

# MULTI-JURISDICTIONAL MITIGATION PLAN

Seward County, Kansas



Submitted by:

E-Fm Consulting, LLC  
100 Riverfront Road  
Suite A  
Lawrence, Kansas 66044

February 2010

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# Hazard Mitigation Plan

## 1.0 Introduction

This Hazard Mitigation Plan is a guide for Seward County citizens to prepare for possible natural disaster events by taking action to help mitigate the effects of potential hazards. The plan was prepared for Seward County and participating local jurisdictions through the efforts of the Mitigation Planning Committee (MPC) in conjunction with E-Fm Consulting, LLC. As part of an overall multi-jurisdictional planning effort, this plan has been created by the participating entities to comply with the Disaster Mitigation Act of 2000 (Public Law 106-390, hereinafter referred to as DMA 2000).

Section 1.0 provides a general introduction to the Seward County Multi-Jurisdictional Hazard Mitigation Plan. It is organized into the following five sections:

- 1.1. Background
- 1.2. Purpose
- 1.3. Scope
- 1.4. Authority
- 1.5 Paper Reduction and Elimination

## 1.1 Background

Natural phenomena such as floods, tornadoes, and severe storms, are a part of the world around us. As part of nature, their occurrence is inevitable; there is little we can do to control their force and intensity. However, through hazard mitigation planning, we can minimize the impact these events have on our lives and property.

“Hazard mitigation” is simply a technical term for reducing risk to people and property from natural hazards. It includes structural measures, such as protecting buildings and infrastructure from the forces of wind and water, as well as non-structural measures, such as natural resource protection and wise floodplain management. These activities can help protect both existing development and, by mitigating potential hazards to new construction, future development. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

The easiest and best way a jurisdiction can develop serious intentions about hazard mitigation is through the development and adoption of a local hazard mitigation plan. A mitigation plan will ensure that measures to reduce the present and future vulnerability of a jurisdiction are thoroughly considered before, during, and after a disaster strikes.

Mitigation planning in compliance with the requirements of DMA 2000 offers many benefits. These include:

- saving lives and property;
- saving money;
- speeding recovery following disasters;
- reducing future vulnerability through wise development / redevelopment;
- expediting both pre-disaster and post-disaster grant funding by demonstrating a firm commitment to improving jurisdiction health and safety.

Recently, both the State of Kansas and the U.S. Congress made the development of a hazard mitigation plan a specific eligibility requirement for any local jurisdiction applying for mitigation grant funding. Jurisdictions with an adopted plan will therefore become “pre-positioned” and more apt to receive any available mitigation funds.

More importantly, mitigation planning has the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of mitigation is that current dollars invested in mitigation practices will significantly reduce the demand for future dollars by lessening the amount needed for emergency recovery, repair and reconstruction in the event of a disaster. These mitigating practices will assist residents, their businesses and local industries to recover faster in the wake of a disaster, enabling the jurisdiction's economy to re-establish itself sooner and with less interruption.

Mitigation planning will also lead to benefits beyond the main purpose of hazard vulnerability reduction. Measures such as the acquisition or regulation of land in known hazard areas can help achieve jurisdictional goals such as preserving open space, maintaining environmental health and natural features, and enhancing recreational opportunities.

## 1.2 Purpose

As mentioned above, this plan was created in an effort to help Seward County and participating local jurisdictions to come into compliance with the requirements of DMA 2000.

The purpose of this Hazard Mitigation Plan is:

- To protect against the loss of life in the event of a disaster;
- To preserve the safety of persons and property by reducing the risk of potential damage and economic loss in the event of a disaster;
- To qualify for additional grant funding, both pre- and post-disaster;
- To qualify for participation in the National Flood Insurance Program (NFIP), and the Community Rating System (CRS) to receive additional credits under the program;
- To speed recovery and redevelopment following future disaster events;
- To demonstrate a firm local commitment to hazard mitigation principles;
- To comply with both state and federal legislative requirements for local hazard mitigation plans.

## 1.3 Scope

This Multi-Jurisdictional Mitigation Plan was developed under a Federal Emergency Management Agency (FEMA) hazard-planning grant awarded to Seward County through the Kansas Division of Emergency Management. Seward County approved E-Fm Consulting, LLC's contract on February 22, 2008.

The plan identifies the natural and state-mandated hazards associated with the county, but is developed primarily to address hazards classified as "High" and "Moderate" in the probability and vulnerability (severity) analysis model. Hazards classified in the "Low" or "Negligible" categories were eliminated because of their low rating priority or because of inadequate county infrastructure or fiscal capabilities. The MPC may add specific hazards to the prioritized hazards list to ensure local jurisdiction planning needs are met. Hazards will be reviewed on a routine basis with plan updates as circumstances change.

The geographic scope for the Hazard Mitigation Plan includes both the incorporated and unincorporated areas of Seward County, as provided in Section 2.0 of this plan.

## 1.4 Authority

Local governments in Kansas have a wide range of tools available to them for implementing mitigation programs, policies, and actions. In implementing a mitigation plan or specific action, a local jurisdiction may utilize any or all of the four broad types of government authority granted by the State of Kansas. Those four types of authority are defined as: (a) Regulation, (b) Acquisition, (c) Taxation, and (d) Spending.

The scope of this local authority is subject to constraints, however, as all of Kansas' political subdivisions must not act without proper delegation from the State. Under a principle known as "Dillon's Rule," all power is vested in the State and can only be exercised by local governments to the extent it is delegated.

Kansas' local governments have been granted broad regulatory authority in their jurisdictions. Kansas General Statutes (K.A.R.) bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances).

Since hazard mitigation can be included under the police power (as protection of public health, safety, and welfare), towns, cities, and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances", which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. After approval of the Multi-Jurisdictional Plan by the State of Kansas and FEMA (ref. Sec. 2.2), the plan can then be implemented by the County Board of Commissioners and the Executive Officers of the local jurisdictions under the authority of and by the police powers bestowed on them by the State of Kansas.

This Plan has been developed to be in accordance with current rules and regulations governing local hazard mitigation plans. The Plan shall be routinely monitored to maintain compliance with the following legislation:

1. Home Rule Powers: Article 12 Section 5 – Kansas Constitution
2. Kansas Emergency Planning and Jurisdiction Right-to-Know Act, K.S.A. 65-5701 through 65-5711, and Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III, Emergency Planning and Jurisdiction Right-to-Know Act (EPCRA), Pub. L. 99-499
  - (a) Federal Civil Defense Act of 1950, Pub. L. No. 81-920, as amended
  - (b) K.A.R. 56-2, Standards for Local Disaster Agencies
3. The Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390 – October 30, 2000).

## 1.5 Paper Reduction and Elimination

It is the goal of this planning process to comply with the overall direction to reduce or eliminate the use of paper. The 1998 Government Paper Elimination Act (GPEA), and consequent clarification by the Office of Management and Budget, asks all entities to consider eliminating paper as the vehicle to provide information or data to and from the Federal government. This mitigation plan is intended to be read, maintained, and edited in its online version.

As an interim step towards this goal, the plan can be printed using the standardized portable document format (PDF). When printed in this format, the formatting that is seen on-the-screen has been reduced and partially compacted in order to save paper when ultimately printed. Consequently, text may not carry with the associated table or image to the next page. The full content will be included in the PDF file. Thank you for your consideration of the Planning Committee's goal.

## 2.0 Planning Process

"Hazard Mitigation" is defined as any sustained action taken to reduce or eliminate long-term risk to human life and property from hazards. "Planning" is the process of setting goals, developing strategies, and outlining tasks and schedules to accomplish those goals.

Hazard mitigation planning is the process through which natural hazards that threaten jurisdictions are identified, the probability and severity of those hazards are determined and prioritized, mitigation goals are set, and appropriate strategies are created to meet those goals.

Hazard mitigation planning is required for state and local governments to maintain their eligibility for certain federal disaster assistance and hazard mitigation funding programs. Jurisdictions at risk from natural disasters can ill afford to jeopardize this funding.

Each year, natural disasters in the United States kill hundreds of people, injure thousands more and destroy private and public property and infrastructure. Nationwide, taxpayers pay billions of dollars annually to help jurisdictions, organizations, businesses and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenses to insurance companies and non-government organizations are not reimbursed by tax dollars.

Additionally, many natural disasters are predictable. Many more are repetitive, often with the same results. Many of the damages caused by these events can be alleviated or even eliminated.

