

## **Section Five: Mitigation Strategy**

### ***Summary of Changes***

This section has been updated to reflect changes in prioritization and needs within the participating jurisdictions. This section contains: completed mitigation projects, an update of previously identified projects, and the addition of new projects and strategies that have been identified. The STAPLEE process remained consistent with that which was used previously.

### ***Introduction***

The primary focus of the mitigation strategy is to establish goals objectives, and identify action items to reduce the effects of hazards on existing infrastructure and property in a cost effective and technically feasible manner. The development of goals and objectives was completed through the ‘hazard identification’ public meetings.

Meeting participants reviewed the goals from the 2008 HMP and discussed recommended additions and modifications. The intent of each goal and set of objectives was to develop strategies to account for the risks associated with the hazards, and identify ways to reduce or eliminate those risks. Each goal and set of objectives is preceded by ‘mitigation alternatives’ or actions items.

A preliminary list of goals and objectives that came from the 2008 HMP was provided to the planning team and participants at the ‘hazard identification’ public meetings. Each participant was asked to review all of the goals and objectives and comment on how to improve or change them to meet the needs of their jurisdiction. Information from this review was used to finalize the goals and objectives.

### ***Development of Goals***

Below is the final list of goals and objectives as determined by the participants and planning team. These goals and objectives provide specific direction to guide participants in reducing future hazard related losses. The goals and objectives were numbered to assist in the development and organization of mitigation alternatives ‘action items’, as discussed in *Section 6: Participant Section*.

#### ***Goal 1: Protect the Health and Safety of Residents***

*Objective 1.1: Reduce or prevent damage to property or prevent loss of life or serious injury (overall intent of the plan).*

#### ***Goal 2: Reduce Future Losses from Hazard Events***

*Objective 2.1: Provide protection for existing structures, future development, CFs, services, utilities, and trees to the greatest extent possible.*

*Objective 2.2: Develop hazard specific plans, conduct studies or assessments, and retrofit jurisdiction to mitigate for hazards and minimize their impact.*

**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.

**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.

**Requirement: §201.6(c)(3)(ii):** [The mitigation strategy] must also address the jurisdiction’s participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

**Requirement: §201.6(c)(3)(iii):** [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(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 benefit review of the proposed projects and their associated costs.

**Requirement §201.6(c)(3)(iv):** For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

*Objective 2.3: Minimize and control the impact of hazard events through enacting or updating ordinances, permits, laws, or regulations.*

**Goal 3: Increase Public Awareness and Educate on the Vulnerability to Hazards**

*Objective 3.1: Develop and provide information to residents and businesses about the types of hazards they are exposed to, what the effects may be, where they occur, and what they can do to be better prepared.*

**Goal 4: Improve Emergency Management Capabilities**

*Objective 4.1: Develop or improve Emergency Response Plan and procedures and abilities.*

*Objective 4.2: Develop or improve Evacuation Plan and procedures.*

*Objective 4.3: Improve warning systems and ability to communicate to residents and businesses during and following a disaster or emergency.*

**Goal 5: Pursue Multi-Objective Opportunities (whenever possible)**

*Objective 5.1: When possible, use existing resources, agencies, and programs to implement the projects.*

*Objective 5.2: When possible implement projects that achieve several goals.*

**Mitigation Alternatives (Action Items)**

After the establishment of each participant's goals and objectives, mitigation alternatives were prioritized. The alternatives considered included: the mitigation actions in the previous plan; additional mitigation actions discussed during the planning process; actions identified in FEMA's *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, and recommendations from JEO for additional mitigation actions. In addition, JEO provided each participant a preliminary list of mitigation alternatives to be used as a starting point. The prioritized list of alternatives helped participants determine which actions will best assist their respective jurisdiction in alleviating damages in the event of a disaster. The listed priority does not indicate which actions will be implemented first, but will serve as a guide in determining the order at which each action should be implemented.

These projects are the heart of a HMP. The group was instructed that each alternative must be directly related to the goals and objectives. Alternatives must be specific activities that are concise and can be implemented individually.

