



# 4 MITIGATION STRATEGY

**44 CFR Requirement 201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.**

This section presents the mitigation strategy developed by the Hazard Mitigation Planning Committee (HMPC) based on the risk assessment. The mitigation strategy was developed through a collaborative group process and consists of general goal statements to guide the jurisdictions in efforts to lessen disaster impacts as well as specific mitigation actions that can be put in place to directly reduce vulnerability to hazards and losses. The following definitions are based upon those found in FEMA publication 386-3, *Developing a Mitigation Plan* (2002):

- **Goals** are general guidelines that explain what you want to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. They are usually long-term, broad, policy-type statements.
- **Mitigation Actions** are specific actions that help achieve goals and objectives.

## 4.1 Goals

**44 CFR Requirement 201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

The HMPC developed goals to provide direction for reducing hazard-related losses in Neosho County. These were based upon the results of the risk assessment and a review of mitigation goals from other state and local plans, specifically, the Kansas Hazard Mitigation Plan, 2007, the Neosho County Basic Operations Plan and the draft mitigation plan for Neosho County that was previously created using the MitigationPlan.com™ planning tool. This review was to ensure that this plan's mitigation strategy was integrated or aligned with existing plans and policies.

Through a brainstorming process at their second meeting, the HMPC came to a consensus on four main goals. The Goals of the mitigation strategy are listed below, in no particular order:

**Goal 1:** Minimize vulnerability of the people and property of Neosho County to the impacts of natural hazards

**Goal 2:** Protect critical facilities, infrastructure and other community assets from the impacts of hazards

**Goal 3:** Improve education and awareness regarding hazards and risk in Neosho County

**Goal 4:** Strengthen communication among agencies and between agencies and the public

## 4.2 Identification and Analysis of Mitigation Actions

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**44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.**

Prior to the second meeting of the HMPC, the draft risk assessment was sent to the HMPC committee members along with a worksheet to facilitate the development of action ideas. This worksheet is provided in Appendix B (Item #7). The worksheet provided the list of key issues or problem statements that were identified through the risk assessment process organized by each hazard analyzed. In addition, AMEC provided the HMPC with information on types of mitigation actions. A handout was provided with the following types of mitigation actions, which originated from the National Flood Insurance Program's Community Rating System, as well as definitions and examples for each type of action:

- **Prevention:** Administrative or regulatory actions or processes that influence the way land and buildings are developed and built
- **Property protection:** Actions that involve the modification of existing buildings or structures to protect them from a hazard or remove them from the hazard area
- **Structural:** Actions that involve the construction of structures to reduce the impact of hazard
- **Natural resource protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems
- **Emergency services:** Actions that protect people and property during and immediately after a disaster or hazard event
- **Public education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about the hazards and potential ways to mitigate them.

Committee members were asked to review the draft risk assessment and work with others in their jurisdiction prior to the second meeting of the HMPC to develop specific mitigation actions to eliminate or lessen the disaster impacts associated with each hazard. Several committee members returned mitigation actions ideas to AMEC prior to the second meeting and other committee members brought the completed worksheet to the meeting to provide their input. During the meeting, the submitted actions were presented by each participating jurisdiction and additional actions were brainstormed and discussed. In addition, all actions that had been incorporated in the draft MitigatonPlan.com™ were reviewed to determine if the planning committee wanted to carry them over to the new plan. After discussing a comprehensive range of alternatives (included in Appendix C) the HMPC achieved consensus on those actions to include in the plan and the responsible jurisdictions made commitments to complete action implementation worksheets and STAPLEE worksheets for each action they wished to include in the plan for their jurisdiction.

## 4.3 Implementation of Mitigation Actions

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**44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.**

After the planning committee had determined the actions to include in the mitigation strategy, the committee participated in an exercise to prioritize the types of projects that are considered by the group to be the most important to implement. Prioritizing specific actions for multi-jurisdictional plans can be somewhat challenging to avoid putting jurisdictions in the position of “competition” for the highest priority projects. To avoid this, similar actions were grouped into general mitigation categories for the prioritization exercise. In total, there were nine general categories into which specific jurisdiction-specific actions were grouped.

To prioritize the mitigation actions, the HMPC discussed the STAPLEE prioritization criteria recommended by FEMA. STAPLEE is a tool used to assess the costs and benefits, and overall feasibility of mitigation actions. STAPLEE stands for the following:

- **Social:** Will the action be acceptable to the community? Could it have an unfair effect on a particular segment of the population?
- **Technical:** Is the action technically feasible? Are there secondary impacts? Does it offer a long-term solution?
- **Aministrative:** Are there adequate staffing, funding, and maintenance capabilities to implement the project?
- **Political:** Will there be adequate political and public support for the project?
- **Legal:** Does your jurisdiction have the legal authority to implement the action?
- **Economic:** Is the action cost-beneficial? Is there funding available? Will the action contribute to the local economy?
- **Environmental:** Will there be negative environmental consequences from the action? Does it comply with environmental regulations? Is it consistent with community environmental goals?

The STAPLEE criteria were discussed prior to the prioritization exercise. For the voting exercise, each member of the HMPC was given three red “voting dots” and was instructed to place their dots next to the general mitigation categories that they felt were most important to implement, keeping in mind the STAPLEE elements. For this exercise, the committee members considered the application of STAPLEE to the general mitigation category, not individual projects. After the meeting the number of dots next to each mitigation action category was totaled and high, moderate, and low priority levels were assigned. In addition, each jurisdiction agreed to complete the STAPLEE worksheets for the individual actions they would provide for inclusion in the plan. The STAPLEE score is provided for each individual action Tables 4.2 through 4.8 and the original STAPLEE worksheets for each action are provided in Appendix E.

Table 4.1 provides the list of actions that were developed during the meeting. This table also provides the results of the group prioritization exercise. Those actions that received 10 or more votes received a “HIGH” priority level. Those actions that received between 6 and 9 dots received a “MODERATE” priority level and those that received fewer than 6 dots received a “LOW” priority level. It was explained to the HMPC that this priority ranking does not impact whether or not specific projects will receive funding, but rather provides information on the general types of projects that are considered most important to the planning committee members.

**Table 4.1 Results of Prioritization Exercise**

Mitigation Action	General Mitigation Category	Jurisdiction	Priority	# of Votes
Public Information on location of tornado shelters and cooling centers	Public Education	Erie	High	12
Promote Neosho County Hazard Mitigation Plan to the public	Public Education	Neosho County Emergency Management	High	12
Public Information on location of tornado shelters and cooling centers	Public Education	St. Paul/USD 505 (partnership)	High	12
Public Information on location of tornado shelters and cooling centers	Public Education	Thayer	High	12
Construction of a community safe room	Saferooms	Thayer	High	11
Evaluate existing school tornado shelter locations	Saferooms	USD 101	High	11
Construction of safe rooms in schools	Saferooms	USD 101	High	11
Evaluate existing school tornado shelter locations	Saferooms	USD 413	High	11
Construction of safe rooms in schools	Saferooms	USD 413	High	11
Evaluate existing school tornado shelter locations	Saferooms	USD 447	High	11
Construction of safe rooms in schools	Saferooms	USD 447	High	11
Retrofit school tornado shelter areas	Saferooms	USD 447	High	11
Evaluate existing school tornado shelter locations	Saferooms	USD 505	High	11
Construction of safe rooms in schools	Saferooms	USD 505	High	11
Install additional severe weather warning sirens	Indoor/Outdoor Warning	Chanute	Moderate	9