FEMA, the Federal Emergency Management Agency, now a part of the Department of Homeland Security, has targeted reducing losses from natural disasters as one of its primary goals. Hazard mitigation planning and subsequent implementation of projects, measures, and policies developed through those plans, is the primary mechanism for achieving these goals. As a result of successful mitigation planning, when mitigation projects have been implemented, damages have been reduced. More importantly, proactive mitigation planning at the local level can help reduce the cost of disaster response and recovery to property owners and government by protecting critical facilities, reducing liability exposure, and minimizing overall jurisdiction impacts and disruption.

## 2.1 Participants

The Mitigation Planning Committee (MPC) represents participating local governments, including incorporated cities, towns, schools and other qualified government entities (referred to as sub-jurisdictions) of Seward County. The MPC seeks a coordinated and active mitigation planning process with full participation in plan development and implementation. This integrated planning process combines the risks, issues, goals, and mitigation measures of each jurisdiction to form a Multi-Jurisdictional Mitigation Plan.

Representatives from participating jurisdictions attended committee meetings and completed planning activities during the drafting stage of the plan. The minimum level of committee participation for each jurisdiction was achieved by one or more representatives that were actively involved in the planning activities conducted during the drafting phase of the plan. Persons authorized as representatives to serve on the committee for any given jurisdiction are provided in Table 2.1 (1).

The development of this Multi-Jurisdictional Mitigation plan, which was completed in 2009, included input and comment from individuals, local and state public agencies, private groups, business operators and owners. The Seward County Mitigation Planning Committee itself was made up of the following individuals:

TABLE 2.1 (1) SEWARD COUNTY MITIGATION PLANNING COMMITTEE

Jurisdiction	Responsible Party	Position	Phone	Email
Seward County Emergency Management	Marcie Weatherly	E.M./Planning & Zoning A A and Floodplain Manager	620-626-3394	mweatherly@sewardcountyks.org
Liberal/Seward County Emergency Communications	Pamela Johnson	Director of Communications	620-626-0198	911pjohnson@swko.net
Halliburton	Greg Huntley	Pampa District OE Lead	806-662-1853	gregory.huntley@halliburton.com
Halliburton	Jay Fitts	Facility Supervisor	620-629-4611	Jayson.fitts@halliburton.com
Seward County Health Department	Elizabeth Irby	Clinical Director		eirby@sewardcountyks.org
Seward County Community College/ATS	Susan Lukwago	Director Colvin Center	620-417-1311	susan.lukwago@sccc.edu
Panhandle Eastern Pipe Line Co.	Mike Riedel	Environmental Specialist	620-626-1660	mike.riedel@sug.com
Seward County Community College/ATS	Celeste Donovan	Dean of Student Services	620-624-6487	celeste.donovan@sccc.edu
Seward County	Toby Hale	County Commissioner	620-674-6544	tobyhale@att.net
Seward County EMS	John Ralston	EMS	620-629-5037	jralston@sewardcountyks.org
Seward County	CJ Wettstein	County Commissioner	620-629-1342	cjwpheasant@hotmail.com
USD 480-Liberal School District	Alan Haskell	Auxiliary Services Director	620-604-1010	alan.haskell@usd480.net
First National Bank	Mark Roth	UP Security Office	620-624-2700	markr@fnliberal.com
First National Bank	Jana Jantzen	Crisis Management Coordinator	620-624-1971	janaj@fnliberal.com
Seward County	Richard Everett	Regional Public Health Coordinator	620-492-1930	were@pld.com
Southwest Medical Center	Bobby Carpenter	SWMC Safety/Security Manager	620-629-6345	bcarpenter@swmedcenter.com
SCHS	Don Parsons	Board Member	620-842-4237	
SCHS	JoAnne Mansell	Executive Director	620-624-7624	schs@swko.net

SWGC	Barbara Correll	KAHBH Coordinator	620-624-0280	barbcorrell@yahoo.com/ bcorrell@swguidance.org
Red Cross	Sherry Helmke	Manager	620-624-8411	cimarc@roadrunner.com
Anadarko Petro.	Michael Pond	Sr. Field Analyst	620-629-5411	mike.pond@anadarko.com
Liberal Fire Department	Skeety Poulton	Deputy Chief of Operations	620-626-0127	skeety.poulton@cityofliberal.com
Liberal Police Department	Al Sill	Chief of Police	620-626-0141	alsill@cityofliberal.com
Liberal Police Department	Patrick McClurg	Captain	620-262-0144	patmcclurg@cityofliberal.com
Liberal Fire Department	Kelly Kirk	Fire Chief	620-626-0126	kelly.kirk@cityofliberal.com
Emergency Management/SCFD	John Steckel	Deputy Director/LT	620-626-3270	jsteckel@sewardcountyks.org
SCF/SCFD	Gregg Frelove	EHDS/LT	620-624-6296	freelove@wbsnet.org
Seward County Fire	Michael Rice	Fire Chief	620-626-3267	mrice@sewardcountyks.org
Seward County Community College/ATS	Roger Scheib	Director Building and Grounds SCCC	620-624-1951	roger.scheib@sccc.edu
SCCC/ATS	Ray Petty	Security/Safety Supv.	620-417-1181	ray.petty@sccc.edu
CMS Electric	Rusty Blehm	Operations Manager	620-873-2394	rblehm@cmselectric.com
City of Liberal	Steve Guerrero	Building Inspection	620-626-2262	
National Beef	Ratdee Rinehart	Asst. Safety Manager	620-626-0289	rdrinehart@nationalbeef.com
Seward County Sheriff's Office	Gem Austin	SWs/o - Undersheriff	620-309-2000	gaustin@swko.net
Seward County	Lisa Olson	GIS Coordinator	620-626-3332	lolson@sewardcountyks.org
SCCC/ATS	Tommy Williams	Dean - Admn Services	620-417-1018	tom.williams@sccc.edu
National Beef	Mike King	Trans. Mgr. - NBP	620-629-5753	mrking@nationalbeef.com
National Carriers	Doug LaFreniere	Safety Director	620-629-5073	dalafreniere@nationalcarriers.com
Seward County United Way	Kay Burtzloff	Executive Director	620-624-5400	scunitedway@sbcglobal.net
Seward County Emergency Management	Greg Standard	Director of Emergency Management	620-626-3270	gts@swko.net

**Participating Jurisdictions**

The following jurisdictions participated as Jurisdictions in the Seward County planning process. Plan participation was accomplished by jurisdictional representation in one of three ways: (1) Direct representation by a person from the jurisdiction, or (2) Delegation of jurisdictional representation to a qualified third party, or (3) Delegation of jurisdictional representation to a consultant contracted for this project. Seward County jurisdictions chose the third form of representation which appoints the consultant as Plan Author and, where jurisdictions lack the resources or personnel to attend all planning meetings, delegates the authority to the consultant to represent them. Resolutions authorizing the Hazard Mitigation Plan consultant to represent them and to prepare the plan on their behalf are included in the Appendix. All jurisdictions that have promulgated authorization for representation have met the minimum criteria for participation as set forth under "Requirements" and are therefore considered by the Seward County Planning Committee as eligible participating jurisdictions.

TABLE 2.1 (2) JURISDICTIONS

Seward (UnInc.)	UnInc
Kismet	Inc
Liberal	Inc
Seward Co. Community College/Area Technical School	School
USD 480	School
USD 483	School

This plan was prepared under the direction of the MPC with the guidance and support of E-Fm Consulting, LLC, of Lawrence, Kansas.

Seward County retained the services of E-Fm Consulting, LLC, 100 Riverfront Road, Suite A, Lawrence, Kansas 66044, to attend planning meetings, provide input and guidance for the hazard and risk analysis for completion of the Mitigation Plan, and publish the reports to the county’s online hazard and vulnerability website. Participants from E-Fm Consulting, LLC included the following personnel:

- Dennis K. Hayward, Technical Support
- Richard S. Hernandez, Technical Support
- Nick Maciaszek, GIS/Maps
- Elizabeth Spainhour, Programming

The MPC determined that only those jurisdictions that met all the participation components listed below were considered as a “participating jurisdiction” in this multi-jurisdictional mitigation plan.