Mitigation alternatives were evaluated using FEMA's STAPLEE process, as this process addresses all the major factors when weighing the costs to the benefits of implementing one action over another. Important factors when ranking the alternatives include the prohibitive costs, the communities' resource capabilities, the communities' desire and concerns, and feasibility. STAPLEE evaluation includes consideration of the social, technical, administrative, political, legal, economic and environmental benefits of the mitigation actions. STAPLEE criteria taken from FEMA's Multi-Hazard Mitigation Planning Guidance (July 2008) are summarized below.

**S – Social:** Mitigation actions are acceptable to the jurisdiction if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the jurisdictions social and cultural values.

**T – Technical:** Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.

**A – Administrative:** Mitigation actions are easier to implement if the jurisdiction has sufficient staffing and funding.

**P – Political:** Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate in the planning process and if there is public support of the action.

**L – Legal:** It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.

**E – Economical:** Budget constraints can significantly deter the implementation of mitigation actions. Hence, it is important to evaluate whether an action is cost-effective, as determined by a cost-benefit review, and possible to fund.

**E – Environmental:** Sustainable mitigation actions that do not have an adverse effect on the environment, that comply with federal, state, and local environmental regulations, and that are consistent with the jurisdiction’s environmental goals, have mitigation benefits while being environmentally sound.

Participants received a worksheet to assist them in scoring the priority of each alternative. Most participants took additional worksheets back to their communities. The key personnel and members attending the public meeting were asked to provide a designation of ‘+’, ‘-’, or ‘O’ for each STAPLEE criteria which was used to come up with a cumulative priority ranking that maximizes the benefits of each alternative. This cumulative priority ranking was created by assigning a value of 1 each +, -1 to each -, and 0 to each O. The cumulative ranking was then created by adding the numbers under each STAPLEE criteria.

A final list of alternatives was established including information on the associated hazard mitigated, description of the action, responsible party, priority, cost estimate, potential funding sources, and timeline. This information was established through input from participants and determination by the consultant.

It is important to note that not all of the mitigation actions identified may ultimately be included in the community’s plan due to limited capabilities, prohibitive costs, low benefit/cost ratio, or other concerns. Even though there are cost estimates, priority scores, and responsible agencies identified, planning participants have not necessarily committed to undertaking any of the activities. This information will serve as a guide for the participants to assist in hazard mitigation for the future. Additionally, some jurisdictions may identify additional mitigation actions not identified by the county.

#### **PARTICIPANT MITIGATION ALTERNATIVES**

The following are specific actions listed by participants of the LPSNRD plan intended to be utilized in the implementation of mitigation alternatives. Each action is described by the following:

- Description – general summary of the action item.
- Analysis – brief summary of what the action item will accomplish.
- Goal/Objective – which goal and objective the action item falls under.
- Hazard(s) Addressed – which hazard the mitigation action aims to address.
- Potential funding – a list of any potential funding mechanism used to fund the action.
- Timeline – a general timeline as established by planning participants and the planning team.
- Priority – based upon the STAPLEE process a general description of the importance and workability in which an action may be implemented (high/medium/low). Priority may vary between each community, mostly dependent on funding capabilities and the size of the local tax base.
- Lead agency – listing of agencies which may lead the implementation of the action item.

Implementation of the actions will vary between individual plan participants based upon the availability of existing information, funding opportunities and limitations, and administrative capabilities of smaller communities. The information listed in Table 60 is a compilation of the mitigation alternatives organized by the goal and objective to be met. Establishment of a cost-benefit analysis is out of the scope of this plan and could potentially be completed prior to submittal of a project grant application or as part of a 5-year update.

Ongoing and highly ranked mitigation alternatives for each participating jurisdiction can be found in *Section 7: Participant Sections*.

**MITIGATION ALTERNATIVE PROJECT MATRIX**

During public meetings, each participant was asked to review potential mitigation alternatives from the 2008 HMP and some new projects based on FEMA’s best practices manual which would lead to action items to reduce the effects of natural hazards. The participant then scored indicated whether the project would have a positive, negative, or neutral for each of the STAPLEE category. Participants also indicated if there were projects they did not want. Actions selected varied from community to community dependent upon the significance of each hazard present.