<b>Mitigation Action</b>	<b>General Mitigation Category</b>	<b>Jurisdiction</b>	<b>Priority</b>	<b># of Votes</b>
Install additional severe weather warning sirens	Indoor/Outdoor Warning	Erie	Moderate	9
Install additional severe weather warning sirens	Indoor/Outdoor Warning	Neosho County Emergency Management	Moderate	9
Install additional severe weather warning sirens	Indoor/Outdoor Warning	St. Paul	Moderate	9
Promote NOAA Weather Radios	Indoor/Outdoor Warning	Thayer	Moderate	9
Install additional severe weather warning sirens	Indoor/Outdoor Warning	Thayer	Moderate	9
Bury secondary power lines in new development	Power Line Maintenance/Upgrades	Erie	Moderate	7
Upgrade power lines utilizing twisted pair conductor	Power Line Maintenance/Upgrades	Heartland REC	Moderate	7
Utility line clearance programs	Power Line Maintenance/Upgrades	Thayer	Moderate	7
Install Generators at Thayer Community Building	Install Generators	Thayer	Moderate	6
Install Generators at Thayer lift Station and Water Treatment	Install Generators	Thayer	Moderate	6
Install Generators at Neosho County Community College	Install Generators	Neosho County Community College	Moderate	6
Install Generators at USD 505 facilities	Install Generators	USD 505	Moderate	6
Wildfire public education	Wildfire Mitigation	KS Forest Service	Low	2
Wildfire fire department training	Wildfire Mitigation	KS Forest Service	Low	2
Wildfire fuels reduction	Wildfire Mitigation	KS Forest Service	Low	2
Wildfire fuels reduction	Wildfire Mitigation	Thayer (partner with RR?)	Low	2
Buyout of floodprone properties	Floodprone Property Buyout	Erie	Low	1
Continue NFIP Participation	NFIP Participation	Chanute	Low	0
Continue NFIP Participation	NFIP Participation	Erie	Low	0
Continue NFIP Participation	NFIP Participation	Neosho County Emergency Management	Low	0

Mitigation Action	General Mitigation Category	Jurisdiction	Priority	# of Votes
Ensure that the Neosho County Hazard Mitigation Plan is reviewed and kept current	Planning	Neosho County Emergency Management	Low	0
Continue NFIP Participation	NFIP Participation	St. Paul	Low	0

The same mitigation action categories were included in the public questionnaire that was available along with a plan summary at the “Disaster Planning Resource Fairs” that were held at public libraries in the planning area. See Appendix C for a comparison of the votes given to each mitigation category by both the HMPC and the general public.

This process of identification and analysis of mitigation options allowed the HMPC to come to consensus and to prioritize recommended mitigation actions. Emphasis was placed on the importance of a benefit-cost analysis in determining project priority; however, this was not a quantitative analysis. The Disaster Mitigation Act regulations state that benefit-cost review is the primary method by which mitigation projects should be prioritized. Recognizing the federal regulatory requirement to prioritize by benefit-cost, and the need for any publicly funded project to be cost-effective, the HMPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the Kansas Hazard Mitigation Plan. Cost-effectiveness will be considered in additional detail when seeking FEMA mitigation grant funding for eligible projects identified in this plan.

Following the HMPC meeting, the representative from each participating jurisdiction coordinated meetings with his or her jurisdictional planning team (where available) to discuss mitigation actions and to complete the mitigation action implementation worksheets and STAPLEE Worksheets. Through this process, jurisdictions also identified several new actions specific to the risks in their jurisdiction. Additional mitigation actions that were added after the prioritization exercise during meeting three were each organized under one of the nine original mitigation categories (where appropriate) and therefore, attributed the priority level achieved for that category.

Tables 4.2 through 4.8 summarize the mitigation actions that the jurisdictions selected to submit to the plan. The mitigation action implementation worksheets follow the action table for each jurisdiction. Table 4.2 includes actions submitted by Neosho County as well as multi-jurisdictional actions. Following in Tables 4.3 through 4.6 are separate tables for each incorporated city. The actions submitted by the school districts and community college are grouped together in Table 4.7, and the actions submitted by private-non-profit participants are grouped together in Table 4.8. Each table also provides information on the priority level received through the group prioritization exercise, the STAPLEE score as computed for each action by the responsible jurisdiction, plan goals addressed, and the hazards addressed.

### 4.3.1 Actions Developed for the Unincorporated County/Multi-jurisdictional Actions

**Table 4.2. Mitigation Action Matrix-Unincorporated County/Multi-jurisdictional Actions**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
County-1	Continue NFIP Participation	NFIP Participation	L	25	1,2	Flood
County-2	Install Additional Severe Weather Warning Sirens	Indoor/Outdoor Warning	M	20	1	Windstorm, Tornado
County-3	Promote Neosho County Hazard Mitigation Plan to the Public	Public Education	H	12	3	All Hazards
County-4	Ensure the Neosho County Hazard Mitigation Plan is reviewed and kept current	Planning	L	22	4	All Hazards
County-5	Obtain Dam Inundation Maps and Emergency Action Plans for the high and significant hazard dams in the County	Planning	L	14	3	Dam/Levee Failure
County-6	Promote Crop Insurance and Private Hazard Insurance	Public Education	H	17	1,3	Agricultural Infestation, Dam and Levee Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flood, Hailstorm, Lightning, Soil Erosion and Dust, Utility/Infrastructure Failure, Tornado, Wildfire, Windstorm, Winter Storm
Multi-1	Wildfire public education	Wildfire Mitigation	L	22	3,4	Wildfire
Multi-2	Increase public and fire department training on wildland urban interface fires	Wildfire Mitigation	L	23	3,4	Wildfire
Multi-3	Reduce hazardous fuels in prioritized wildfire risk areas	Wildfire Mitigation	L	23	1	Wildfire

Neosho County-1	Continue NFIP Participation
<b>Issue/Background:</b>	Several areas within Neosho County lie within the designated flood zone. Neosho County currently participates in the NFIP and will continue to do so. In addition, Digital Flood Insurance Rate Maps (DFIRMs) have been developed for the County. The effective date for these maps is June 2009. The County will continue regulate development in the floodplain according to the floodplain management ordinance and the new DFIRMs. To that end, Neosho County appointed a new Floodplain Manger while this planning process was ongoing.
<b>Plan for Implementation and Administration:</b>	Continue to participate in the NFIP and enforce the current floodplain management ordinance. This includes enforcement of all floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs).
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	State Department of Agriculture, Division of Water Resources, FEMA, Neosho County Floodplain Management, Noxious Weed Department
<b>Potential Funding Source:</b>	Neosho County General Revenue
<b>Total Cost:</b>	Unknown
<b>Benefits (Losses Avoided):</b>	Prevention of loss of life and property within the designated flood zones. Flood Insurance availability to residents
<b>Completion Date:</b>	Ongoing

<b>Neosho County-2</b>	<b>Install additional severe weather warning sirens</b>
<b>Issue/Background:</b>	Several areas outside city limits within Neosho County have housing developments and unincorporated cities. There are numerous families that live within these developments and unincorporated cities. These areas, located throughout the county, are outside of the range of the existing outdoor warning sirens.
<b>Plan for Implementation and Administration:</b>	Install outdoor warning sirens in these areas with concentrated populations. Seven (7) sites have been identified for installation of additional warning sirens.
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	To Be Determined
<b>Potential Funding Source:</b>	National Weather Service grants (if available), FEMA mitigation grants (HMGP)
<b>Total Cost:</b>	\$30,000 to \$40,000 per site. Total cost to implement in all 7 sites identified-- \$210,000 to \$280,000...
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	1 year after funds secured

<b>Neosho County-3</b>	<b>Promote Neosho County Hazard Mitigation Plan to the public</b>
<b>Issue/Background:</b>	This will be a new plan. The public will have an opportunity to review the plan upon completion. In addition, during the plan maintenance process, the planning committee will continue to keep the public informed by publishing the minutes of the annual meetings in newspapers that circulate to the planning area.
<b>Plan for Implementation and Administration:</b>	During the final comment period, the Neosho County Hazard Mitigation Plan will be available at the Emergency Management office, libraries, and the County's website. In addition, the County may set up booths at various public functions.
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	To be Identified
<b>Potential Funding Source:</b>	No direct costs associated with this action.
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Keep the public informed of hazards and planning in the county as well as implementation of mitigation actions
<b>Completion Date:</b>	Final Public Comment Period for the plan is set for January 2009. The public will continue to be informed after the annual planning meetings that will occur as part of the plan maintenance process.

<b>Neosho County-4</b>	<b>Ensure that the Neosho County Hazard Mitigation Plan is reviewed and kept current</b>
<b>Issue/Background:</b>	This will be a new plan. Like any plan, it will need to be reviewed and kept up to date
<b>Plan for Implementation and Administration:</b>	The Neosho County Hazard Mitigation Planning Committee will meet once a year to review and update the plan. In addition, an updated plan will be submitted to KDEM and FEMA every five years for review and approval.
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	Existing jurisdictions participating in the plan as well as additional jurisdictions that may be identified during the maintenance process.
<b>Potential Funding Source:</b>	N/A
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Continue the mitigation process to prevent life and property loss within Neosho County.
<b>Completion Date:</b>	Annual Meetings/ submission of revised plan in 5 years.