**Requirements**

- Participate in planning meetings or coordinate with EM
- Submit inventory and summary of reports and plans relevant to hazard mitigation
- Submit unique hazards that affect the jurisdiction, with relevant documentation
- Submit a description of what is at risk, including local critical facilities and infrastructure, and which hazards posed a risk to them
- Submit a description and map(s) of local land-use patterns (current, proposed/expected)
- Develop and adopt goals and objectives for jurisdiction
- Develop mitigation actions with an analysis/explanation of why those actions were selected
- Prioritize actions emphasizing relative cost-effectiveness
- Complete questionnaire with implementation strategy
- Review and comment on draft plan

- Host opportunities for public involvement

As a minimum commitment, all participating jurisdictions who will be adopting this plan have elected to undertake the following high priority public outreach actions:

- Participating jurisdictions will conduct annual interviews and/or smaller meetings with civic groups, the public and other stakeholders. This will be accomplished through incorporating discussion of the mitigation plan into other regularly attended meetings. Participating jurisdictions will consider annual flyers, newsletters, newspaper advertisements, and radio/TV announcements, and will implement some or all of the above at the discretion of the jurisdiction.

**Participating Private Non-Profit (PNP's) and Rural Electric Cooperatives (REC's)**

The following entities were invited to participate in the development of the Seward County Multi-Jurisdictional Mitigation Plan: CMS Electric Cooperative.

TABLE 2.1 (3) PNP's & REC's

Entity	Responsible Party	Position	Phone	Email
CMS Electric Cooperative	No Representation			

**2.2 Plan Adoption**

The Seward County plan was developed as a multi-jurisdictional plan. Therefore, to meet the requirements of Section 322 of the local hazard planning regulations, the final plan will be adopted by each of the jurisdictions as well as the county. This section documents the adoption process of each local government in order to demonstrate compliance with this requirement. The plan will formally be adopted following conditional approval of FEMA Region VII’s review.

Table 2.2 (1) identifies the local governments that participated in the planning process who will adopt the plan. According to the participation components set by the MPC (see above Requirements, Section 2.1 Participants), these jurisdictions have met satisfactory participation requirements of this hazard mitigation plan. NOTE: Resolutions from each Jurisdiction adopting the Plan listed in Table 2.2 (1) are provided in the Appendix.

TABLE 2.2 (1) ADOPTION OF PLAN - §201.6(c)(5)

Jurisdiction	Date of Adoption
Name of Jurisdiction	Date or Note

**2.3 Documentation of the Planning Process**

The Seward County Multi-Jurisdictional Mitigation Plan is the result of a collaborative effort between Seward County citizens, public agencies, and regional, state, and federal organizations. Public participation played a key role in development of goals and mitigation projects. Interviews were conducted with the Seward County Emergency Coordinator, mayors, elected officials, and other organizations in the jurisdiction, and two public meetings were held to include the input of Seward County residents.

In order to effectively notify the adjoining counties and invite them to contribute to the planning process, the Emergency Manager for each county was notified via mail and/or email. In Kansas, the Emergency Manager for each county has been designated as the county point-of-contact for Mitigation Planning. Each Emergency Manager is responsible to report to its Commissioners, and other administrative entities, regarding any activity necessary to comply. Invitations to apply for the FEMA and State funded grants for

Mitigation Planning were sent to the 105 Emergency Managers in Kansas as the designated point-of-contact for each County Commission.

All entities listed in the Appendix under the Initial Contact List were notified or contacted for every meeting conducted as part of the planning process. In addition, the Liberal High Plains Dealer was used to do public notification. The Liberal High Plains Dealer is a regional publication with circulation in all adjoining counties.

Seward County utilized the process recommended by the Kansas Division of Emergency Management (KDEM) to develop this Multi-Jurisdictional Mitigation Plan. Seward County's mitigation planning process was initiated on February 22, 2008 when the county awarded a contract to E-Fm Consulting, LLC. The mitigation planning process was completed over a 21-month time period, with final draft completion in January 2010.

A comprehensive hazard analysis was conducted prior to mitigation planning, and was completed in 2002, and the natural hazards portion of this hazard analysis was updated in 2008. The hazard analysis is a comprehensive assessment and prioritization of risks and vulnerability in the county. The assessment is published electronically as a stand-alone document consisting of 12 sections, and forms the basis for this mitigation plan.

Seward County developed this Multi-Jurisdictional Mitigation Plan in coordination with E-Fm Consulting, LLC. Funding was provided by FEMA and the State of Kansas via a grant through the Kansas Division of Emergency Management. The overall process to prepare this mitigation plan was developed by E-Fm Consulting, LLC, Seward County Emergency Management, and the Seward County Mitigation Planning Committee.

### **Planning**

E-Fm Consulting was retained on February 22, 2008, to represent Seward County as plan author, and to provide support services to develop the hazard mitigation plan. E-Fm prioritized the natural hazards in coordination with the MPC based on likelihood and severity of each hazard for the jurisdiction. This data was used to develop the goals, objectives, and mitigation strategy for Seward County.

Greg Standard, Seward County Emergency Management Coordinator, served as the primary official contact for the county. The MPC consisted of representatives from local government agencies, private and public entities, and local businesses. The Seward County MPC conducted meetings and numerous in-house discussion sessions over the course of the planning process. A number of officials at the federal, state, and local government level were contacted throughout the planning process for specific information and technical expertise.

The Seward County MPC met on January 20, 2009, to review and approve the natural hazards and vulnerability prioritization assessment. The indexed (prioritized) hazards were discussed, and a wide range of mitigation actions were identified for high and moderate hazards and disseminated to committee members for further discussion and approval prior to the first public meeting for the county. FEMA categories for actions were also discussed in relation to projects and actions, with emphasis on implementation capabilities at the local level for prioritized projects/actions. In addition, the Mitigation Planning Committee members were provided electronic access to the county's draft plan for review and comment on the overall draft strategy to assist with development of projects and actions for each jurisdiction. Over the next ten months the MPC reviewed the draft data and provided comment/changes to further define the plan strategy.

The first public meeting was held on December 15, 2009 to present the county draft plan to the MPC and interested parties in the community. Comment forms were distributed for interested parties to comment in writing to the MPC. A review of the mitigation strategy was followed by a discussion of sub-jurisdiction planning and distribution of data packets to local jurisdictions. A copy of the draft plan was made available at the Emergency Management Coordinators office. Notification of the first public meeting was published in the Liberal High Plains Dealer on November 29, 2009, and Seward County Emergency Management posted meeting notices in public buildings. E-Fm Consulting, LLC, provided additional mail invitations via postcard on December 2, 2009. The draft plan was available for public comment through December 29, 2009. The MPC did not receive any written comment on the plan.

The second public meeting was held on January 12, 2010, to present the final county draft plan to the MPC and interested parties in the community. A review of the county and participating jurisdictions was followed by a question and answer period. Forms were provided for the public to provide written comment to the MPC. Notification of the second public meeting was provided by publication Liberal High Plains Dealer on December 29, 2009, and Seward County Emergency Management sent invitation letters to all interested parties. E-Fm Consulting, LLC, provided additional mail invitations via postcard on December 29, 2009.

Meeting sign-in logs, jurisdictional authorization forms, and public comment forms (if any) can be found in the Appendix.

### **Public Participation**

Efforts were made to solicit public input throughout the planning process using announcements and public notification via local newspaper publications, and meeting notifications by first-class mail, phone, and email. Two public meetings were held to obtain input from the community, which included notice to businesses, non-profits, government agencies, and any others interested in the planning process. Additionally, the Emergency Management Coordinator scheduled meetings with interested parties within the county to review planning, code, land plan and flood zone planning initiatives in other departments.

Public input was solicited by direct written notices and announcement of the mitigation planning process, with public meeting schedules announced two weeks prior to convening. No written comments were received from the general public for the Seward County Mitigation Plan during the planning process.

The county provided a copy of the final draft document for public review at the County Emergency Operations Office and public library prior to presentation of the final draft plan at the second public meeting. The participating jurisdictions and the County Commission tentatively approved the plan for submittal to the State Mitigation Officer on (Date), at which time no further public and private comment was received.

### **Summary**

In short, the process included the following steps, listed in the order in which they were undertaken:

1. Natural Hazards Identification and Risk Assessment
2. County Vulnerability Assessment
3. Mitigation Capabilities Assessment
4. Mitigation Strategy (Goals, Objectives, and Actions)
5. Plan Maintenance

Step 1, the hazard identification and assessment, describes and analyzes the natural phenomena present in Seward County that can threaten human life and damage property. It includes historical data on past hazard occurrences, and establishes hazard profiles and risk indices based upon hazard frequency, magnitude and impact. The risk rating forms the basic foundation for focusing and prioritizing mitigation efforts.

Step 2, the county vulnerability assessment, was completed predominantly through investigative research along with the use of available data at the time of the study. It includes narrative descriptions on community characteristics, such as Seward County's geographical, economic, and demographic profiles, and discusses future development trends and implications for hazard vulnerability. To graphically depict hazard vulnerability, this section also included readily-accessible county vulnerability assessment maps.