**Table 58: Mitigation Alternative Projects**

Goal/ Objective	Action Item #	Action Item	Summary	Hazards Addressed	Responsible Department/Agency
Goal 2 Objective 2.1	2.1.1	Relocate Municipal Infrastructure	Acquire Graphical Information System (GIS) to relocate municipal infrastructure (water and sewer lines)	All hazards	County
	2.1.2	City Well Back-up	Backup generator for city wells	All hazards	City/Village
	2.1.3	Central Emergency Shelter	Build a central emergency shelter that contains food, storage space, and heat	All hazards	City/Village
	2.1.4	Bury Utility Lines	Bury electric, power, service lines	All natural hazards	City/Village
	2.1.5	New Well	Construct a new well to assist with fire protection and drought	Drought, wildfire	City/Village
	2.1.6	Safe Rooms	Construct safe rooms for CFs	All hazards	City/Village
	2.1.7	Promote Infiltration	Convert concrete-lined channels to natural channels to promote infiltration	Flooding	City/Village
	2.1.8	Drainage Ditches	Deepen drainage ditches and clean out culverts	Flooding	City/Village
	2.1.9	Chemical Incident Sheltering	Ensure that all CFs, businesses, and residents located near major transportation corridors and near fixed site chemical facilities are aware of how to safely shelter in place in the event of a chemical incident	Chemical/Radiological Fixed Sites/Facilities, Transportation Incidents	EM
	2.1.10	Safe Rooms	Ensure that CFs have safe rooms to protect first responders, city staff, and the public	All hazards	City/Village
	2.1.11	Protection of Vulnerable Populations	Ensure that facilities which will house vulnerable populations are placed in the least vulnerable areas of the community	All hazards	City/Village
	2.1.12	Fuel Tank Anchoring	Ensure that fuel tanks are anchored	All hazards	City/Village
	2.1.13	Relocation of Hazardous Storage	Explore a plan and funding for relocation of tanks and hazardous storage	Fixed Sites	City/Village
	2.1.14	Facility Floodproofing	Explore the possibility of floodproofing for facilities which fall into the HAZUS 1% flood inundation areas	Flooding	Floodplain Admin
	2.1.15	Levees and Floodwalls	Explore the use of levees and floodwalls	Flooding	City/Village
	2.1.16	Improve Drainage	Improve drainage patterns in and around the community	Flooding	City/Village

Goal/ Objective	Action Item #	Action Item	Summary	Hazards Addressed	Responsible Department/Agency
	2.1.17	High-Risk Properties	Improve or acquire property that is high-risk to flooding	Flooding	City/Village
	2.1.18	Improve Drainage	Improve storm sewers and drainage patterns in and around the community	Flooding	City/Village
	2.1.19	Well Improvement	Improve village well system	Drought	City/Village
	2.1.20	Emergency Generator	Install an emergency generator at the community center used for mass care	All hazards	Public Works
	2.1.21	Vehicular Barriers	Install vehicular barriers to protect CFs and key infrastructure where possible	All hazards	City/Village
	2.1.22	Bank Stabilization	Platte River bank stabilization	Flooding	NRD
	2.1.23	Preserve Floodplain	Preserve natural and beneficial functions of floodplain land through measures such as retaining natural vegetation, restoring streambeds, and preserving open space in the floodplain	Flooding	County
	2.1.24	Protect Water Treatment	Protect the city's new water treatment facility	All hazards	City/Village
	2.1.25	Back-up Power	Provide backup power systems to provide redundant power supply	All hazards	City/Village
	2.1.26	New Chipper	Purchase a new chipper to help rid village of debris	Strong winds, severe winter storms, severe thunderstorms, tornado	City/Village
	2.1.27	Snowplow	Purchase additional snowplow	Severe Winter Storms	City/Village
	2.1.28	Back-up Generator	Purchase generators for public buildings (auditorium, fire station, etc.)	All hazards	City/Village
	2.1.29	Back-Up Power	Set up transfer switches and have generators for the grade school and or legion hall	All hazards	Emergency Management
	2.1.30	Tree Inventory	Tree inventory to ID problem trees that loose or drop branches	Severe thunderstorms, high winds, tornados, severe winter storms	City/Village
	2.1.31	Emergency Operations	Update EOC	All hazards	Emergency Management
	2.1.32	Storm Water Management	Upgrade combined sewer system to improve storm water management	Flooding	City/Village
	2.1.33	Vulnerable Population Database	Work with stakeholders to develop a database of vulnerable populations and the organizations which support them	All hazards	City/Village
	2.1.34	Channel Improvements	Channel Improvements : Cornhusker Highway; University of Nebraska East Campus; University Place Park; 52 <sup>nd</sup> Street to 56 <sup>th</sup> Street	Flooding	City/Village
2.1.35	Stormwater Detention	Stormwater Detention: Upstream of 56 <sup>th</sup> street	Flooding	City/Village	
Goal 2 Objective 2.2	2.2.1	Municipal Wells	Additional municipal wells	Drought	County
	2.2.2	No Adverse Impact	Adopt a No Adverse Impact approach to floodplain management	Flooding	City Council
	2.2.3	Continuity Plan	Develop continuity plans for critical community services	All hazards	City/Village
	2.2.4	Services in Flooding Events	Develop strategies to provide necessary services in the event of flooding	Flooding	City/Village