<b>Neosho County-5</b>	<b>Obtain Inundation Maps and Emergency Action Plans for the high and significant hazard dams in the County</b>
<b>Issue/Background:</b>	The Dam Inundation Maps and Emergency Action plans were not available from the Kansas Department of Agriculture, Division of Water Resources, Water Structures Program during the planning process. These would be helpful to determine vulnerable populations and structures in the event of dam breach or failure
<b>Plan for Implementation and Administration:</b>	Coordinate with the Kansas Department of Agriculture, Water Structures Program to determine the necessary steps to obtain dam inundation maps and emergency action plans for high and significant hazard dams
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	Kansas Department of Agriculture, owners of dams
<b>Potential Funding Source:</b>	County budget for staff time
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Allow for better planning to reduce damages in the event of dam breach or failure
<b>Completion Date:</b>	1 year

<b>Neosho County-6</b>	<b>Promote Crop Insurance and Private Hazard Insurance</b>
<b>Issue/Background:</b>	Many hazards are difficult to mitigation. In some cases, carrying adequate insurance is the only feasible way to avoid significant financial losses.
<b>Plan for Implementation and Administration:</b>	Promote Crop Insurance to cover natural hazards such as Agricultural Infestation, Drought, Extreme Heat, Flood, Hailstorm, Soil Erosion and Dust, Tornado, Wildfire, Windstorm, and Winter Storm.

	Promote Private Hazard and Flood Insurance to cover natural hazards such as Earthquake, Flood, Hailstorm, Lightning, Utility/Infrastructure Failure, Tornado, Wildfire, Windstorm, and Winter Storm.
	Promotion of insurance could be accomplished by incorporating a message on the county website or other county media applications.
<b>Lead Agency:</b>	Neosho County Emergency Management
<b>Partners:</b>	Insurance Agencies
<b>Potential Funding Source:</b>	County Budget for staff time
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Decrease the amount of financial losses suffered by farmers and residents of Neosho County, causing the amount of government assistance needed to decrease
<b>Completion Date:</b>	1 year

<b>Multi-1</b>	<b>Wildfire public education</b>
<b>Issue/Background:</b>	Before peak conditions and occurrences of wildfire danger occur, homeowners living in the wildland/urban interface need to have the knowledge to prepare their homes and property to be as safe and defensible as possible.
<b>Plan for Implementation and Administration:</b>	Educational workshops could be delivered for homeowners, associations and/or in rural communities to provide homeowners with property in the wildland/urban interface information on steps that they can take on their own to defend their property from wildfire. Existing programs such as the FIREWISE Communities USA program could be used to supplement local knowledge and expertise provided by the local fire departments and the Kansas Forest Service in providing the needed information at these workshops
<b>Lead Agency:</b>	Kansas Forest Service and local Fire Departments
<b>Partners:</b>	Homeowners associations, rural communities
<b>Potential Funding Source:</b>	Kansas Forest Service and federal grants
<b>Total Cost:</b>	Materials and presenter time per workshop is estimated to be approximately \$500.
<b>Benefits (Losses Avoided):</b>	If homeowners apply the practices learned, benefits would include lessening the chances for a fire to spread from vegetation (wildland fuels) to man-made (urban) fuels. This could avoid loss of structures as a result of wildfire.
<b>Completion Date:</b>	Ongoing

<b>Multi-2</b>	<b>Increase public and fire department training on wildland urban interface fires</b>
<b>Issue/Background:</b>	Wildfires in the Wildland Urban Interface (WUI), or any location where a fire can spread from vegetation (wildland fuels) to man-made (urban fuels) presents a unique and potentially very dangerous set of hazards to the firefighters that respond to them as well as the public that live in areas where such fires occur.
<b>Plan for Implementation and Administration:</b>	Several trainings could be implemented to increase the general, tactical, and safety knowledge of anyone living in or responding to fires in the WUI. Topics from tactical decision making to assistance with pre-incident assessments of properties that may be impacted should be covered in these training sessions
<b>Lead Agency:</b>	Kansas Forest Service
<b>Partners:</b>	Local Fire Departments, and communities
<b>Potential Funding Source:</b>	The Kansas Forest Service, along with its state and federal partners, can assist with providing such training opportunities.
<b>Total Cost:</b>	\$30 per student per training session
<b>Benefits (Losses Avoided):</b>	Additional training on the specific tactics and strategies to use in the WUI will increase public and emergency responder safety
<b>Completion Date:</b>	Ongoing

<b>Multi-3</b>	<b>Reduce hazardous fuels in prioritized wildfire risk areas</b>
<b>Issue/Background:</b>	Past experience has shown that there is a threat of having wildland/urban interface (WUI) fires in the planning area. The WUI is any location where a fire can spread from vegetation (wildland fuels) to man-made (urban fuels). As part of the planning process, a wildfire hazard assessment has been conducted to begin to identify those locations that might be in need of some hazard fuel reduction work.
<b>Plan for Implementation and Administration:</b>	In those areas that have been prioritized as posing a threat for wildland/urban interface fires, fuel reduction should be used to create fuel breaks between the wildland fuels and the urban environment. Methods used would consist of mechanical removal of fuel, mechanical thinning of fuel, and/or prescribed fire.
<b>Lead Agency:</b>	Kansas Forest Service and the local Fire Departments
<b>Partners:</b>	Homeowners associations and rural communities
<b>Potential Funding Source:</b>	The Kansas Forest will assist qualifying communities with pursuing federal WUI grant dollars for hazardous fuel reduction projects
<b>Total Cost:</b>	Approximately \$85/acre for hazardous fuel reduction projects
<b>Benefits (Losses Avoided):</b>	Hazardous fuel reduction will enable local fire departments to more safely engage and suppress wildfires without the added concern of those fires impacting the wildland/urban interface
<b>Completion Date:</b>	Ongoing

### 4.3.2 Actions Developed for the City of Chanute

**Table 4.3. Mitigation Action Matrix-Chanute**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
Chanute-1	Install additional severe weather warning sirens	Indoor/Outdoor Warning	M	27	1	Tornado, Windstorm
Chanute-2	Continue NFIP Participation	NFIP Participation	L	27	1,2	Flood
Chanute-3	Buyout of Floodprone Properties	Floodprone Property Buyout	L	22	1	Flood

<b>Chanute-1</b>		<b>Install additional severe weather warning sirens</b>	
<b>Issue/Background:</b>	The current weather warning sirens in the City of Chanute are old and outdated		
<b>Plan for Implementation and Administration:</b>	The City of Chanute is currently trying to replace sirens one at a time with better, more efficient sirens. It is a possibility that the whole system may need to be replaced.		
<b>Lead Agency:</b>	City of Chanute, Community Development Office		
<b>Partners:</b>	None Identified		
<b>Potential Funding Source:</b>	HMGP, City funds		
<b>Total Cost:</b>	Unknown		
<b>Benefits (Losses Avoided):</b>	Life Safety		
<b>Completion Date:</b>	3 months		

<b>Chanute-2</b>	<b>Continue NFIP Participation</b>
<b>Issue/Background:</b>	The City of Chanute is a current participant in the NFIP and is considered a beneficial program to the City of Chanute and its residents.
<b>Plan for Implementation and Administration:</b>	Continue to participate in the NFIP This includes enforcement of all floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs).
<b>Lead Agency:</b>	City of Chanute Community Development Office
<b>Partners:</b>	None Identified
<b>Potential Funding Source:</b>	N/A
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Life Safety Avoided property loss to new development Availability of Flood Insurance to residents
<b>Completion Date:</b>	Ongoing

<b>Chanute-3</b>	<b>Buyout of floodprone Properties</b>
<b>Issue/Background:</b>	The City of Chanute is currently working with the KDEM and FEMA to purchase nine (9) floodprone properties. The general area of the properties to be purchased is east central Chanute.
<b>Plan for Implementation and Administration:</b>	Follow FEMA guidelines to apply for and secure funding to purchase 9 floodprone properties and demolish existing structures. A deed restriction would then be placed on the vacant land to prohibit any future structures.
<b>Lead Agency:</b>	City of Chanute Community Development Office
<b>Partners:</b>	KDEM, FEMA
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	Est. \$500,000
<b>Benefits (Losses Avoided):</b>	Future flood damages will be completely avoided
<b>Completion Date:</b>	1 year from approval