Step 3, the mitigation capabilities assessment, provides a comprehensive examination of Seward County's capacity to implement meaningful mitigation strategies, and identifies existing opportunities for program enhancement. Capabilities addressed in this section include staff and organizational capability, technical capability, policy and program capability, fiscal capability, legal authority and political willpower. The purpose of this assessment is to identify any existing gaps, weaknesses or conflicts in local programs/activities that may hinder mitigation efforts, or to identify those local activities that can be built upon in establishing a successful county hazard mitigation program.

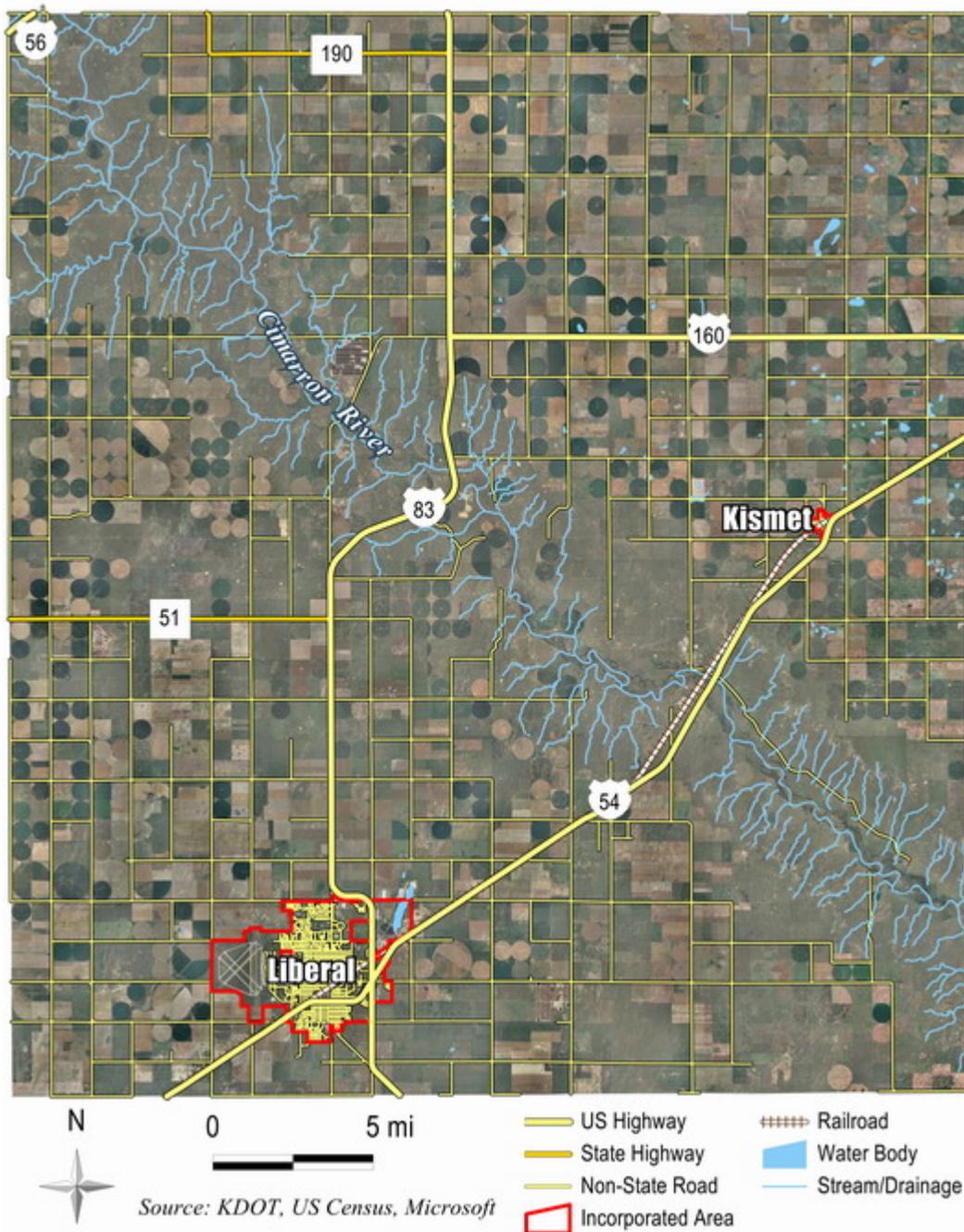
Steps 1, 2, and 3 form the basis for designing the community's hazard mitigation strategy.

Step 4, the conclusion of Steps 1, 2, and 3, results in the formation of jurisdiction strategy and sets the stage for developing and adopting a meaningful hazard mitigation plan for Seward County. These four steps help make the plan strategic and functional for implementation purposes.

Step 5, which follows the completion of the mitigation strategy, concentrates on designing measures to ensure the plan's ultimate implementation, and adoption of evaluation and enhancement procedures for routine updating.

### 3.0 County Profiles

#### Seward County, Kansas



#### 3.1 Geographic Setting and History

Seward County is located in the High Plains region of Southwestern Kansas. Its southern county line is the Kansas/Oklahoma border. Seward County spans approximately 27 miles running north to south and approximately 24 miles running east to west. At 640 square miles total area, Seward County is the 78th largest county in Kansas. Currently, Seward County is the 25th most populated county in Kansas with 23,404 residents. There are two incorporated municipalities in Seward County; Liberal and Kismet.

Liberal is the county's largest city and also serves as the county seat.

TABLE 3.1 (1) SEWARD COUNTY CITIES, TOWNS, & VILLAGES (past and present)

Town/City	2000 Population	Zip Code	Year	Elevation
Arkalon			1888	2620
Fargo Springs			1885	
Hayne				2775
Kismet	484	67859		2775
Liberal	19,666	67901, 67905	1888	2836
Springfield			1885	

Seward County is located in the southwest portion of the State of Kansas. Seward County is bounded on the east by Meade County, on the north by Haskell County, on the southeast by Beaver County (Oklahoma), Texas County (Oklahoma), and on the west by Stevens County.

TABLE 3.1 (2) LAND COVER

Code	Land Cover	% Area
11	Urban Industrial/Commercial	0.60
12	Urban Residential	0.51
13	Urban Openland	0.57
14	Urban Woodland	0.00
15	Urban Water	0.05
20	Cropland	52.72
30	Grassland	33.21
31	Conservation Reserve Program (CRP) Land	12.21
40	Woodland	0.07
50	Water	0.04
60	Other	0.03

The 2005 Kansas Land Cover Patterns map produced by the Kansas Applied Remote Sensing (KARS) program provides a fairly accurate assessment of 11 land use/land cover classes. The vast majority (approx. 98.14%) of land in Seward County is comprised of Cropland, Grassland, and Conservation Reserve Program (CRP) land. Cropland predominates the SW and NE sections of the county. Grassland areas are found mainly along the Cimarron River Valley bisecting the county from NW to SE. Urban Industrial/Commercial and Urban Residential development comprise 1.11% of land cover in the county. Residential, Commercial/Industrial, Urban-Grassland, and Water areas are concentrated around the towns of Liberal and Kismet. The small percentage of Woodland areas are found primarily adjacent to the Cimarron River streambed.

#### History

Prior to the early 1870's, the Seward County area was inhabited by Native Americans and traversed by settlers traveling west on the Santa Fe, Jones and Plummer, and western cattle trails.

Around 1872, Mr. S.S. Rogers became the first homesteader in what would later become Liberal. Mr. Rogers was well known for his generosity in providing free water to passing travelers in SW Kansas, where water was very scarce. Travelers expressed their gratitude to Mr. Rogers with a reply of "that's mighty Liberal of you".

By 1885, Mr. Rogers opened a general store and the government established an official Post Office. It seemed only natural to call the new town "Liberal".

During the 1880's, the Rock Island Railroad extended its line through Seward County and deflected its route southward toward present day Liberal. Mr. M.A. Low ordered the surveying of a new town site one mile east of the Rogers place, having purchased part of four sections of land there for that purpose in the center of the present day Liberal.

The plat of the town site of Liberal was opened April 13, 1888. During the following twenty-four hours, the sale of lots totaled \$180,000.00 of which \$60,000 was paid in cash. Eighty-three wooden houses were built in one week. Liberal incorporated as a third class city.

