood vulnerable areas
14%		7%	Encourage communities to participate in the National Flood Insurance Program (NFIP)
	X		Maintain compliance with the National Flood Insurance Program (NFIP) requirements. (All communities participating in the NFIP must comply with requirements)
x			Continue participation in the Community Rating System (CRS) Lindsborg
7%		14%	Purchase portable pumps
			Fog
35%	7%	14%	Install strobe light on all buses
28%	7%	14%	Apply reflective tape to buses
			Hailstorm
7%		14%	Provide covered shelter for critical government vehicles and equipment
7%			Install Class 4 hail-resistant roofing on planned public infrastructure projects
21%			Implement warning systems that monitor hail storms for use by local emergency managers and citizens, such as NOAA Weather Radios
			Hazardous Materials
21%			Designate HAZMAT transportation routes in highly populated areas
21%	7%	14%	Map all hazardous materials facilities
14%			Establish HAZMAT decontamination sites
7%	21%	14%	Indentify critical facilities that contain hazardous materials
			Land Subsidence (sinkholes)
	X		Continue to identify areas prone to land subsidence (The county has identified hazard prone areas)

Yes	On-going	Completed	Landslide
			Conduct analysis of landslide prone areas
			Lightning
42%			Provide "whole building" surge protection in critical facilities
50%			Identify ways to protect structures, infrastructure, and critical facilities and their occupants from damage caused by lightning strikes.
			Major Disease Outbreak
35%			Update Bioterrorism Plan
65%	21%	7%	Educate public on prevention of spreading disease
28%	21%	7%	Continue vaccination programs at County Health Department
			Radiological
21%			Prepare/Update community accident response plan
14%			Install community warning system
			Soil and Dust Erosion
7%	7%		Develop soil erosion stabilization projects
			Terrorism/Agroterrorism/Civil Disorder
55%			Identify vulnerable facilities and develop mitigation strategies to reduce the vulnerability
55%	7%	7%	Develop/Update terrorism response/recovery plan
			Tornado
57%		7%	Construct FEMA approved saferooms in schools
62%		7%	Construct FEMA approved Community Shelters
50%		14%	Purchase/Install backup generator for saferooms/shelter
21%	21%	14%	Install/Upgrade siren warning systems
28%	7%		Promote NOAA weather radio, including citizen purchase of receivers and rebate programs
			Utility/Infrastructure Failure
42%		14%	Purchase/Install backup generators in critical facilities
	7%	14%	Construct/elevate wastewater lift station
			Wildfire
21%			Conduct a wildland fire study for entire county using GIS to map responses
7%	21%	14%	Enforce burning restrictions
7%	14%	14%	Inspect/purchase fire trucks
			Windstorm
21%	7%	7%	Enforcement of Zoning and Building Code Ordinances through current site plan, subdivision, and building permit review processes to reduce the effects of windstorm/high winds
42%			Promote NOAA weather radio, including citizen purchase of receivers and rebate programs
7%	28%		Clear dead or rotting trees and branches

			Winter Storm
14%		14%	Enforce snow removal policies
52%			Promote NOAA weather radio, including citizen purchase of receivers and rebate programs
21%	7%	14%	Purchase snow trucks, plows, and/or sanders
			Miscellaneous Actions
	X		Develop local mitigation plan (Development process began February, 2010)
21%			Develop incentives to encourage mitigation activities
14%		14%	Create cable television weather advisories
14%	7%		Adopt and support codes that protect assets and new development in hazard areas
28%	7%		Develop programs to enhance the safety of the residents of each community during an emergency.
21%		21%	Promote adoption of Mutual Aid Agreements with all incorporated communities and adjoining counties
21%	7%		Establish alert systems for vulnerable populations
21%		14%	Establish backup Emergency Operations Center (EOC)
21%	7%	7%	Install/upgrade computer system
7%	14%	21%	Develop debris disposal sites
			Equip ambulance with State Radio System (Added by HMPC Member)
			Purchase new ambulance (Added by HMPC Member)
			Equip EMS for communication with HAZ-MAT squad (Added by HMPC Member)
			Install security system in EMS facilities (Added by HMPC Member)

The following jurisdictions were asked to take the mitigation worksheets back to their respective communities to assist in the development of community mitigation actions:

- Cities
- School Districts
- Colleges
- Rural Electric Cooperatives

Mitigation Strategy and Maintenance Schedule

In accordance with hazard mitigation assistance program regulations and guidance, local governments, acting as subgrantees, must have a FEMA approved local mitigation plan in order to apply for and/or receive project grants under the following hazard mitigation assistance programs:

- Hazard Mitigation Grant Program (HMGP) - provides grants to States and Local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.
    - States with an approved Standard State Mitigation Plan will qualify for HMGP funding based on 15 percent for amounts not more than $2,000,000,000; 10 percent for amounts of more than $2,000,000,000; and 7.5 percent on amounts of more than $10,000,000,000; and not more than $35,333,000,000 of the total estimated eligible Stafford Act disaster assistance.
- Pre-Disaster Mitigation (PDM) Grant Program – provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of

mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding form actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds

- Flood Mitigation Assistance (FMA) Program – The FMA program was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).
- Severe Repetitive Loss (SRL) Program – The SRL was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to Severe Repetitive Loss (SRL) structures insured under the NFIP. The definition of SRL is:
    - a property that has at least four NFIP claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000;
    - a property which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building
- Repetitive Flood Claims (RFC) Program - The RFC grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004. Up to $10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the NFIP. FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities, if the Applicant has demonstrated that the proposed activities cannot be funded under the Flood Mitigation Assistance (FMA) program.

FEMA regulations for local governments require that local hazard mitigation plans be updated and resubmitted to FEMA for approval every five (5) years. FEMA will not disperse funds for the affected program grants for projects located in jurisdictions with a lapsed local mitigation plan. The lapsed period for local mitigation plans is defined as beginning on the first day after the mitigation plan expires and ending on the last date before the updated plan is approved.

In order to ensure compliance with the federal regulations the HMPC agreed the lead agency for updating this hazard mitigation plan should remain the McPherson County Emergency Management. The principal task as the lead agency in relation to this plan is to ensure it is successfully carried out, report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other tasks include reviewing and promoting mitigation proposals, listening to concerns about hazard mitigation, forwarding concerns on to appropriate entities, and publishing relevant information.

The HMPC will be responsible for identifying and developing the tools for assessing changes in policy, participation and new opportunities for mitigation activities. This requires a continued awareness of the triggers that may require changes in the mitigation plan. Those may include, but are not limited to, the following:

- The need to include a non-participating jurisdiction in the already approved plan
- Changes to the mitigation actions adopted or the gathering of additional information based on changes to the federal programs
- Changes in jurisdictional boundaries for participating municipalities

During the annual review process the following specific areas of emphasis need to be addressed:

- Status of mitigation actions
- Applicability of mitigation goals and objectives
- Additions to the list of disaster events in the planning area

- Changes to the municipal profiles, including boundary changes, capability enhancements and newly identified vulnerabilities

The following table is the maintenance schedule for the 2010-2015 McPherson County Hazard Mitigation Plan.

McPherson County Hazard Mitigation Plan Maintenance Schedule

Year	Requirement	Action	Outcome
2010	Begin development of 2010-2015 Hazard Mitigation Plan Submit to FEMA for approval	Plan development process began in February, 2010 and will be completed in October, 2010	Plan development process in progress Federal approval received on _____
2011	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions
2012	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions
2013	Annual review of the 2010-2015 Hazard Mitigation Plan Date of Annual Review _____	• Report on all significant emergencies within the planning area • Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the	Annual report information added to the hazard mitigation plan and changes to the mitigation goals and objectives based on the achievements of the participating jurisdictions

Year	Requirement	Action	Outcome
		mitigation initiatives adopted by each participating jurisdiction	
2014	Begin the 5-year update of the 2010-2015 Hazard Mitigation Plan Update began on _____	• Conduct an annual review of the mitigation goals and objectives included in the 2010 mitigation plan • Assemble annual meeting with the HMPC members to report on status of the mitigation initiatives adopted by each participating jurisdiction • Apply for planning grant funds, if appropriate • Evaluate new mitigation planning requirements issued by the Federal government and the State of Kansas • Hold a HMPC planning meeting and establish a project timeline • Identify and notify potential eligible applicants and stakeholders • Develop a schedule to host a series of planning and stakeholder meetings	• HMPC members reconvene and encourage additional plan participation in the update • Submit notice to all potential eligible applicants • Ensure a minimum of two public input opportunities • Document direct or indirect participation
2015	Submit updated multi-jurisdictional plan for approval Date updated plan was submitted to FEMA for approval _____	Complete a draft update of the plan and submit it to FEMA, no later than October 1, 2015	Adopt the FEMA approved plan before expiration of the 2010-2015 McPherson County Multi-Hazard Mitigation plan