### 4.3.3 Actions Developed for the City of Erie

**Table 4.4. Mitigation Action Matrix-Erie**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
Erie-1	Buyout of Floodprone properties	Floodprone Property Buyout	L	19	1	Flood
Erie-2	Public Information on location of tornado shelters and cooling centers	Public Education	H	23	1,4	Tornado, Extreme Heat
Erie-3	Install Additional Severe Weather Warning Sirens	Indoor/Outdoor Warning	M	23	1	Tornado, Windstorm
Erie-4	Bury secondary power lines in new development	Power Line Maintenance/Upgrades	M	17	1	Tornado, Windstorm, Utility/Infrastructure Failure, Winter Storm, Lightning
Erie-5	Continue NFIP Participation	NFIP Participation	L	23	1,2	Flood

<b>Erie-1 Buyout of floodprone properties</b>	
<b>Issue/Background:</b>	The City of Erie is located approximately one mile north of the Neosho River with one of its tributaries running through the middle of town. The proximity of these rivers to the city makes it prone to flooding during heavy rain.
<b>Plan for Implementation and Administration:</b>	The city is currently in the process of purchasing and removing eleven (11) floodprone properties. The City plans to maintain the property as open space after acquisition and demolition of the structures.
<b>Lead Agency:</b>	City of Erie, City Clerk's Office
<b>Partners:</b>	KDEM, FEMA, Kansas Department of Commerce CDBG Urgent Need Program
<b>Potential Funding Source:</b>	FEMA's HMGP and Kansas Department of Commerce CDBG grant
<b>Total Cost:</b>	\$667,772
<b>Benefits (Losses Avoided):</b>	Future flood losses will be completely avoided.
<b>Completion Date:</b>	April 2009

<b>Erie-2 Public information on location of tornado shelters and cooling centers</b>	
<b>Issue/Background:</b>	Residents may not be aware of the locations that they can seek shelter in the event of a tornado or extreme heat event.
<b>Plan for Implementation and Administration:</b>	Print locations of shelters on top of monthly utility bills during peak tornado/extreme heat months.
<b>Lead Agency:</b>	City of Erie, City Clerk's Office
<b>Partners:</b>	Neosho county Courthouse, USD #101 (shelter locations)
<b>Potential Funding Source:</b>	None
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	Avoid loss of life
<b>Completion Date:</b>	Ongoing-monthly during peak months for tornado and extreme heat hazards

<b>Erie-3 Install additional severe weather warning sirens</b>	
<b>Issue/Background:</b>	The City of Erie currently has two storm sirens. One is located in the southern half of the city and the other is located in the northern half of the city. The city has recently annexed approximately 150 acres adjacent to the north city limits. Plans for the newly annexed property include a new high school, assisted living facility, and housing development. Adding another storm siren in this area is needed.
<b>Plan for Implementation and Administration:</b>	Contact existing siren company to install additional siren in or near the new addition.
<b>Lead Agency:</b>	Erie Police Department
<b>Partners:</b>	Neosho County Emergency Management
<b>Potential Funding Source:</b>	Homeland Security Rural Development Grant
<b>Total Cost:</b>	\$25,000
<b>Benefits (Losses Avoided):</b>	Life Safety—the additional siren would provide ample warning of severe weather
<b>Completion Date:</b>	2009

<b>Erie-4 Bury secondary power lines in new development</b>	
<b>Issue/Background:</b>	The City of Erie has annexed property adjoining the north city limits. A new high school, assisted living facility, and housing development are planned for this new addition. Burying secondary power lines will not only be aesthetically appealing, they would also not be affected by wind, ice, or snow storms, reducing power outages
<b>Plan for Implementation and Administration:</b>	Adopt a new building code to require secondary power lines to be buried.
<b>Lead Agency:</b>	City Superintendent
<b>Partners:</b>	City, developers
<b>Potential Funding Source:</b>	Developers
<b>Total Cost:</b>	Unknown
<b>Benefits (Losses Avoided):</b>	Losses as a result of power outages from severe weather would be avoided
<b>Completion Date:</b>	Ongoing as the new addition is developed

<b>Erie-5 Continue NFIP Participation</b>	
<b>Issue/Background:</b>	The City of Erie is located approximately one mile north of the Neosho River. The Neosho River tributary, Puckett's Run goes through the city. Areas around Puckett's Run and the southern portion of the city are prone to flooding during periods of heavy rain.
<b>Plan for Implementation and Administration:</b>	The city currently participates in the National Flood Insurance Program. The City council has adopted a floodplain management ordinance which sets guidelines to follow to mitigate damage to property and life in floodprone areas,, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs).
<b>Lead Agency:</b>	City of Erie Superintendent
<b>Partners:</b>	FEMA, Kansas Department of Agriculture, Division of Water Resources
<b>Potential Funding Source:</b>	N/A
<b>Total Cost:</b>	None
<b>Benefits (Losses Avoided):</b>	The guidelines set and followed will protect future homes from damage. Flood insurance is available to residents.
<b>Completion Date:</b>	Ongoing

### 4.3.4 Actions Developed for the City of St. Paul

**Table 4.5. Mitigation Action Matrix-St. Paul**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
St. Paul-1	Cable TV severe weather warning	Indoor/Outdoor Warning	M	19	1	All Hazards
St. Paul-2	Continue NFIP participation	NFIP Participation	L	20	1,2	Flood
St. Paul-3	Notify residents of locations of city tornado shelters and cooling centers	Public Education	H	24	3,4	Tornado, Extreme Heat

St. Paul-1	Cable TV severe weather warning
<b>Issue/Background:</b>	The City of St. Paul currently has an outdoor warning system and would like to implement a supplemental indoor warning system on the City's informational cable TV channel.
<b>Plan for Implementation and Administration:</b>	When implemented, this would allow weather spotters from the City's fire department to immediately post severe weather information on the City's cable channel. This would allow for residents to have additional information in the event of activation of the outdoor warning sirens.
<b>Lead Agency:</b>	City of St. Paul Fire Department
<b>Partners:</b>	City of St. Paul, St. Paul Fire Department and Cable TV owner
<b>Potential Funding Source:</b>	City of St. Paul
<b>Total Cost:</b>	To Be Determined
<b>Benefits (Losses Avoided):</b>	Indoor warning with the ability to provide supplemental information, Possible loss of life avoided
<b>Completion Date:</b>	6 months to 1 year

<b>St. Paul-2</b>		<b>Continue NFIP Participation</b>	
<b>Issue/Background:</b>	The City of St. Paul is currently participating in the National Flood Insurance Program and intends to remain in good standing, enforcing the City's current floodplain management ordinance		
<b>Plan for Implementation and Administration:</b>	Continue participation. This includes enforcement of all floodplain management requirements, including regulating all and substantially improved construction in Special Flood Hazard Areas (SFHAs).		
<b>Lead Agency:</b>	City Hall		
<b>Partners:</b>	City of St. Paul, FEMA, NFIP		
<b>Potential Funding Source:</b>	City of St. Paul		
<b>Total Cost:</b>	N/A		
<b>Benefits (Losses Avoided):</b>	Losses will be avoided to future development by adhering to the floodplain development requirements Flood Insurance is available to the residents.		
<b>Completion Date:</b>	Ongoing		

<b>St. Paul-3</b>		<b>Notify residents of tornado shelter and cooling center locations</b>	
<b>Issue/Background:</b>	St. Paul currently sends out monthly water bills with space available for special notices for the citizens of St. Paul. This space could be utilized to notify residents of the locations of tornado shelters / cooling centers. The current location of the town tornado shelter is the basement of the High School. Trained weather spotters from the fire department unlock the school and allow the public access during severe weather.		
<b>Plan for Implementation and Administration:</b>	The city has already switched over to computer-generated water bills. This new system provides space and an easy mechanism to add notifications. The school district could also distribute this information via information sent home with school children and the school website.		
<b>Lead Agency:</b>	St. Paul City Hall		
<b>Partners:</b>	USD 505 and City of St. Paul		
<b>Potential Funding Source:</b>	N/A		
<b>Total Cost:</b>	N/A		
<b>Benefits (Losses Avoided):</b>	Advance information can be easily provided to residents on the locations of tornado shelters and cooling centers		
<b>Completion Date:</b>	Ongoing		