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	2.2.5	Hail Resistant Roofing	Encourage the use of hail resistant roofing for any new construction	Hailstorm	city/village/ inspector/building code
	2.2.6	Water Supply	Investigate new sources of water supply (possible well field and additional above ground storage)	Drought	NRD
	2.2.7	Alternate Water System	Study alternate water sources in event of water system failure	Drought	City/Village
	2.2.8	Hazardous Spill	Utilize exercise to prepare for potential explosions or hazardous spills. Ensure that nearby business and residents have appropriate plans in place.	Fixed Sites	City/Village
	2.2.9	Flooding Master Plan	Complete a jurisdiction wide Master Plan to prioritize all flooding related projects	Flooding	City/Village
	2.2.10	GPS System	GPS system		
	2.2.11	Conservation Plan	Develop a conservation plan that includes knowledge of regional areas	All hazards	City/Village
<b>Goal 2 Objective 2.3</b>	2.3.1	Low Impact Development	Utilize Low Impact Development practices and Green Infrastructure to reduce flood risk	Flooding	City/Village
	2.3.2	Tree City USA	Assist Cities and Villages seeking Tree City USA designation	High winds, tornados, severe winter storms, severe thunderstorm	Zoning
	2.3.3	Community Ratings System	Maintain/Become a CRS (Community Ratings System) community to reduce flood insurance premiums	Flooding	City/Village
	2.3.4	Tree Planting	City tree planting and maintenance	High winds, tornados, severe winter storms, severe thunder storms	City Parks and Recreation
	2.3.5	Tree City USA	Continue participating in Tree City USA designation	All hazards	City/Village
	2.3.6	Conservation guidelines	Develop conservation guidelines or requirements	Drought	City/Village
	2.3.7	Tree City USA	Maintain Tree City USA designation	Severe thunderstorms, high winds, tornados, severe winter storms	Parks and Recreation
	2.3.8	NFIP	Maintain good standing with the NFIP	Flooding	City/Village
	2.3.9	Tree City USA	Obtain Tree City USA designation	Severe thunderstorms, high winds, tornados, severe winter storms	City/Village
	2.3.10	Back-up Municipal Records	Establish a policy for micro-filming of pertinent municipal records	All hazards	City/Village
	2.3.11	FIRMS	Update FIRMS	All hazards	FEMA
<b>Goal 3 Objective 3.1</b>	3.1.1	Public Information	Develop public information documents	All hazards	City/Village
	3.1.2	Business Continuity Planning	Educate local businesses on the value of continuity planning	All hazards	City/Village
	3.1.3	Tree Assistance	Educate public on appropriate tree planting and establish an annual tree trimming program to assist low income and elderly	High winds, tornados, severe winter storms, severe thunderstorms	City/Village
	3.1.4	Green Mitigation	Educate the public and business owners regarding rain gardens, green roofs, and other minor mitigation measures	All hazards	City/Village