In the 1890's, drought and the opening of the Oklahoma Strip severely decreased the population of Liberal, whose economy was entirely dependent on crops and cattle. Liberal's population eroded to approximately 400 citizens. In the following years, citizens relocated their homes and businesses from Fargo Springs, Arkalon and Springfield to Liberal, which became the new county seat.

In 1920, gas was discovered west of Liberal on what was to become the vast Hugoton Gas Field; the largest gas reserve in the world at that time. In early 1951, oil was discovered southwest of Liberal. During exploration, two layers of gas production below the Hugoton Gas field were discovered, extending the life expectancy of gas in Seward County into the next century.

Over the next several decades, the population of Seward County continued to grow fueled economically by the agriculture and petroleum industries. Most of that growth has been concentrated around Liberal, which has become a regional trading destination for inhabitants in the surrounding four states as well as a primary crossroads for transportation of goods to the SW United States.

## 3.2 Government

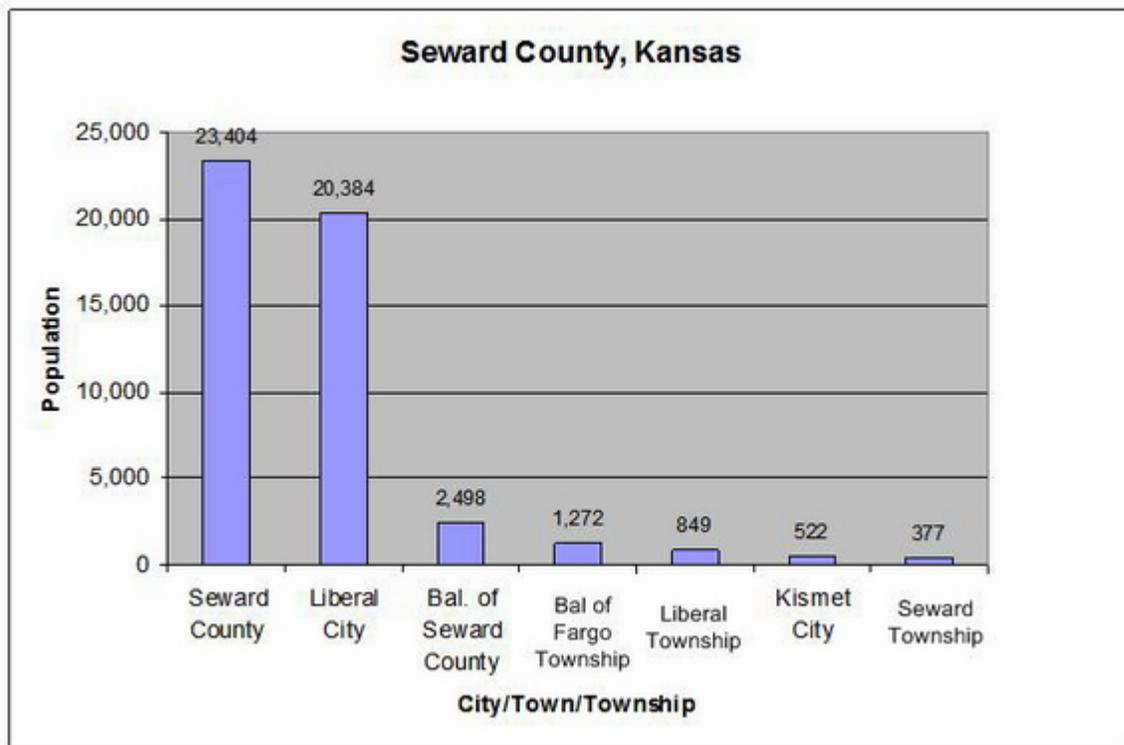
Seward County consists of a representative five-member commission. There are a total of two incorporated jurisdictions within the boundaries of the county, each having a mayoral or mayor/city council form of government.

### 3.3 Demographics

Seward County is a rural county with no major metropolitan areas or industry, and its economy is primarily agricultural. Seward County’s retail trade pull factor of 1.14% in central Kansas for the year 2006 is currently ranked first in the Kansas Economic Reporting Region VII. The Seward County Economic Development Council is actively seeking ways to increase expansion of its existing businesses and industries in the county in an attempt to broaden the tax base. From a production basis, natural gas, oil, and agricultural products (crops and livestock) comprise the majority of industry in the region. Most of the crops are farmed in support of livestock.

Seward County is one of the state's mid-sized counties in terms of total land area. Seward County’s current population of 23,404 (2006 - US Census Estimated Population) ranks 25th out of 105 counties in the state. Most of these residents are concentrated in the county’s two main population centers, with some smaller concentrations residing in rural parts of the county. The average population density for the entire county is 36.6 people per square mile of land.

REGIONAL POPULATIONS IN SEWARD COUNTY (Certified to the Secretary of State-7-1-07)



Unlike many western Kansas counties, Seward County is experiencing an overall population gain, which has been occurring since 1900. The recent 2006 U.S. Census estimated population for the county is 23,404, revealing an increase of 4.0% from the 2000 census figures, and overall, the last 100 years have shown Seward County with a steadily increasing population. The historical census population counts for Seward County for 1900-2000 are shown in Table 3.3.(1).

TABLE 3.3 (1) HISTORICAL POPULATION

1900	1910	1920	1930	1940	1950	1960
822	4091	6220	8075	6540	9972	15930
1970	1980	1990	2000	2006 (est.)	% Change	
15744	17071	18743	22510	23404	3.97%	

General demographic information from the 2000 Census is shown in Table 3.3 (2). Seward County's Census population was 22,510, with 19,666 people living in Liberal, the most populated city in the county. 48.7% of the people are female and 51.3% male. The majority of the population is in the 25-34-year range. 91.1% of the population is under the age of 65. Of the houses in the county, 64.1% were owner occupied.

TABLE 3.3 (2) POPULATION DEMOGRAPHICS

Subject	Number	Percent
Total Population	22510	100.0%
Male	11546	51.3%
Female	10964	48.7%
Under 5 Year	2156	9.6%
5 to 9 Years	2014	8.9%
10 to 14 Years	1890	8.4%
15 to 19 Years	1990	8.8%
20 to 24 Years	1793	8.0%
25 to 34 Years	3539	15.7%
35 to 44 Years	3317	14.7%
45 to 54 Years	2389	10.6%
55 to 59 Years	788	3.5%
60 to 64 Years	628	2.8%
65 to 74 Years	1033	4.6%
75 to 84 Years	656	2.9%
85 Years and Over	317	1.4%
Median Age (years)	29	
18 Years and Over	15302	68.0%
Male	7790	34.6%
Female	7512	33.4%
21 Years and Over	14033	62.3%
62 Years and Over	2378	10.6%
65 Years and Over	2006	8.9%
Male	818	3.6%
Female	1188	5.3%

## 3.4 Economy

### Overview

In 2007 Seward County had a per capita personal income (PCPI) of \$28,124. This PCPI ranked 72nd in the state and was 77 percent of the state average, \$36,525, and 73 percent of the national average, \$38,615. The 2007 PCPI reflected an increase of 6.5 percent from 2006.

The 2006-2007 state change was 5.8 percent and the national change was 4.9 percent. In 1997 the PCPI of Seward was \$20,416 and ranked 58th in the state. The 1997-2007 average annual growth rate of PCPI was 3.3 percent. The average annual growth rate for the state was 4.3 percent and for the nation was 4.3 percent.

In 2007 Seward County had a total personal income (TPI) of \$643,726. This TPI ranked 25th in the state and accounted for 0.6 percent of the state total. In 1997 the TPI of Seward County was \$442,899 and ranked 25th in the state. The 2007 TPI reflected an increase of 7.8 percent from 2006. The 2006-2007 state change was 6.6 percent and the national change was 6.0 percent. The 1997-2007 average annual growth rate of TPI was 3.8 percent. The average annual growth rate for the state was 4.8 percent and for the nation was 5.4 percent.

Total personal income includes net earnings by place of residence; dividends, interest, and rent; and personal current transfer receipts received by the residents of Seward County. In 2007 net earnings accounted for 74.2 percent of TPI (compared with 73.6 in 1997); dividends, interest, and rent were 11.9 percent (compared with 14.2 in 1997); and personal current transfer receipts were 14.0 percent (compared with 12.2 in 1997). From 2006 to 2007 net earnings increased 8.5 percent; dividends, interest, and rent increased 7.4 percent; and personal current transfer receipts increased 4.3 percent. From 1997 to 2007 net earnings increased on average 3.9 percent each year; dividends, interest, and rent increased on average 2.0 percent; and personal current transfer receipts increased on average 5.2 percent.