Next meeting

The next meeting will be the final hazard mitigation planning meeting. It is scheduled for Friday, June 4, 2010. State and Local Emergency Management consultants will be at the Law Enforcement Center in the training room in the basement located at 1177 West Woodside Street, McPherson, Kansas to answer any questions and to assist participating jurisdictions complete the data collection packets. They are planning on being in the office from 9:00am to 12:00pm and then will be going out in the field to make contact with the agencies that have not yet had a representative at one of the other two meetings. Please come with completed profiles and any questions you may have or you may schedule and individual appointment in advance for them to come to your office. Please contact Angela Wilson at 785-393-5510 or by email at angiewilson557@hotmail.com to schedule an appointment.

3rd HMPC Meeting Date: Friday, June 4, 2010

McPherson County Meeting Attendees

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Meeting 3 Attendance	Jurisdiction Profile Received	Data Received
McPherson Co (unincorporated areas & townships)	X	X	X	X	
Cities					
City of Canton		X	X		
City of Galva		X			Siren info
City of Inman	X	X	X	X	
City of Lindsborg	X	X	X		Siren info
City of McPherson	X	X	X	X	
City of Moundridge	X			X	
City of Marquette		X		X	
City of Windom	X	X			
Unified School Districts					
Smoky Valley USD 400			X		
McPherson USD 418	X				
Canton USD 419			X		
Moundridge USD 423			X		
Windom USD 444		X			
Inman USD 448			X		
Private Schools					
St. Joseph Catholic Church School					
Colleges and Universities					
Central Christian College	X	X	X	X	
McPherson College		X	X		
Hutchinson Community College			X		
Bethany College	X	X	X		
Rural Electric Cooperatives					
DS&O Rural Electric Coop	X	X		X	X
Flint Hills Rural Electric Coop	X			X	X
Ark Valley Rural Electric Coop		X		X	X
Fire Districts					
Canton Fire Department – RFD #1	X	X	X		X
Conway Fire Department – RFD #4			X		
Galva Fire Department- RFD #9	X	X			
Inman Fire Department	X	X			
Lindsborg Fire Department					
Marquette Fire Department	X				X
McPherson Fire Department	X	X			
McPherson County RFD #2	X				X
McPherson County RFD #3	X				
Moundridge Fire Department	X				
Roxbury Fire Department					Siren Info
Windom Fire Department	X	X			X
County Departments					

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Meeting 3 Attendance	Jurisdiction Profile Received	Data Received
County Clerk					
LEPC	X	X			
Emergency Management	X	X	X		X
Floodplain Manager	X		X		X
County Commissioners					
Road and Bridge					
Engineer					
Extension Office					
Economic Development					
Health Care					
McPherson County Health Department	X	X	X		X
The Cedars	X				
Edinburgh Manor					
Memorial Home			X		
Sterling House					
McPherson Care Center					
Bethany Home	X		X		X
Moundridge Manor					
Pleasant View Home					
Lindsborg Community Hospital			X		
Memorial Hospital		X	X		
Mercy Hospital					
Lindsborg Senior Center			X		
Marquette Senior Center					
Windom Senior Center					
Canton Senior Center					
Galva Senior Center					
McPherson Senior Center					
Hospira	X	X			
McPherson Council on Aging	X	X			X
Special Districts					
Moundridge Municipal Airport					
McPherson Airport Authority	X				
John Manville Corporation					
NCRA Refinery	X	X			
McPherson Board of Public Utilities (BPU)	X	X			
McPherson County Conservation Department	X				
Canton EMS					
Marquette EMS	X				
McPherson EMS		X			
Moundridge EMS	X				
Canton Police Department					
Galva Police Department		X			