Goal/ Objective	Action Item #	Action Item	Summary	Hazards Addressed	Responsible Department/Agency
	3.1.5	Water Conservation	Implement Water Conservation Awareness Programs such as pamphlets	Drought	City/Village/NRD
	3.1.6	Improve Communication	Improve communications to residents and businesses during and following emergencies	All hazards	City/Village/ Emergency Management
	3.1.7	Hazard Education	Increase public awareness of vulnerability and risk reduction measures through hazard education	All hazards	City/Village/County
	3.1.8	First Aid Training	Promote first aid training for all residents	All hazards	Fire/Rescue
	3.1.9	NOAA Radios	Promote public awareness; provide NOAA radios to business area and develop downtown shelter/evacuation plan	All hazards	City/Village
	3.1.10	Hazard Education	Purchase overhead projector and laptop to assist with hazard education	All hazards	Emergency Management
	3.1.11	Train Personnel	Train Personnel for Emergency Response	All hazards	City/Village
<b>Goal 4 Objective 4.1</b>	4.1.1	Back-up emergency system	Develop backup systems for emergency vehicles	All hazards	City/Village
	4.1.2	Emergency Response	Have a chain of command in place to carry out efficient emergency response	All hazards	Emergency Management
	4.1.3	Storm Shelter Identification	Identify any existing private or public storm shelters	All hazards	Emergency Management
	4.1.4	Storm Shelters	Identify, design and develop storm shelters to protect communities and CFs	All hazards	Emergency Management
	4.1.5	Tornado Safety	Implement a tornado safety program	Tornados	Emergency Management
	4.1.6	ATV Rescue	Obtain ATV's to assist with search and rescue	All hazards	County
	4.1.7	Rescue Floats	Obtain motor boats for moving around town and rescue floats, etc.	Flooding	City/Village
	4.1.8	Emergency Vehicles	Purchase emergency vehicles	All hazards	County
<b>Goal 4 Objective 4.2</b>	4.2.1	Evacuation Plan	Develop an evacuation plan for all CFs and for the city as a whole	All hazards	City/Village
<b>Goal 4 Objective 4.3</b>	4.3.1	Back-up Municipal Communication System	Acquire and establish a communications system to coordinate municipal operations during any disaster that disables phone and cell services	All hazards	County
	4.3.2	Alert and Warning System	Alert and warning system including outdoor warning sirens for communities who do not have them within the county	All hazards	EM
	4.3.3	Warning Sirens	Install additional warning sirens	All hazards	City/Village
	4.3.4	Cable Warning System	Obtain a cable interruption warning system	All hazards	City/Village
	4.3.5	Weather Radios	Purchase and issue weather radios for schools and CFs	All hazards	City/Village
	4.3.6	Reverse 911	Reverse 911 system for notification of county residents and businesses	All hazards	Emergency Management
	4.3.7	Cell Phone Tower	Install cell phone tower to improve communications	All hazards	SID

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Goal/ Objective	Action Item #	Action Item	Summary	Hazards Addressed	Responsible Department/Agency
Goal 5 Objective 5.1	5.1.1	Floodplain Regulation	Continue floodplain regulations to maintain good standing with the NFIP	Flooding	City/Village
	5.1.2	Higher Codes and Standards	Promote the use of higher codes and standards, such as the Fortified for Safer Living Standard, in order to provide greater protection for any new construction or building retrofits	All hazards	City/Building
	5.1.3	Emergency Shelter	Use the Fire Department as an emergency shelter	All hazards	City/Village