### Agriculture

Farming in Seward County remains the mainstay for the county. The 2007-2008 Kansas Department of Agriculture Farm Facts Report indicates 330 farms, ranking 89th in the state, and 363,000 acres of land in farms, ranking 76th in the state. Seward County ranks 15th in value of crops harvested (\$99,587,700), and 9th in the value of cattle and milk production in the state (\$114,222,200). Crops consist of wheat (3,528,000 bushels), corn (13,692,000 bushels), and sorghum (1,641,200 bushels). Cattle and calves inventory in January 2008 was valued at \$116,670,000. Data for hogs, sheep, and poultry were not available at the county level. Employment statistics for the county show a decrease in farm employment from 589 in 1990 to 540 in the year 2003.

### Business & Industry

During the year 2000, 64.1% of Seward County's population was in the labor force while 3.1% were unemployed and looking for work. The top employment sectors include: production, transportation, and material moving occupations (26.2%); sales and office occupations (22.5%); management, professional, and related occupations (21.0%); service occupations (15.0%); farming, fishing, and forestry occupations (3.3%).

In 2000, 78.7% of the working class was identified by the U.S. Census Bureau as private wage and salary workers; 7.3% as self-employed, and 13.1% as government workers.

In 2007, the unemployment rate in Seward County was 3.2%; this percentage was down from 3.3% in 2006.

Seward County Property was valued at \$307,777,034 in 2007. Public utility property accounted for 14.43% of the total property valuation, with agricultural land accounting for 1.97% of the total property valuation. Residential property accounted for 17.54% of the total property valuation, and oil and gas properties accounted for 42.57% of the total property valuation.

Approximately 774 jobs were added in the county during the period 1990 to 2004. Many of the added jobs were higher income level professionals such as finance, insurance, and real estate. The civilian labor force in Seward County has grown from 9,870 in 1990 to 10,678 in 2004. Table 3.4 (1) shows the 2000 US Census data on Seward County's workforce.

TABLE 3.4 (1) SEWARD COUNTY WORKFORCE BY INDUSTRY (2000)

Industry	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	1121	11.5%
Construction	438	4.5%
Manufacturing	2216	22.8%
Wholesale trade	262	2.7%
Retail trade	1099	11.3%
Transportation and warehousing, and utilities	596	6.1%
Information	118	1.2%
Finance, insurance, real estate, and rental and leasing	345	3.5%
Professional, scientific, management, administrative, and waste management services	423	4.4%
Educational, health and social services	1595	16.4%
Arts, entertainment, recreation, accommodation and food services	720	7.4%
Other services (except public administration)	456	4.7%
Public administration	335	3.4%
Employment	Number	Percent
Population 16 years and over	15957	100.0%
In labor force	10227	64.1%
Civilian labor force	10222	64.1%
Employed	9724	60.9%
Unemployed	498	3.1%
Percent of civilian labor force		4.9%
Armed Forces	5	0.0%
Not in labor force	5730	35.9%

**Economic Summary**

Seward County's overall increasing population makes economic development somewhat easier than in other areas in the state, but the county is not located close to a major Kansas metropolitan city for direct access to major services. The county growth can be attributed to the natural gas industry. Additionally, Seward County is classified as a Densely-Settled Rural county, thus is not considered "distressed" by the State of Kansas. A discussion of this classification is provided below.

The Kansas Department of Health and Environment (KDHE) classifies counties into one of five tiers: Frontier, Rural, Densely-settled rural, Semi-urban, and Urban. The classifications are based on several factors including population per square mile. Since the 1930's, Frontier/Rural contraction has been a reality for the State. Frontier classification obviously represents the most economically disadvantaged and Urban the most prosperous. Frontier and Rural are considered "distressed" based on various economic and demographic characteristics. A Frontier County is defined as those with less than 6.0 persons per square mile; Rural counties are those with 6.0 – 19.0 persons per square mile.

Distressed counties (Frontier and Rural) account for 68 of the 105 counties in the state. Numerous bills have been introduced into the Kansas legislature over the past ten years, but none have passed that specifically addresses dwindling populations in the rural counties. Other suggestions have included replacing irrigation-based agriculture with more diverse forms of economic activity. Ultimately, the availability of steady, well-paying jobs and affordable housing would mitigate many of the problems created by sparse population.

### 3.5 Climate

The climate of Seward County is characterized by low precipitation, rapid evaporation, and a wide range of temperature. The summer days generally are hot but, due to the movement of wind and the low humidity, the nights are relatively cool. The winters are moderately cold, but, generally are free from excessive snowfall and damp cloudy days. Temperatures occasionally climb above 100 degrees Fahrenheit during the summer and winters are moderate to cold with temperature lows averaging 18 degrees Fahrenheit. Weather averages are provided in Table 3.5 (1).

TABLE 3.5 (1) CLIMATE SUMMARY

Average Daily Temperature (Fahrenheit)	55.2
January (Fahrenheit)	High – 34
	Low - 20.4
July (Fahrenheit)	High – 81
	Low - 66.6
Average Annual Precipitation (inches)	19
Average Annual Snowfall (inches)	17 inches
Prevailing Winds	Warm Months (Late Spring-Summer) S-SW
	Cold Months (Late Autumn-Winter) N-NW

### 3.6 Natural Historic and Cultural Resources

Although Seward County does not have any National Wildlife Refuges, there are wildlife areas, open lands, and miles of trails and back roads that provide opportunities for outdoor experiences such as biking, bird watching, and hunting, to name a few.

The major water stream in Seward County is the Cimarron River, which is discussed later in Section 3.7. No reservoirs or state lakes are located in Seward County.

The area's most abundant natural resource may arguably be the agricultural land not including mineral resources. The quality of soil and suitable drainage makes it possible to produce a variety of crops. Although Seward County is semi-arid and averages 19 inches of rain annually, the underlying aquifer systems serve as a major resource to agriculture. The Ogallala Aquifer system is an extremely porous and permeable formation comprised of unconsolidated deposits of coarse-grained sand, gravel, fine clay, silt, and sand resulting in a porous sandstone. This aquifer spans eight states from north to south in the Great Plains region. The Dakota Aquifer, an extensive sandstone formation spanning much of the central North American continent, also underlies the northern third of Seward County.

Seward County's farmers are pioneers in the use of deep irrigation wells in wheat, corn, and sorghum grain farming. At the present time, Seward County has 476 irrigation wells in operation, providing essential moisture to 92,760 acres. Success of irrigated wheat and milo farming is exceeding expectations and is possible because most of the country lies above 287 feet of water-bearing gravel that moves in from west and north. These wells average above 1,800 gallons per minute each, ensuring steady income to the farmers and stabilizing agriculture in the county.

Aquifer depletion in the western portion of Kansas is a major issue faced by inhabitants of this area, as well as those in surrounding regions. The intense demand placed upon this aquifer system for irrigation has prompted the Kansas Corporation Commission Conservation Division to designate the entire route of the Cimarron River through Seward County and roughly the southern two-thirds of Seward County as a sensitive groundwater area.

In addition to farming, Seward County is also gaining as a stock-feeding area between the calf production centers of the south and the cattle-feeding yards of Iowa and Illinois. The breakdown for agriculture production in Seward County by value is: Cattle-54%; Hogs-13%; Wheat-6%; Sorghum-3%; Corn-16%; Hay-2%; Milk-1%; and other-5%.

#### Oil and Gas

Oil and Gas production is significant in Seward County primarily due to the underlying presence of the Anadarko Basin or Hugoton Embayment. Oil and gas production is found throughout the county with a lessening concentration in the extreme northeast corner of the county. In 2007 454,002 barrels of oil were produced from 255 wells. Natural gas production volume was 23,817,236 mcf from 1,229 wells.

#### Mining

Mining is not a major source of activity in this county and appears to be relegated to localized sand and gravel excavation companies (Carlile Sand and Gravel, J&R Sand Company, Seward Road and Bridge Department).

#### **Historic Sites in Seward County, Kansas**

There is one notable historic resource in Seward County listed in the Kansas State of Historical Society database. The site is presented in Table 3.6 (1).