Entities Invited to Meeting	Meeting 1 Attendance	Meeting 2 Attendance	Meeting 3 Attendance	Jurisdiction Profile Received	Data Received
Inman Police Department	X	X	X		X
Lindsborg Police Department		X	X		
Marquette Police Department		X			
McPherson Police Department	X	X			
Moundridge Police Department	X				
Windom Police Department					
911 Communication	X	X			
McPherson County Sheriff's Department					
Mid Kansas Co-op			X		
News Media					
KBBE/KNGL				N/A	N/A
The Ledger				N/A	N/A
McPherson Amateur Radio	X			N/A	N/A
Lindsborg News-Record			X	N/A	N/A
Marquette Tribune				N/A	N/A
The McPherson Sentinel	X			N/A	N/A
Neighboring Counties					
Saline County Emergency Management				N/A	N/A
Dickinson County Emergency Management				N/A	N/A
Marion County Emergency Management				N/A	N/A
Harvey County Emergency Management				N/A	N/A
Reno County Emergency Management				N/A	N/A
Rice County Emergency Management				N/A	N/A
Ellsworth County Emergency Management				N/A	N/A
Other					N/A
Kansas Division of Emergency Management	X			N/A	N/A
Kansas Department of Homeland Security				N/A	N/A
Kansas Department of Agriculture – DWR		X		N/A	N/A
Kansas Forestry Service				N/A	N/A
National Weather Service				N/A	N/A
United States Department of Agriculture – Natural Resources Conservation Service	X			N/A	N/A
Kansas Department of Transportation	X		X	N/A	N/A
Kansas Department of Wildlife and Parks				N/A	N/A
Sedgwick County Emergency Management				N/A	N/A
State & Local Emergency Management Consultants	X	X	X	N/A	N/A

Meeting Minutes

Meeting Objectives

- Review meeting minutes from 2nd & 3rd meetings
- Prioritize Action Items
- Collect data collection worksheets from participating jurisdictions
- Answer questions

The handouts for the meeting were set up at the back of the room for the attendees to take as they came in; the handouts included:

- Agenda
- Meeting Minutes
- State Hazard Mitigation Program Priorities

McPherson County Emergency Manager, Dillard Webster opened the meeting with a brief explanation on the benefits of a hazard mitigation plan for McPherson County. After an opening statement by Dillard, he introduced State and Local Emergency Management Consultants (SLEMC).

SLEMC gave a brief explanation of hazard mitigation for the individuals that were not able to attend the previous planning meetings; along with a brief explanation of the grant opportunities that the county will be eligible to apply for once the hazard mitigation plan is in place. Once SLEMC explained hazard mitigation the meeting was opened up for discussion to prioritize the mitigation actions.

Mitigation Action Prioritization

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

The STAPLEE method was used to analyze and prioritize the mitigation actions. While analyzing and prioritizing the mitigation actions cost effectiveness and the protection of human lives and property was taken into consideration. The STAPLEE is a form created by FEMA to evaluate and prioritize mitigation initiatives. The STAPLEE method is as follows:

S – Social	The public must support the overall implementation strategy and specific mitigation actions. The projects were evaluated in terms of community acceptance.
T – Technical	It is important to determine if the proposed action is technically feasible, will help reduce losses in the long-term, and has minimal secondary impacts. The HMPC determined whether the alternative action was the whole or part of the solution, or not a solution at all.
A – Administrative	Under this part of the evaluation criteria, examine the anticipated staffing, funding, and maintenance requirements for the mitigation action to determine if the jurisdiction has the personnel and administrative capabilities necessary to implement the action or whether outside help will be needed.
P – Political	Understanding how the community and State political leadership feels about issues related to the environment, economic development, safety, and emergency management. This will provide valuable insight into the level of political support for mitigation activities and programs. Proposed mitigation objectives sometimes fail because of a lack of political acceptability.
L – Legal	Without the appropriate legal authority, the action cannot lawfully be undertaken. When considering this criterion, determine whether the jurisdiction must pass new laws or regulations. Each level of government operates under a specific source of delegated authority. As a general rule, most local governments operate under enabling legislation that gives them the power to engage in different activities. The unit of government is identified for undertaking the mitigation action, and include an analysis of interrelationships

between local, regional, State, and Federal governments. Legal authority is likely to have a significant role later in the process when the State or community will have to determine how mitigation activities can best be carried out, and to what extent mitigation policies and programs can be enforced.