### 4.3.5 Actions Developed for the City of Thayer

**Table 4.6. Mitigation Action Matrix-Thayer**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
Thayer-1	Public Information on location of tornado shelters and cooling center	Public Information	H	17	1,3	Tornado, Windstorm
Thayer-2	Construction of a community saferoom	Saferooms	H	17	1	Tornado
Thayer-3	Promote NOAA Weather Radios	Indoor/Outdoor Warning	M	13	1,3,4	All Hazards
Thayer-4	Install additional severe weather warning sirens	Indoor/Outdoor Warning	M	18	1	Tornado, Windstorm
Thayer-5	Utility line clearance program	Power Line Maintenance/Upgrades	M	14	1,2	Tornado, Windstorm, Winter Storm, Utility/Infrastructure Failure
Thayer-6	Install generator at the Thayer Community Building	Install Generators	M	14	1,2	Tornado, Windstorm, Winter Storm, Utility/Infrastructure Failure, Lightning
Thayer-7	Install Generators at Thayer lift station and water treatment plant	Install Generators	M	16	1,2	Tornado, Windstorm, Winter Storm, Utility/Infrastructure Failure, Lightning
Thayer-8	Wildfire fuel reduction around the Rail Road right of way leading into and through Thayer, KS	Wildfire Mitigation	L	20	1,2	Wildfire
Thayer-9	Local road flood prevention	Flood Mitigation	*	20	1,2	Flood
Thayer-10	Continue the process to join the NFIP	NFIP Participation	L		1,2	Flood

\*added after prioritization exercise and does not readily fit in an action category from the planning meeting. This action would fit most appropriately under floodprone property buyout if this category was expanded to be "flood mitigation".

<b>Thayer-1 Public Information on location of tornado shelters and cooling center</b>	
<b>Issue/Background:</b>	The residents are unaware of the location and operation of local storm shelters. Currently, there are not designated cooling centers. But the city would like to establish one. The public needs to be educated on the appropriate times to go to the storm shelters / cooling center.
<b>Plan for Implementation and Administration:</b>	The city could publish flyers to mail out in utility bills during the typical storm season as well as during mid-summer. The city could also hold informational public meetings to educate residents.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	USD 447
<b>Potential Funding Source:</b>	To Be Determined
<b>Total Cost:</b>	\$3,000
<b>Benefits (Losses Avoided):</b>	Residents would know when and where to go in the event of severe weather or extreme heat events.
<b>Completion Date:</b>	1 year

<b>Thayer-2 Construction of a community saferoom</b>	
<b>Issue/Background:</b>	The city is in need of a large shelter to house citizens during severe weather. This space could be used to store supplies in the event of a natural disaster.
<b>Plan for Implementation and Administration:</b>	Build a City-owned community center that can be used for a city-wide storm shelter, cooling center and warming center.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	USD 447
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	Estimated \$80,000 just for tornado shelter. Estimated \$200,000 for community building that includes a tornado shelter
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	1 year after funds are secured

<b>Thayer-3 Promote NOAA Weather Radios</b>	
<b>Issue/Background:</b>	In general, residents do not have enough information and warning of severe weather. Local TV and radio broadcasts do not cover the city area very well. There is a need to ensure the citizens are adequately informed of threatening weather.
<b>Plan for Implementation and Administration:</b>	This action could be implemented by holding a community meeting informing citizens about severe weather procedures. If funding is available, each citizen could be provided with a NOAA weather radio. In addition, residents new to the city could be provided with a NOAA weather radio.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	Thayer Fire and Rescue
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$3,500
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	1 year after funds are secured

<b>Thayer-4 Install additional severe weather warning sirens</b>	
<b>Issue/Background:</b>	Reece/Woolery Lake residential area is located away from the main part of town. As a result, they cannot hear the current storm siren. In addition, the Hillside residential area and school do not have a siren in close proximity.
<b>Plan for Implementation and Administration:</b>	Install additional outdoor storm sirens at the two sites to provide the citizens advance warning during severe weather events. The sirens would also providing warning to people fishing at the nearby lakes.
<b>Lead Agency:</b>	Thayer Fire and Rescue
<b>Partners:</b>	Neosho County Emergency Management
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$50,000
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	1 year after funds are secured

<b>Thayer-5 Utility line clearance program</b>	
<b>Issue/Background:</b>	Large trees around primary power lines and service lines break and fall due to ice and high winds damaging power lines. Primary lines are the responsibility of Westar Energy and the service lines are the responsibility of the residents.
<b>Plan for Implementation and Administration:</b>	Provide information to residents on proper tree planting procedures and suitable tree types near power lines. Also, provide education to residents on proper tree-trimming techniques and a list of individuals that can be contacted for trimming services.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	Westar Energy
<b>Potential Funding Source:</b>	To Be Determined
<b>Total Cost:</b>	To Be Determined
<b>Benefits (Losses Avoided):</b>	If trees near power lines are properly maintained, this can result in avoided power outages and line damages during ice storms and high wind events. In addition, if residents are educated in advance, they can avoid planting trees in close proximity to power lines. Can also minimize house fires.
<b>Completion Date:</b>	Ongoing

<b>Thayer-6 Install generator at the Thayer Community Building</b>	
<b>Issue/Background:</b>	If the City of Thayer constructs a community building to serve as a community tornado shelter and emergency operations center, back-up power will be needed.
<b>Plan for Implementation and Administration:</b>	Install a generator during the construction of a community building.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	N/A
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$20,000
<b>Benefits (Losses Avoided):</b>	If power is out in town, the community building could serve as a place of refuge.
<b>Completion Date:</b>	1 year after funds are secured—to be installed in conjunction with construction of a community tornado shelter

<b>Thayer-7</b>		<b>Install Generators at Thayer lift station and water treatment plant</b>	
<b>Issue/Background:</b>	Back-up power is needed to ensure the Thayer lift station and water treatment plant can remain in operation in the event of power failure. Power is supplied by Westar Energy		
<b>Plan for Implementation and Administration:</b>	Purchase and install generators at the lift station and water treatment plant		
<b>Lead Agency:</b>	City of Thayer		
<b>Partners:</b>	N/A		
<b>Potential Funding Source:</b>	HMGP		
<b>Total Cost:</b>	\$18,200		
<b>Benefits (Losses Avoided):</b>	It is estimated that avoided losses could be \$750,000 by keeping these critical facilities in operation		
<b>Completion Date:</b>	1 year after funds are secured		

<b>Thayer-8</b>		<b>Wildfire fuel reduction around the Rail Road right of way leading into and through Thayer, KS</b>	
<b>Issue/Background:</b>	There are a large number of trees and brush along the SKO railroad right of way leading into and through Thayer. The presence of this vegetation (wildland fuel) in proximity to man-made (urban fuels) is a potential hazard. In addition, the trains spark and start fires in this area.		
<b>Plan for Implementation and Administration:</b>	Clear up all trees and brush within the city limits to stop fires from being able to follow the tracks into town. Maintain the area between the railroad and the city limits and keep it clean. Clear up the trees on the north and south of the city limits to prevent fires from wicking up into the city.		
<b>Lead Agency:</b>	City of Thayer		
<b>Partners:</b>	SKO Railroad, Kansas Forest Service		
<b>Potential Funding Source:</b>	The Kansas Forest Service will assist qualifying communities with pursuing federal WUI grant dollars for hazardous fuel reduction projects.		
<b>Total Cost:</b>	Approximately \$85/acre, City of Thayer estimates \$100,000		
<b>Benefits (Losses Avoided):</b>	The City estimates there will be up to \$1,000,000 in avoided damages		
<b>Completion Date:</b>	1 year after funds are secured		

<b>Thayer-9 Local road flood prevention</b>	
<b>Issue/Background:</b>	The road on the west side of City Park floods and is impassable during heavy rains. The park area also floods due to a deteriorated drainage way and is in need of replacement to manage flood waters. Each year, the drainage way erodes more and more at the bridge and culvert.
<b>Plan for Implementation and Administration:</b>	Replace the drainage way with a new retaining system to prevent additional erosion of park land, the road and the culvert.
<b>Lead Agency:</b>	City of Thayer
<b>Partners:</b>	Neosho County
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$50,000
<b>Benefits (Losses Avoided):</b>	The City estimates up to \$150,000 in avoided future damages if this project is implemented.
<b>Completion Date:</b>	1 year after funds are secured