Table 59: Mitigation Alternatives selected by each community

Goal/ Objective	Action Item #	Action Item	Ashland	Avoca	Bennet	Brainard	Cass County	Cass County RWD #1	Cass County RWD #2	Cass county SID #1	Cass County SID #5	Cedar Creek	Ceresco	Conestoga Public	Davey	Denton	Eagle	Elmwood	Firth	Greenwood	
Goal 2 Objective 2.1	2.1.1	Relocate Municipal Infrastructure			X																
	2.1.2	City Well Back-up	X																		
	2.1.3	Central Emergency Shelter															X				
	2.1.4	Bury Utility Lines				X						X			X	X				X	
	2.1.5	New Well						X									X				
	2.1.6	Safe Rooms												X							
	2.1.7	Promote Infiltration																			
	2.1.8	Drainage Ditches																		X	
	2.1.9	Chemical Incident Sheltering	X		X		X						X	X	X			X	X	X	X
	2.1.10	Safe Rooms											X		X		X				
	2.1.11	Protection of Vulnerable Populations	X		X		X						X	X					X	X	X
	2.1.12	Fuel Tank Anchoring											X								

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	2.1.13	Relocation of Hazardous Storage			X															
	2.1.14	Facility Floodproofing																		
	2.1.15	Levees and Floodwalls								X		X								
	2.1.16	Improve Drainage		X						X	X	X						X	X	
	2.1.17	High-Risk Properties	X		X		X					X	X			X				X
	2.1.18	Improve Drainage	X		X	X	X						X		X	X	X			X
	2.1.19	Well Improvement																		
	2.1.20	Emergency Generator																		
	2.1.21	Vehicular Barriers	X		X		X					X	X	X			X	X	X	X
	2.1.22	Bank Stabilization										X								
	2.1.23	Preserve Floodplain	X	X	X		X					X	X					X	X	X
	2.1.24	Protect Water Treatment																		
	2.1.25	Back-up Power	X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X
	2.1.26	New Chipper															X			
	2.1.27	Snowplow			X															
	2.1.28	Back-up Generator																		
	2.1.29	Back-Up Power																		
	2.1.30	Tree Inventory																		
	2.1.31	Emergency Operations																		

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	2.1.32	Storm Water Management																		
	2.1.33	Vulnerable Population Database	X	X	X		X					X	X				X	X	X	X
	2.1.34	Channel Improvements								X										
	2.1.35	Stormwater Detention																		
<b>Goal 2 Objective 2.2</b>	2.2.1	Municipal Wells											X							
	2.2.2	No Adverse Impact	X	X	X		X					X	X					X	X	X
	2.2.3	Continuity Plan	X	X	X		X		X	X		X	X					X	X	X
	2.2.4	Services in Flooding Events	X		X															
	2.2.5	Hail Resistant Roofing	X	X	X		X					X	X					X	X	X
	2.2.6	Water Supply			X				X											
	2.2.7	Alternate Water System										X								
	2.2.8	Hazardous Spill			X															
	2.2.9	Flooding Master Plan	X		X		X					X	X			X				X
	2.2.10	GPS System			X															
	2.2.11	Conservation Plan																		
<b>Goal 2 Objective 2.3</b>	2.3.1	Low Impact Development	X		X		X					X						X	X	X
	2.3.2	Tree City USA					X													
	2.3.3	Community Ratings System	X	X	X		X					X	X			X		X	X	X
	2.3.4	Tree Planting								X	X									

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	2.3.5	Tree City USA	X																	
	2.3.6	Conservation guidelines							X											
	2.3.7	Tree City USA																		
	2.3.8	NFIP	X		X	X	X						X			X		X	X	X
	2.3.9	Tree City USA		X	X	X						X	X		X	X	X	X	X	X
	2.3.10	Back-up Municipal Records			X															
	2.3.11	FIRMS																		
<b>Goal 3 Objective 3.1</b>	3.1.1	Public Information																		
	3.1.2	Business Continuity Planning	X	X	X		X					X					X	X	X	X
	3.1.3	Tree Assistance			X								X							
	3.1.4	Green Mitigation	X	X	X		X	X	X	X	X	X	X				X	X	X	X
	3.1.5	Water Conservation	X		X		X	X	X				X							X
	3.1.6	Improve Communication												X						
	3.1.7	Hazard Education	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	3.1.8	First Aid Training	X	X	X		X					X	X					X	X	X
	3.1.9	NOAA Radios		X	X				X	X	X	X	X			X				
	3.1.10	Hazard Education			X															
	3.1.11	Train Personnel												X			X			
<b>Goal 4 Objective 4.1</b>	4.1.1	Back-up emergency system	X		X															
	4.1.2	Emergency Response											X				X			