E – Economic Every local and State government experiences budget constraints. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. States and local communities with tight budgets or budget shortfalls may be more willing to, at least in part, be outside sources. "Big-ticket" mitigation actions, such as large-scale acquisitions and relocations are often considered for implementation in a post-disaster scenario when additional Federal and State funding for mitigation is available.

E – Environmental Impact on the environment is an important consideration because of public desire for sustainable and environmentally healthy communities and the many statutory considerations, such as NEPA, to keep in mind when using Federal funds. There is a need to evaluate whether implementation of mitigation actions would cause negative consequences to environmental assets such as threatened and endangered species, wetlands, and other protected natural resources.

In the 2nd Hazard Mitigation Planning meeting a list of sample mitigation actions was distributed. The HMPC voted on which of those items they deemed to be most valuable. The participating jurisdictions also took the sample actions back to their respective communities and did the same thing. This following list of mitigation actions is a result of the last meeting along with the mitigation actions prioritized and returned by the participating jurisdictions.

Mitigation actions were evaluated one at a time and prioritized. The mitigation actions were divided into three prioritization categories: High, Moderate, and Low. The actions with a total of 20 to 24 were determined to have a "High" planning priority (actions to be implemented in this plan), the actions totaling from 15 to 19 were determined to be of a "Moderate" planning significance, and the actions totaling less than 15 were rated as "Low." The actions with a planning significance of "Moderate" or "Low" are still considered to be important. However, the HMPC determined they could not be implemented at this time.