<b>Thayer-10 Continue the process to join the NFIP</b>	
<b>Issue/Background:</b>	
<b>Plan for Implementation and Administration:</b>	
<b>Lead Agency:</b>	
<b>Partners:</b>	
<b>Potential Funding Source:</b>	
<b>Total Cost:</b>	
<b>Benefits (Losses Avoided):</b>	
<b>Completion Date:</b>	

### 4.3.6 Actions Developed for the Unified School Districts / Neosho County Community College

**Table 4.7. Mitigation Action Matrix-Unified School Districts / Neosho County Community College**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
USD 101-1 USD 447-1 USD 505-1	Evaluate existing school tornado shelter locations	Saferooms	H	19*	1,2	Tornado
USD 101-2 USD-413-2 USD 447-2 USD 505-2	Construct saferooms in schools	Saferooms	H	23*	1,2	Tornado
USD 505-3	Install Generators at USD 505 facilities	Install Generators	M	24	1,2	Lightning, Tornado, Utility/Infrastructure Failure, Windstorm, Winter Storm
NCCC-1	Install generators at Neosho County Community College	Install Generators	M	21	1,4	Lightning, Tornado, Utility/Infrastructure Failure, Windstorm, Winter Storm

\*average score computed by school districts

USD 101-1	Evaluate existing school tornado shelter locations
<b>Issue/Background:</b>	As required by the Kansas Department of Education (KSDE), each school district in the state of Kansas is required to complete a survey about their safety rooms / storm shelters in comparison to FEMA standards. These reports were due to KSDE on or before December 1, 2008. Since this requirement was in the process of being implemented as the mitigation planning process was underway, USD 101 chose to include this action in the plan.
<b>Plan for Implementation and Administration:</b>	USD 101—this evaluation was conducted by PBA architects in October 2008 per KSDE's instructions
<b>Lead Agency:</b>	USD 101
<b>Partners:</b>	KSDE, PBA Architects
<b>Potential Funding Source:</b>	None Identified
<b>Total Cost:</b>	
<b>Benefits (Losses Avoided):</b>	Sheltering of students and faculty in the safest location possible
<b>Completion Date:</b>	October 2009

<b>USD 101-2 Construct saferooms in schools</b>	
<b>Issue/Background:</b>	A new school bond issue was passed to construct and update the new storm shelters at each building in the district. FEMA approved HMGP grants to construct saferooms in schools in Galesburg Elementary and Erie Elementary in July 2008.
<b>Plan for Implementation and Administration:</b>	Construct FEMA approved saferooms to accommodate staff and students at each building
<b>Lead Agency:</b>	USD 101 Superintendent
<b>Partners:</b>	School Board, FEMA, KDEM, PBA Architects
<b>Potential Funding Source:</b>	Bond funds and HMGP grant
<b>Total Cost:</b>	\$750,000
<b>Benefits (Losses Avoided):</b>	Life Safety for students and faculty
<b>Completion Date:</b>	Spring of 2010

<b>USD 413-1 Construct saferooms in schools</b>	
<b>Issue/Background:</b>	Two school buildings recently built have safe rooms which meet FEMA guidelines (although they were not funded by FEMA). Two other buildings, Royster Middle School and Lincoln Early Learning Center, do not. The goal would be to provide safe rooms which meet FEMA standards in the remaining two buildings.
<b>Plan for Implementation and Administration:</b>	At Royster Middle School the construction of a saferoom could be integrated into the plans for expanding the kitchen/cafeteria area. The expansion of the kitchen and cafeteria are already on the district's facility improvement plan. It would also be the intent to construct a saferoom at Lincoln Early Learning Center which would be of adequate size to house all students and staff
<b>Lead Agency:</b>	Superintendent's office
<b>Partners:</b>	FEMA, KDEM, City of Chanute
<b>Potential Funding Source:</b>	HMGP, USD 413
<b>Total Cost:</b>	\$1,200,000
<b>Benefits (Losses Avoided):</b>	Life Safety for approximately 600 students and staff
<b>Completion Date:</b>	Fall 2011

USD 447-1	
<b>Evaluate existing school tornado shelter locations</b>	
<b>Issue/Background:</b>	As required by the Kansas Department of Education (KSDE), each school district in the state of Kansas is required to complete a survey about their safety rooms / storm shelters in comparison to FEMA standards. These reports were due to KSDE on or before December 1, 2008. Since this requirement was in the process of being implemented as the mitigation planning process was underway, USD 447 chose to include this action in the plan. USD 447 reviews the refuge areas on an ongoing basis and continues to evaluate these areas annually to determine needs.
<b>Plan for Implementation and Administration:</b>	<ul style="list-style-type: none"> <li>• Evaluate current status of refuge areas</li> <li>• Consider needed or potential upgrades</li> <li>• Plan for implementation as funds are available <ul style="list-style-type: none"> <li>• Fund and implement upgrades as appropriate</li> </ul> </li> </ul>
<b>Lead Agency:</b>	USD 447 Board of Education and Superintendent of Schools
<b>Partners:</b>	Community, emergency management departments, city government
<b>Potential Funding Source:</b>	Local district funds, private donations, state/federal grants
<b>Total Cost:</b>	\$2,500 to \$7,500 per facility identified
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	18 months and ongoing

USD 447-2	
<b>Construct saferooms in schools</b>	
<b>Issue/Background:</b>	Tornado saferooms are becoming increasingly discussed due to the tornado event in Greensburg, Kansas. At this point, USD 447 does not have new construction planned that would provide an opportunity to include saferooms. But there is the potential that the opportunity could present itself.
<b>Plan for Implementation and Administration:</b>	<ul style="list-style-type: none"> <li>• Evaluate current status of refuge areas</li> <li>• consider the potential for saferooms</li> <li>• plan for implementation as funds are available</li> <li>• fund and implement saferooms as appropriate</li> </ul>
<b>Lead Agency:</b>	USD 447 Board of Education and Superintendent of Schools
<b>Partners:</b>	Community, emergency management departments, city government, FEMA, KDEM
<b>Potential Funding Source:</b>	Local district funds, private donations, HMGP
<b>Total Cost:</b>	To Be Determined

<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	3-5 years

<b>USD 505-1</b>	<b>Evaluate existing school tornado shelter locations</b>
<b>Issue/Background:</b>	As required by the Kansas Department of Education (KSDE), each school district in the state of Kansas is required to complete a survey about their safety rooms / storm shelters in comparison to FEMA standards. These reports were due to KSDE on or before December 1, 2008. Since this requirement was in the process of being implemented as the mitigation planning process was underway, USD 505 chose to include this action in the plan
<b>Plan for Implementation and Administration:</b>	The KSDE has provided each school district a copy of the FEMA standards and survey directions. The actual survey consists of one-question which asks whether or not the storm shelters in the school district comply with FEMA requirements for storm
<b>Lead Agency:</b>	USD 505
<b>Partners:</b>	N/A
<b>Potential Funding Source:</b>	USD 505
<b>Total Cost:</b>	No cost is associated with this action unless the school district hires a firm to complete the inspection
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	December 1, 2008

<b>USD 505-2 Construct saferooms in schools</b>	
<b>Issue/Background:</b>	Based on history of tornados and high (straight) wind frequency and severity, safe rooms will or have already been included in new school building construction. Completion date tentatively set by or before July 2009. The district applied for and received a FEMA HMGP grant for the two safe rooms at St. Paul. This project was approved July 23, 2008.
<b>Plan for Implementation and Administration:</b>	Complete construction of the saferooms included in the HMGP approved grant, which serve a dual purpose: 1) During regular school day, safe rooms for students, staff, and residents at PMRV (Prairie Mission Retirement Village) located adjacent to school property; 2) Outside of regular school hours/day, facility to be used for community safe rooms with supervision to be coordinated between district and city staff
<b>Lead Agency:</b>	USD 505
<b>Partners:</b>	FEMA, KDEM
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	Current project \$190,553
<b>Benefits (Losses Avoided):</b>	Life Safety
<b>Completion Date:</b>	July 2009