TABLE 3.6 (1) COUNTY HISTORIC SITES

Site Name	Address	City
Old Rock Island Depot	Kansas Avenue and Rock Island Railroad tracks	Liberal

## 3.7 Geologic Features

### **Topography and drainage**

Seward County is located in the southwestern corner of the High Plains geographic region of Kansas. The Cimarron River Valley, the primary source of topographic relief in Seward County, bisects the county from northwest to southeast. The land within the Cimarron River Valley is primarily comprised of breaks and draws caused by various erosion events. Overall, the river valley is fairly rough terrain, exemplified by only four bridged crossings in the entire county. The remainder of the county grades from gently rolling hills to flat stretches of irrigated farmland stretching northeast and southwest from the Cimarron River Valley.

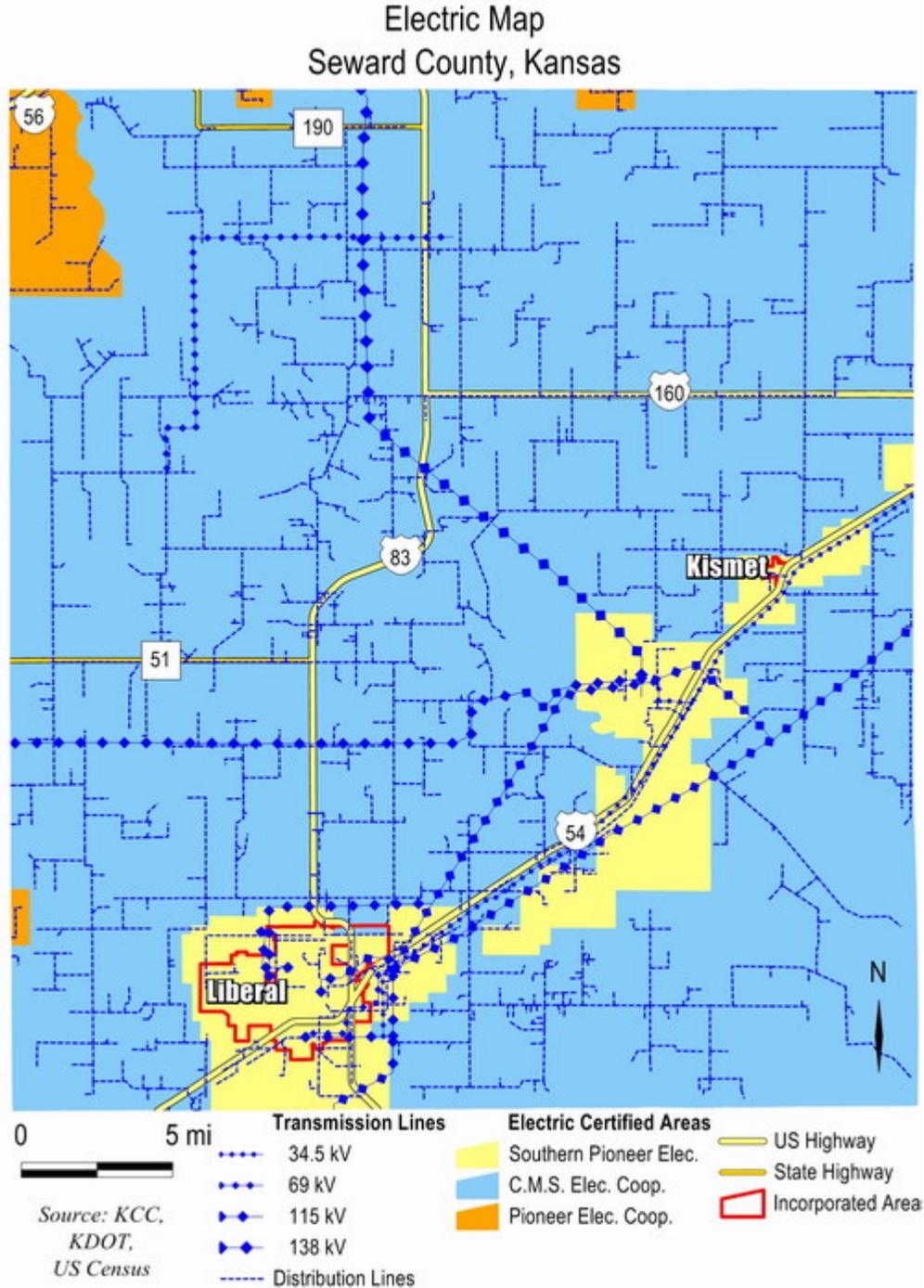
### **Rivers, lakes, streams**

The major water stream in Seward County is the Cimarron River. Though the river bears no stream flow for much of its route through Seward County, it does begin to exhibit small amounts of flow near the Arkalon area and just west of the Mighty Sampson Railroad Bridge, which is primarily due to the pumping of storm water by the City of Liberal. Numerous small farm ponds and irrigation runoff catch basins are found throughout the county. Irrigation to support farming operations has impacted the water table and contributed to the absence of routine surface water in the native intermittent streams found in Seward County. No reservoirs or state lakes are located in Seward County.

### 3.8 Utilities

#### 3.8.1 Electricity

Electricity is provided to Seward County by Pioneer Electric Coop., C.M.S. Electric Coop., and Southern Pioneer Electric.

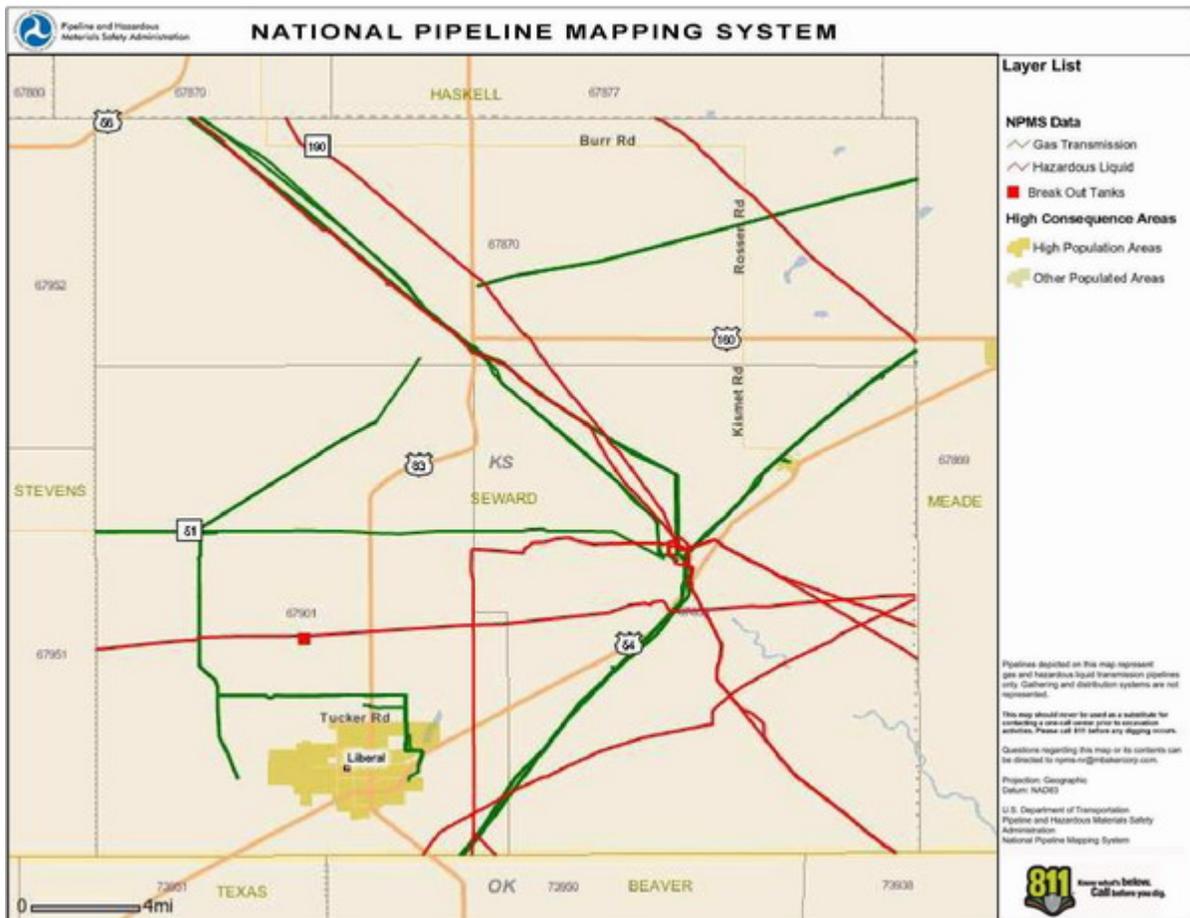


#### 3.8.2 Natural Gas

Natural Gas is provided to the county by Black Hills Corporation.