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Look into funding to construct FEMA approved Community Safe Room	3	3	3	3	3	3	3	3	24	High	Tornado	1, 2, 4
Install/Upgrade outdoor storm sirens	3	3	3	3	3	3	3	3	24	High	Tornado	1,2,4
Cow Creek Flash Flooding Mitigation	3	3	3	3	3	3	3	3	24	High	Flood	1, 3, 4
Look into funding to construct FEMA approved Safe Room	3	3	3	3	3	3	3	3	24	High	Tornado	1,2,4
McPherson County Reconductor Project	3	3	3	3	3	3	3	3	24	High	Utility/Infrastructure Failure	1,3,4
Distribution line upgrade	3	3	3	3	3	3	3	3	24	High	Utility/Infrastructure Failure	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Emergency backup generator for critical facilities	3	3	3	3	3	3	2	3	23	High	Utility/Infrastructure Failure	1,4
Conduct hydrology study	3	3	3	3	3	3	2	3	23	High	Flood	1, 3, 4
City well house elevation	3	3	3	3	3	3	2	3	23	High	Flood	1, 3, 4
Fire Equipment upgrade/purchase	3	3	3	3	3	3	2	3	23	High	All Hazards	1,3,4
Install drainage culverts	3	3	2	3	3	3	2	3	22	High	Flood	1, 3, 4
Drainage ditch dredging	3	3	2	3	3	3	2	3	22	High	Flood	1, 3, 4
Security system for hospital, annex, and EMS facility	3	3	3	3	3	3	1	3	22	High	Terrorism/Agri-Terrorism/Civil Disorder	1,4
Upgrade communication system for hospital and EMS	3	3	3	3	3	3	1	3	22	High	Utility/Infrastructure Failure	1, 4
Water line replacement project	3	3	3	3	3	3	1	3	22	High	Utility/Infrastructure Failure	1, 4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
HVAC & building fire detection upgrade	3	3	3	3	3	3	1	3	22	High	Fire	1,4
Emergency notification system	3	3	3	3	3	3	1	3	22	High	All Hazards	1,2,4
Implement the Mitigation Actions and Strategy developed in this 2010 Hazard Mitigation Plan	3	3	3	3	3	3	0	3	21	High	All Hazards	1,2,3,4
Maintain compliance with the National Flood Insurance Program (NFIP) requirements.	3	3	3	3	3	3	0	3	21	High	Flood	1,3,4
Look into joining the National Flood Insurance Program (NFIP)	3	3	3	3	3	3	0	3	21	High	Flood	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Develop Emergency Preparedness Plan	3	3	3	3	3	3	0	3	21	High	All Hazards	1,2,3,4
Facilitate an incident command center	3	3	3	3	3	3	0	3	21	High	All Hazards	1, 4
Develop Hazardous Materials Plan	3	3	3	3	3	3	0	3	21	High	Hazardous Materials	1, 4
Public awareness project	3	3	3	3	3	3	0	3	21	High	All Hazards	1,2,4
Communication System Project	3	3	2	3	3	3	1	3	21	High	Utility/Infrastructure Failure	1, 4
Educate public on extreme temperature hazards and precautions	3	3	3	3	3	3	0	3	21	High	Extreme Temperatures	1,2,4
Continue vaccination programs at County Health Department	3	3	1	3	3	3	2	3	21	High	Major Disease Outbreak	1,4
Handheld Radio Purchase	3	3	2	2	3	3	1	3	20	High	All Hazards	1, 4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals				
Mitigate Potential Terrorist Attacks Or Acts Of Violence	3	3	2	2	3	3	1	3	20	High	Terrorism/Agri-Terrorism/Civil Disorder	1, 4
Special Weapons And Tactical	3	3	2	2	3	3	1	3	20	High	Terrorism/Agri-Terrorism/Civil Disorder	1, 4
McPherson County Courthouse Security	3	3	2	2	3	3	1	3	20	High	Terrorism/Agri-Terrorism/Civil Disorder	1,4
Law Enforcement Center Expansion And Upgrade	3	3	2	2	3	3	1	3	20	High	All Hazards	1,4
Radio System Purchase	3	3	2	2	3	3	1	3	20	High	All Hazards	1, 4
Equip patrol cars with mountable laptops and wireless cards	3	3	2	2	3	3	1	3	20	High	All Hazards	1, 4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Ensure that existing monitoring capabilities at the State and County level are integrated to provide an early warning of an outbreak, blight, or infestation in the County's animal or plant populations	3	2	1	3	3	3	0	3	18	Moderate	Agricultural Infestation	1,2,3,4
Begin an animal disease, blight, or infestation public awareness and educational campaign under the County education and outreach program	3	2	1	3	3	3	0	3	18	Moderate	Agricultural Infestation	1,2,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Adopt/enforce water conservation ordinances	3	3	1	3	3	2	0	2	17	Moderate	Drought	1,3,4
Enforcement of Zoning and Building Code Ordinances through current site plan, subdivision, and building permit review processes to reduce the effects of drought	3	3	1	3	3	2	0	2	17	Moderate	Drought	1,2,3,4
Create cooperative Federal/non-Federal drought contingency plans for rapid implementation during water shortages	3	3	1	3	3	2	0	2	17	Moderate	Drought	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Create and implement a plan for providing cooling stations during extreme heat conditions	3	3	1	3	3	2	0	2	17	Moderate	Extreme Temperatures	1,2,4
Identify areas of expansive soils	3	3	1	3	3	2	0	2	17	Low	Expansive Soils	1,3,4
Construct and improve berms	3	3	1	3	3	2	0	2	17	Moderate	Flood	1,4
Construct storm sewer drainage	3	3	1	3	3	2	0	2	17	Moderate	Flood	1,4
Install strobe light on all buses	3	3	1	3	3	2	0	2	17	Moderate	Fog	1,4
Apply reflective tape to buses	3	3	1	3	3	2	0	2	17	Moderate	Fog	1,4
Designate HAZMAT transportation routes in highly populated areas	3	3	1	3	3	2	0	2	17	Moderate	Hazardous Materials	1,2,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Map all hazardous materials facilities	3	3	1	3	3	2	0	2	17	Moderate	Hazardous Materials	1,2,3,4
Establish HAZMAT decontamination sites	3	3	1	3	3	2	0	2	17	Moderate	Hazardous Materials	1,4
Continue to identify areas prone to land subsidence	3	3	1	3	3	2	0	2	17	Moderate	Land Subsidence	1,3,4
Install community warning system	3	2	1	1	3	3	1	3	17	Moderate	Radiological	1,2,4
Identify vulnerable facilities and develop mitigation strategies to reduce the vulnerability	3	2	1	1	3	3	1	3	17	Moderate	Terrorism/Agri-Terrorism/Civil Disorder	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Promote NOAA weather radio, including citizen purchase of receivers and rebate programs	3	2	1	1	3	3	1	3	17	Moderate	Tornado	1,2,4
Create and implement a plan for providing shelters during extreme cold temperatures	3	1	1	2	3	3	0	3	16	Moderate	Extreme Temperatures	1,2,4
Update Bioterrorism Plan	3	1	1	3	3	2	0	2	15	Moderate	Major Disease Outbreak	1,4
Prepare/Update community accident response plan	3	1	1	3	3	2	0	2	15	Moderate	Radiological	1,2,4
Enforce burning restrictions	2	2	1	1	3	3	0	3	15	Moderate	Wildfire	1,3,4