<b>USD 505-3 Install Generators at USD 505 facilities</b>	
<b>Issue/Background:</b>	Based on history of power outages due to a variety of natural "disasters" which affect power supply to the school, installation of power generators is moderately important in proactive prevention.
<b>Plan for Implementation and Administration:</b>	Installation of generators of great enough output to power freezers, refrigerators, pumps, and other essential electrical appliances.
<b>Lead Agency:</b>	USD505
<b>Partners:</b>	None Identified
<b>Potential Funding Source:</b>	USD 505
<b>Total Cost:</b>	250-495 kW capacity Used: \$27,000 to \$45,000 each New: \$52,000 to \$88,000 each
<b>Benefits (Losses Avoided):</b>	Losses would be avoided to food in freezers and refrigerators. Pumps would remain online preventing property damage. School could provide emergency services if necessary
<b>Completion Date:</b>	5 years

<b>NCCC-1</b>	<b>Install generators at Neosho County Community College</b>
<b>Issue/Background:</b>	Severe weather occurrences have caused the college to occasionally experience extended periods of electrical outage. These outages not only cause business operations of the college to cease, but more importantly, put college students, faculty and staff at risk. In addition, critical electronic infrastructure including life-safety and security monitoring systems fail. During one storm in 2007, the college was without power for hours. Neosho County Community College also serves as one of the city of Chanute's emergency shelter locations
<b>Plan for Implementation and Administration:</b>	Install two 35-45 kW Generac or equivalent generators and associated transfer switches and controls. One would power critical disaster recovery functions and communications infrastructure. One would power emergency shelter operations.
<b>Lead Agency:</b>	Neosho County Community College, Dean of Planning & Operations
<b>Partners:</b>	City of Chanute and/or Neosho County
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$30,000-\$40,000
<b>Benefits (Losses Avoided):</b>	Emergency shelter operations could be maintained for hours or even days. Critical communications could continue to take place with city and county emergency officials; additionally faculty and staff could communicate with family members
<b>Completion Date:</b>	6-12months

### 4.3.7 Actions Developed for the Private Non-profit Entities

**Table 4.8. Mitigation Action Matrix-Private Non-profit Entities**

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
Radiant Electric Cooperative-1	Installation of lightning arrestors on distribution power line structures	Power line maintenance/upgrades	M	19	1,2	Lightning, Utility/Infrastructure Failure
Radiant Electric Cooperative-2	Replace copper weld wire and pole line spans to current codes and standards	Power line maintenance/upgrades	M	20	1,2	Tornado, Utility/Infrastructure Failure, Wind Storm, Winter Storm
Heartland Rural Electric Cooperative-1	Upgrade power lines utilizing twisted pair conductors	Power line Maintenance/upgrades	M	21	1,2	Tornado, Utility/Infrastructure Failure, Wind Storm, Winter Storm
Twin Valley Electric	Installation of Lightning Arrestors on distribution power line structures	Power line maintenance/upgrades	M	23	1,2	Lightning, Utility/Infrastructure Failure

Action ID	Action	Action Category	Priority	STAPLEE Score	Goals	Hazards Addressed
Cooperative-1						
Twin Valley Electric Cooperative-2	Replace copper weld wire and pole line spans to current codes and standards	Power line maintenance/upgrades	M	23	1,2	Tornado, Utility/Infrastructure Failure, Wind Storm, Winter Storm
Twin Valley Electric Cooperative-3	Installation of a Tie-Line to connect two meeting points together for backfeeding to correct major outages	Power line maintenance/upgrades	M	23	1,2	Tornado, Utility/Infrastructure Failure, Wind Storm, Winter Storm

<b>Radiant Electric Cooperative-1</b>		<b>Installation of lightning arrestors on distribution power line structures</b>
<b>Issue/Background:</b>	Service areas are prone to lightning strikes and damage. Potentially resulting in service outage and loss of equipment.	
<b>Plan for Implementation and Administration:</b>	Rural Utilities Service distribution line construction standards recommend 4 arrestors per mile installed on single phase lines, and 12 arrestors per mile for multiple phase lines. The cost of installation and arrestors is approximately \$250 per arrestor. Arrestors are routinely installed as part of ongoing maintenance and construction work plans. The estimate for Neosho county is approximately 64 miles of distribution line, serving the rural areas.	
<b>Lead Agency:</b>	Radiant Electric Cooperative, Inc.	
<b>Partners:</b>	None identified	
<b>Potential Funding Source:</b>	Rural Utilities Service, U.S. Department of Agriculture; General Funds for maintenance, FEMA/KDEM Mitigation (HMGP)	
<b>Total Cost:</b>	Total Estimate of \$50,000 for areas remaining that do not currently have arrestors: Estimate approximately 20 miles of single phase line @ 4 arrestors per mile @ \$250 per arrestor = \$20,000; and Estimate approximately 10 miles of multiple phase line @ 12 arrestors per mile @ \$250 per arrestor = \$30,000.	
<b>Benefits (Losses Avoided):</b>	Reduction of power outages including service to homes, businesses, rural water districts and pipeline infrastructure. Approximate plant value \$675,270	
<b>Completion Date:</b>	1-2 years	

<b>Radiant Electric Cooperative-2</b>	<b>Replace copper weld wire and pole line spans to current codes and standards</b>
<b>Issue/Background:</b>	During the 2002 ice storm, the areas most adversely affected were those with the copper weld wire. Radiant Electric continually upgrades and replaces known areas with the wire throughout our service territory.
<b>Plan for Implementation and Administration:</b>	Conduct a survey of remaining areas served by the copper weld wire. Infrastructure analysis to determine service areas remaining served by the copper weld wire. After this survey and analysis, a work plan could be developed to begin replacement.
<b>Lead Agency:</b>	Radiant Electric Cooperative
<b>Partners:</b>	None identified
<b>Potential Funding Source:</b>	Rural Utilities Service, U.S. Department of Agriculture; FEMA/KDEM Mitigation (HMGP)
<b>Total Cost:</b>	\$1,000,000 Estimated Cost. The exact cost would be determined through development of a work plan. The estimate is based on an estimated 20 miles of line in need of replacement in the Neosho County service area. Replacement cost is \$50,000 per mile for a total estimate of \$1,000,000 in Neosho County.
<b>Benefits (Losses Avoided):</b>	\$5,000,000 is estimated in benefits from avoided damages.
<b>Completion Date:</b>	1-year

Heartland Electric Cooperative-1	Upgrade power lines utilizing twisted pair conductor
<b>Issue/Background:</b>	<p>Majority of these lines were built 40 plus years ago. Most of the conductors are small in size with long spans between poles. This type of line design struggles with ice and wind.</p> <p>Now the age of the line, the storms the lines have endured, the remote areas they transverse and the need for reliable electricity. Collectively these issues will not allow us to supply electricity to the people of Neosho County to today's needs.</p>
<b>Plan for Implementation and Administration:</b>	<ul style="list-style-type: none"> <li>• Replacement of (5) miles #6HDC three-phase line on the south feeder of the Urbana substation. This line directly serves (120) meters which includes mainly residences, (6) communications sites ( incl. cell towers, state and local communications links, fiber-optics sites, phone equipment, etc.) and (4) water district services. This segment of line also serves as a tie to the east feeder of the same sub station. The east and south feeders traverse several rivers and timbered areas of poor access. The aged #6HDC construction has sustained much damage over the years and was not built to current and acceptable standards. Replacement of this line would significantly mitigate losses to damages and greatly enhance reliability in the surrounding area. <ul style="list-style-type: none"> <li>○ Estimated cost to replace: \$ 260,000.00.</li> </ul> </li>   <li>• Replacement of (5½) miles #4HDC three-phase line between the south and east feeders of the Urbana sub station. This portion of line serves as the direct link and switching points between these two feeds. These two feeds provide power to (510) meters which includes mainly residences, (2) radio transmission towers, (8) other communications sites ( incl. cell towers, state and local communications links, fiber-optics sites, phone equipment, etc.) and (6) water district services. This portion of line traverses a river and timbered areas of poor access. The aged #4HDC construction has sustained much damage over the years and was not built to current and acceptable standards. Replacement of this line would significantly mitigate losses to damage and greatly enhance reliability in the surrounding area. <ul style="list-style-type: none"> <li>○ Estimated cost to replace: \$ 286,000.00</li> </ul> </li>   <li>• Replacement of (6) miles #4HDC three-phase line on the west feeder of the Urbana sub station. This portion of line directly feeds (96) meters which include mainly residences, (2) cell towers and (2) water district services. The aged #4HDC construction has sustained much damage over the years and was not built to current and acceptable standards. Replacement of this line would significantly mitigate losses to damage and greatly enhance reliability in the surrounding area. <ul style="list-style-type: none"> <li>○ Estimated cost to replace: \$ 312,000.00</li> </ul> </li> </ul>