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	4.1.3	Storm Shelter Identification																		
	4.1.4	Storm Shelters	X	X	X	X	X			X	X	X	X	X				X	X	X
	4.1.5	Tornado Safety																		X
	4.1.6	ATV Rescue							X											
	4.1.7	Rescue Floats																		
	4.1.8	Emergency Vehicles																X		
Goal 4 Objective 4.2	4.2.1	Evacuation Plan	X	X	X	X	X					X	X				X	X	X	X
Goal 4 Objective 4.3	4.3.1	Back-up Municipal Communication System			X															
	4.3.2	Alert and Warning System					X													
	4.3.3	Warning Sirens	X							X	X	X								
	4.3.4	Cable Warning System																		
	4.3.5	Weather Radios	X		X		X										X	X	X	X
	4.3.6	Reverse 911					X													
	4.3.7	Cell phone Tower								X										
Goal 5 Objective 5.1	5.1.1	Floodplain Regulation		X								X								
	5.1.2	Higher Codes and Standards	X	X	X		X	X				X	X					X	X	X

Goal/ Objective	Action Item #	Action Item	Hallam	Hickman	Lancaster Co	Lincoln	Louisville	Malcolm	Manley	Murdock	Murray	Panama	Plattsmouth	Roca	South Bend	Union	Valparaiso	Waverly	Weeping Water	Weeping Water	
Goal 2 Objective 2.1	2.1.1	Relocate Municipal Infrastructure																			
	2.1.2	City Well Back-up																			
	2.1.3	Central Emergency Shelter																			
	2.1.4	Bury Utility Lines	X																		
	2.1.5	New Well																			
	2.1.6	Safe Rooms											X								X
	2.1.7	Promote Infiltration																X			
	2.1.8	Drainage Ditches																			
	2.1.9	Chemical Incident Sheltering	X	X	X		X			X	X		X			X	X	X	X	X	X
	2.1.10	Safe Rooms																			X
	2.1.11	Protection of Vulnerable Populations	X	X	X		X				X	X		X		X	X	X	X	X	
	2.1.12	Fuel Tank Anchoring	X																		
	2.1.13	Relocation of Hazardous Storage																			
	2.1.14	Facility Floodproofing												X					X		
	2.1.15	Levees and Floodwalls																			
	2.1.16	Improve Drainage					X			X	X	X			X		X			X	
	2.1.17	High-Risk Properties		X	X	X	X							X				X	X		
	2.1.18	Improve Drainage	X	X	X	X	X						X	X		X		X	X		
	2.1.19	Well Improvement	X																		
	2.1.20	Emergency Generator												X							
	2.1.21	Vehicular Barriers	X	X	X		X			X	X	X		X			X	X	X	X	X
	2.1.22	Bank Stabilization																			