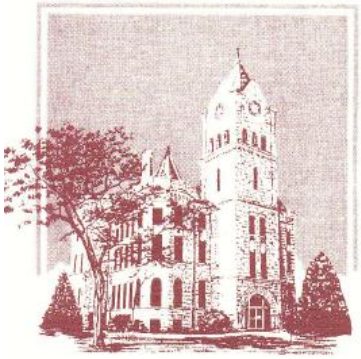
Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals				
Conduct analysis of landslide prone areas	3	2	1	1	3	2	0	2	14	Low	Landslide	1,3,4
Provide "whole building" surge protection in critical facilities	3	2	1	1	3	2	0	2	14	Low	Lightning	1,4
Enforcement of Zoning and Building Code Ordinances through current site plan, subdivision, and building permit review processes to reduce the effects of windstorm/high winds	3	2	1	1	3	2	0	2	14	Low	Windstorm	1,4
Clear dead or rotting trees and branches	3	2	1	1	3	2	0	2	14	Low	Windstorm	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Purchase snow trucks, plows, and/or sanders	3	2	1	1	3	2	0	2	14	Low	Winter storm	1,4
Promote use of disease resistant crops through incentives and/or rebate programs	3	1	1	1	3	2	0	2	13	Low	Agricultural Infestation	1,3,4
Identify ways to protect structures, infrastructure, and critical facilities and their occupants from damage caused by lightning strikes.	2	2	1	1	3	2	0	2	13	Low	Lightning	1,4
Develop soil erosion stabilization projects	2	2	1	1	3	2	0	2	13	Low	Soil Erosion and Dust	1,3,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Conduct a wildland fire study for entire county using GIS to map responses	2	2	1	1	3	2	0	2	13	Low	Wildfire	1,3,4
Develop earthquake evacuation plans	1	2	1	1	3	2	0	2	12		Earthquake	
Indentify areas at risk for earthquakes	1	2	1	1	3	2	0	2	12		Earthquake	
Encourage communities to adopt building codes regarding expansive soils	1	2	1	1	3	2	0	2	12	Low	Expansive Soils	1,3,4
Clean sewage lagoons and install rock	1	2	1	1	3	2	0	2	12	Low	Flood	1,4
Purchase portable pumps	1	2	1	1	3	2	0	2	12	Low	Flood	1,4

Proposed Actions	Modified STAPLEE Criteria Considerations											
	Certain = 3		Highly Likely = 2		Possible = 1				Not Likely = 0			
	S	T	A	P	L	E		E				
	Social	Technical	Administrative	Political	Legal	Economic		Environmental				
	Socially Acceptable	Technically feasible	Adequate staffing	Political support	Legal Authority to Implement Action Item	Clear benefit of action	Outside funding possible	Consistent with community environmental goals	Total STAPLEE Score	Priority Level	Hazard Mitigated	Goal Addressed
Provide covered shelter for critical government vehicles and equipment	1	2	1	1	3	2	0	2	12	Low	Hailstorm	1,4
Enforce snow removal policies	3	1	0	2	3	0	0	1	10	Low	Winter storm	1

After the mitigation actions were prioritized SLEMC remained in the facility until noon to provide assistance in the completion of data collection worksheets, after that time they went around to each jurisdiction that was unable to attend the regularly scheduled meeting.



McPHERSON COUNTY

NEWS RELEASE - -

Hazard Mitigation Kick-Off Meeting Scheduled

McPherson County, through the Local Emergency Planning Committee (LEPC), is beginning the process of developing a County Hazard Mitigation Plan and invites the public to attend the "Kick-Off" meeting.

Hazard mitigation plans identify reasonable strategies to reduce the potential loss of life, human suffering, and loss of property from man made or natural disasters, such as floods, fires, snow and ice storms, tornados, power outages and public health emergencies.