- Replacement of (5) miles #6CWC three-phase line on the north feeder of the Urbana sub station. This portion of line directly feeds (220) meters which includes mainly residences, (5) communications sites ( incl. cell towers, state and local communications links, fiber-optics sites, phone equipment, etc.), (4) water district services and several businesses. This line also serves as a tie between the north and east feeders of the Urbana sub station. The north and east feeders total over (500) meters. This line also traverses a river and timbered area of poor access. The #6CWC construction has sustained much damage over the years and was not constructed to current and acceptable standards. Replacement of this line would significantly mitigate losses to damage and greatly enhance reliability in the surrounding area.
  - Estimated cost to replace: \$ 260,000.00
  
- Replacement of approximately 30 miles of CWC single-phase with single-phase line of enhanced design. The (30) miles selected met several points of prioritization and evaluation and represent a small percentage of total CWC miles in the Heartland REC distribution system. Replacing the (30) miles would significantly mitigate losses due to damages and greatly enhance reliability in the surrounding areas. Nearly all of HREC's membership in the county would directly if not indirectly benefit from improved safety and improved reliability of such replacements.
  - Estimate: \$ 600,000.00
  
- Convert (2½) miles of #4ACSR single-phase to three-phase to provide a tie between the Urbana and Greenbush sub stations. A tie of this type does not currently exist between these two sub stations. This tie would directly feed (500) meters in the event of an emergency. There are several communications sites and water district services in this proposed path of conversion. The Urbana sub station provides power to (1290) meters. The Greenbush sub station supplies power to (1050) meters.
  - Estimated cost to convert: \$ 130,000.00
  
- Replacement of (13) miles of three-phase line for back-feeding purposes between the Greenbush sub station (W.feed) and the Urbana sub station (E.feed) with a three-phase line of enhanced design.
  - (Neosho County, 10 mi.- Crawford county 3 mi.) [ est. \$780,000.00]
  - Estimated cost \$ 600,000.00
  
- Construction of (5) miles of three-phase tie-line for backfeeding purposes between the Urbana sub station (E.feed) and the Hiattville sub station (W.feed).

	<ul style="list-style-type: none"> <li>○ (Neosho county, 4mi.- Crawford County, 1mi.) [ est.\$ \$300,000.00]</li> <li>○ Estimated cost: \$ 240,000.00</li> </ul>
<b>Lead Agency:</b>	Heartland REC
<b>Partners:</b>	None Identified
<b>Potential Funding Source:</b>	HMGP
<b>Total Cost:</b>	\$2,598,000
<b>Benefits (Losses Avoided):</b>	Reliable power lines built to endure ice and wind load conditions with the benefits of being able to provide back up power between substations. Avoid cost accrued due to storm damaged power lines; labor and material cost, revenue lost, public losses due to lack of power. Increased safety to the public
<b>Completion Date:</b>	Four years

<b>Twin Valley Electric Cooperative-1</b>	<b>Installation of lightning arrestors on distribution power line structures</b>
<b>Issue/Background:</b>	Service areas are prone to lightning strikes and damage. Potentially resulting in service outage and loss of equipment.
<b>Plan for Implementation and Administration:</b>	Rural Utilities Service distribution line construction standards recommend 4 arrestors per mile installed on single phase lines, and 12 arrestors per mile for multiple phase lines. The cost of installation and arrestors is approximately \$250 per arrestor. Arrestors are routinely installed as part of ongoing maintenance and construction work plans. The estimate for Neosho county is approximately 60 miles of distribution line, serving the rural areas around Galesburg, Thayer, and St. Paul
<b>Lead Agency:</b>	Twin Valley Electric Cooperative
<b>Partners:</b>	None identified
<b>Potential Funding Source:</b>	Rural Utilities Service, U.S. Department of Agriculture; General Funds for maintenance, FEMA/KDEM Mitigation (HMGP)
<b>Total Cost:</b>	Total Estimate of \$62,000 for areas remaining that do not currently have arrestors: Estimate approximately 56 miles of single phase line @ 4 arrestors per mile @ \$250 per arrestor = \$56,000; and Estimate approximately 2 miles of multiple phase line @ 12 arrestors per mile @ \$250 per arrestor = \$6,000.
<b>Benefits (Losses Avoided):</b>	Reduction of power outages including service to homes, businesses, rural water districts and pipeline infrastructure.
<b>Completion Date:</b>	1-2 years

<b>Twin Valley Electric Cooperative-2</b>	<b>Replace copper weld wire and pole line spans to current codes and standards</b>
<b>Issue/Background:</b>	During the 2002 ice storm, the areas most adversely affected were those with the copper weld wire. Radiant Electric continually upgrades and replaces known areas with the wire throughout our service territory.
<b>Plan for Implementation and Administration:</b>	Conduct a survey of remaining areas served by the copper weld wire. Infrastructure analysis to determine service areas remaining served by the copper weld wire. After this survey and analysis, a work plan could be developed to begin replacement.
<b>Lead Agency:</b>	Twin Valley Electric Cooperative
<b>Partners:</b>	None identified
<b>Potential Funding Source:</b>	Rural Utilities Service, U.S. Department of Agriculture; FEMA/KDEM Mitigation (HMGP)
<b>Total Cost:</b>	\$3,000,000 Estimated Cost. The exact cost would be determined through development of a work plan. The estimate is based on an estimated 60 miles of line in need of replacement in the Neosho County service area. Replacement cost is \$50,000 per mile for a total estimate of \$3,000,000 in Neosho County.
<b>Benefits (Losses Avoided):</b>	\$3,000,000,000 is estimated in benefits from avoided damages. This is derived from estimating losses avoided to 100 miles of line as a result of project implementation
<b>Completion Date:</b>	1-year

<b>Twin Valley Electric Cooperative-3</b>	<b>Installation of a Tie-Line to connect two metering points together for backfeeding to correct major outages</b>
<b>Issue/Background:</b>	In 2002, the service area was hit by a tornado which lead to customer's being out of power for four days. If there had been an alternative direction to feed power to those customers, they may have only been out for four hours.
<b>Plan for Implementation and Administration:</b>	This project would replace the copper weld that is in this specific span with line up to current standards. To implement, Twin Valley Electric would hire a contractor to install the new 3 phase line.
<b>Lead Agency:</b>	Twin Valley Electric Cooperative
<b>Partners:</b>	None identified
<b>Potential Funding Source:</b>	Rural Utilities Service, U.S. Department of Agriculture; FEMA/KDEM Mitigation (HMGP)
<b>Total Cost:</b>	\$540,000 estimated cost derived from a cost of \$60,000 per mile for 9 miles of line
<b>Benefits (Losses Avoided):</b>	Reduction of power outages including service to homes, businesses, rural water districts and pipeline infrastructure.
<b>Completion Date:</b>	6 months

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## 4.4 Mitigation Actions in Support of the National Flood Insurance Program

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Neosho County and the cities of Chanute, Erie, St. Paul, and Thayer are committed to continued participation and compliance with the National Flood Insurance Program (NFIP). Specific actions that were identified in support of the National Flood Insurance Program are summarized in Table 4.15 below:

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**Table 4.9 Specific Actions in Support of the NFIP**

Action ID	Action
Neosho County-1	Continue NFIP Participation
Chanute-2	Continue NFIP Participation
Chanute-3	Buyout of Floodprone Properties
Erie-1	Buyout of Floodprone properties
Erie-5	Continue NFIP Participation
St. Paul-2	Continue NFIP participation
Thayer-10	Continue the process to Join NFIP

Specifics on implementation of each of the above actions can be found in Section 4.3 in the tables following each jurisdiction's complete list of identified actions.