Section Five: Mitigation Strategy

Goal/ Objective	Action Item #	Action Item	Hallam	Hickman	Lancaster Co	Lincoln	Louisville	Malcolm	Manley	Murdock	Murray	Panama	Plattsmouth	Roca	South Bend	Union	Valparaiso	Waverly	Weeping Water	Weeping Water
	2.1.23	Preserve Floodplain	X	X	X	X	X			X	X		X			X	X	X	X	
	2.1.24	Protect Water Treatment					X													
	2.1.25	Back-up Power	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
	2.1.26	New Chipper																		
	2.1.27	Snowplow		X		X														
	2.1.28	Back-up Generator	X										X							
	2.1.29	Back-Up Power															X			
	2.1.30	Tree Inventory																	X	
	2.1.31	Emergency Operations			X	X														
	2.1.32	Storm Water Management												X						
	2.1.33	Vulnerable Population Database	X	X	X						X	X	X	X			X	X	X	X
	2.1.34	Channel Improvements				X														
	2.1.35	Stormwater Detention				X														
	Goal 2 Objective 2.2	2.2.1	Municipal Wells		X															
		2.2.2	No Adverse Impact	X	X	X	X	X			X	X		X			X	X	X	X
2.2.3		Continuity Plan	X	X	X	X	X	X		X	X		X			X	X	X	X	
2.2.4		Services in Flooding Events					X													
2.2.5		Hail Resistant Roofing	X	X	X	X	X	X		X	X		X			X	X	X	X	
2.2.6		Water Supply																		
2.2.7		Alternate Water System											X							
2.2.8		Hazardous Spill																		

Goal/ Objective	Action Item #	Action Item	Hallam	Hickman	Lancaster Co	Lincoln	Louisville	Malcolm	Manley	Murdock	Murray	Panama	Plattsmouth	Roca	South Bend	Union	Valparaiso	Waverly	Weeping Water	Weeping Water
	2.2.9	Flooding Master Plan			X	X	X						X				X	X		
	2.2.10	GPS System																		
	2.2.11	Conservation Plan	X																	
Goal 2 Objective 2.3	2.3.1	Low Impact Development	X	X	X	X	X	X	X	X						X	X	X	X	
	2.3.2	Tree City USA			X															
	2.3.3	Community Ratings System	X	X	X	X	X			X	X	X	X			X	X	X	X	
	2.3.4	Tree Planting		X																
	2.3.5	Tree City USA				X														
	2.3.6	Conservation guidelines	X																	
	2.3.7	Tree City USA		X																
	2.3.8	NFIP	X		X	X	X			X	X	X	X		X	X	X	X	X	X
	2.3.9	Tree City USA	X				X			X	X	X	X	X	X	X	X	X	X	X
	2.3.10	Back-up Municipal Records																		
	2.3.11	FIRMS											X							
Goal 3 Objective 3.1	3.1.1	Public Information	X																	
	3.1.2	Business Continuity Planning	X	X	X		X	X		X	X	X	X			X	X	X	X	
	3.1.3	Tree Assistance																		
Goal 3 Objective 3.1	3.1.4	Green Mitigation	X	X	X	X	X		X	X	X		X			X	X	X	X	
	3.1.5	Water Conservation		X	X															
	3.1.6	Improve Communication		X								X								X
	3.1.7	Hazard Education	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
	3.1.8	First Aid Training	X	X	X		X		X	X	X		X			X	X	X	X	
	3.1.9	NOAA Radios						X	X					X						
	3.1.10	Hazard Education																		

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	3.1.11	Train Personnel																		X
Goal 4 Objective 4.1	4.1.1	Back-up emergency system																		
	4.1.2	Emergency Response				X	X													
	4.1.3	Storm Shelter Identification	X																	
	4.1.4	Storm Shelters	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X
	4.1.5	Tornado Safety																		
	4.1.6	ATV Rescue	X			X														
	4.1.7	Rescue Floats															X			
	4.1.8	Emergency Vehicles																		
	Goal 4 Objective 4.2	4.2.1	Evacuation Plan	X	X	X		X	X		X	X	X	X	X		X	X	X	X
Goal 4 Objective 4.3	4.3.1	Back-up Municipal Communication System																		
	4.3.2	Alert and Warning System			X															
	4.3.3	Warning Sirens				X														
	4.3.4	Cable Warning System	X																	
	4.3.5	Weather Radios	X	X	X		X			X	X		X			X	X	X	X	
	4.3.6	Reverse 911			X															
	4.3.7	Cell phone Tower																		
Goal 5 Objective 5.1	5.1.1	Floodplain Regulation		X																
	5.1.2	Higher Codes and Standards	X	X	X	X	X	X		X	X	X	X			X	X	X	X	

**Completed Mitigation Efforts**

Previously completed mitigation actions are identified per community in their specific participant sections.