The Federal Emergency Management Agency (FEMA) requires states and local governments to have approved hazard mitigation plans in order to qualify for certain types of community disaster assistance.

Mitigation is defined as "Acting before a disaster strikes to prevent permanently the occurrence of the disaster or to reduce the effects of the disaster when it occurs." It can also be used after a disaster to reduce the risk of a repeat disaster.

The "Kick-Off" meeting is scheduled for Thursday, February 4th at 6:30 p.m. in the McPherson Community Building, 122 East Marlin.

1177 West Woodside
McPherson, KS 67460-0498

EMERGENCY MANAGEMENT AGENCY

Fax - (620) 245-1269
Business - (620) 245-1260
Emergency - (620) 245-1266

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Help Wanted

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...AINTENANCE
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...nsas, McPherson KS.

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...fh@sbcglobal.net
...Staffing Office, 115
...McPherson, Ks.

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...experience working
...nd warehouse with
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...on Opera House is
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...cPherson KS 67460.
...be received by Dec. 10.

THE MCPHERSON SENTINEL, Saturday, December 4, 2010 - 13

LOCAL NEWS

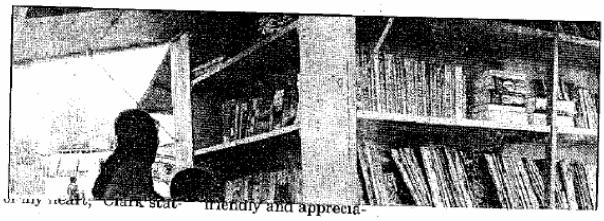
American Girls series author at The Well

By Sentinel Staff

Award-winning children's author Jane Kurtz will be the featured speaker at a special holiday event at The Well today, Dec. 4, from 5:30 p.m. to 7 p.m. Raffle tickets will be available to win gift baskets and a "Lanie" doll from ...

mobile libraries.

LeAnn Clark of Hesston has volunteered with Ethiopia Reads since 2003, when Kurtz connected with her after moving to Hesston. Clark coordinated Kansas Reading Association efforts to collect 25,000 books and $8,000 to ship to Ethiopia for ...



... of my heart," Clark stat... friendly and appreci-

Comments sought on hazard mitigation plan

Special to The Sentinel

McPherson County is nearing completion of the 2010 Hazard Mitigation Plan.

The McPherson County Hazard Mitigation Planning Committee has analyzed the overall risks and impacts from past hazards on area residents, property and critical infrastructure.

The information was considered during the evaluation of hazards and the development of mitigation policies and initiatives to prevent future disaster losses, in particular for natural hazards.

The project was coordinated by the McPherson County Office of Emergency Management with technical assistance provided by a consulting firm.

The Hazard Mitigation Planning Committee was composed of representatives from each political jurisdiction and special districts within the county.

The Kansas Department of Emergency Management, Kansas Department of Agriculture and the Division of Water Resources also participated in the planning process.

Feedback from area residents is an important way of gauging the adequacy of local mitigation plans.

The office of Emergency Management and the County Hazard Mitigation Planning Committee has placed the draft document on the McPherson County website, for review and comment.

Comments can be E-mailed to mcema@sbcglobal.net or phoned to 620-245-1261.

... community

McPherson County Adoption Resolution

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City of Canton Adoption Resolution

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City of Galva Adoption Resolution

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City of Inman Adoption Resolution

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City of Lindsborg Adoption Resolution

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City of Marquette Adoption Resolution

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City of McPherson Adoption Resolution

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City of Moundridge Adoption Resolution

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City of Windom Adoption Resolution

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Smoky Valley USD 400 Adoption Resolution

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McPherson USD 418 Adoption Resolution

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Canton USD 419 Adoption Resolution

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Moundridge USD 423 Adoption Resolution

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Windom USD 444 Adoption Resolution

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Inman USD 448 Adoption Resolution

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McPherson College Adoption Resolution

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Hutchinson Community College Adoption Resolution

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Central Christian College of Kansas Adoption Resolution

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DS&O Rural Electric Cooperative Adoption Resolution

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Flint Hills Rural Electric Cooperative Adoption Resolution

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Ark Valley Rural Electric Cooperative Adoption Resolution

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