The National Pipeline Mapping System provides a comprehensive cartographic reference of pipeline sources. Pipeline systems transporting natural gas and hazardous liquid pass through Seward County. The pipeline operators within Seward County include Anadarko Petroleum Corp., Anadarko Production Co., Aquila Networks, DCP Midstream, Enterprise Products Operating LLC, Jayhawk Pipeline LLC, Northern Natural Gas Co., Oneok NGL Pipeline LP, and Panhandle Eastern Pipeline Co. The KDOT Hazardous Materials Study - Project Final Report assigned a pipeline risk factor of 0.02 to Seward County, which is below the Statewide Mean Risk Factor (0.05).

Seward County Pipeline Map



**3.8.3 Water**

Water systems in Seward County include the City of Liberal, the Rolling Hills Landowners Association, Arkalon Park, Band B Overnite Camp, KDOT Seward Co Weigh Station, The City of Kismet, The City of Liberal, National Beef Packing Co LLC, Liberal, Southwestern Heights High School, Supreme Cattle Feeders Mobile Home, Western Star RV Ranch, 4U Mobile Home Park, KDOT Cimarron River Rest Area 64505, Liberal Feeders, LP Mobile Home Park, Midway USA Truckstop, Panhandle Eastern Pipeline, with other private wells for individual consumption.

**3.8.4 Telecommunications**

Telephone service providers include Pioneer Communications, Southwestern Bell and AT&T. Cable television is supplied by Windjammer Cable. Internet providers include Windjammer Cable, AT&T, Hubris Communications, and Southwest Kansas Online.

### 3.8.5 Transportation

#### Highways

There are four federal highways and two state highways in Seward County. U.S. 56 enters the county from the northwest corner and trends southwest for 0.781 miles.

U.S. 83 enters the county from the north and trends south through Liberal before exiting the county. The total estimated highway mileage for U.S. 83 is 29.621 miles.

U.S. 54 enters the county from the east and trends southwest, passing Kismet, and going through Liberal before exiting the county. The total estimated mileage for this roadway is 26.667 miles.

U.S. 160 enters the county from the east and travels west into U.S. 83. The total estimated distance for this highway is 12.878 miles.

The total estimated mileage for U.S. highways in the county is 69.947 miles.

#### State

K 190 enters the county from the north and trends south for a short distance before changing course to the east and merging into U.S. 83. The estimated total distance for this roadway is 7.002 miles.

K 51 enters the county from the west until merging with U.S. 83, with a total estimated mileage of 7.985 miles.

The total estimated mileage for state highways in Seward County is 14.987 miles.

Numerous other secondary paved and unpaved roads crisscross the county in one-mile sections. The estimated total mileage for rural county roads in Seward County is 825.166 miles.

The total estimated mileage for federal, state, and county roads combined for Seward County is 910.1 miles.

#### **Other Modes of Transportation**

##### Railroads

The Union Pacific Railroad leases a line from Burlington Northern Santa Fe Railroad, which traverses Seward County, entering from the east and trending southwest (through both Kismet and Liberal) until exiting the county.

The total estimated mileage for the railway system is 30 miles.

##### Airports

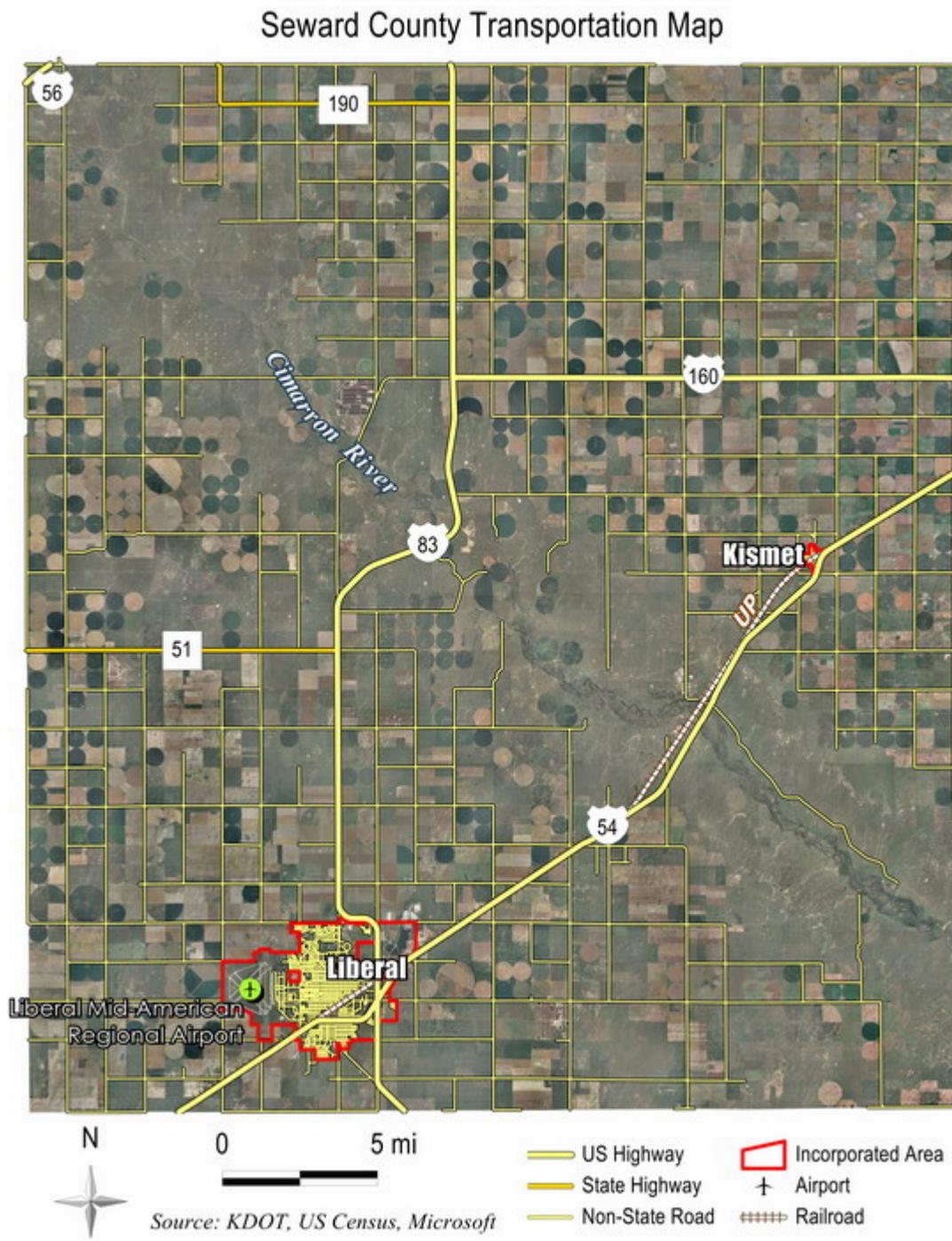
The Liberal Mid-American Regional Airport (FAA Identifier: LBL), located on the west side of Liberal, is a public airport with two concrete runways: Runway 17/35- 7105 x 100ft. / 2166 x 30m, and Runway 4/22- 5721x 150 ft. / 1744 x 46m. There are 57 aircraft, 40 single engine planes, 13 multi-engine planes, 3 jets, and 1 helicopter based at the airport. The airport averages 116 flights a day, 52% of which are transient general aviation, 40% are local general aviation, 5% commercial, 2% air taxi, and 1% military. There are nine published instrument procedures at this airport.

Other nearby airports with instrument procedures:

KHQG - Hugoton Municipal Airport (21 nm W)

KMEJ - Meade Municipal Airport (32 nm NE)

KGUY - Guymon Municipal Airport (34 nm SW)  
KULS - Ulysses Airport (39 nm NW)  
KPYX - Perryton Ochiltree County Airport (39 nm S)



## 3.9 Local Jurisdictions

### 3.9.1 Liberal (2007 Kansas Certified Population: 20,384)

Liberal is the largest city in Seward County, and also serves as the county seat. The City of Liberal's economy is largely derived from agriculture. According to the 2000 United States Census, the city has a total area of 11.2 square miles, of which 11.1 square miles of it is land and 0.1 square miles (1.25%) is water.

A brief history of Liberal: In 1872, western Kansas consisted of mile after mile of waving prairie grasslands and one large, flowing river. Settlers traveling west on the Santa Fe, Jones and Plummer, and western cattle trails simply passed through thinking this area "uninhabitable". But one undaunted man, making his way west, did stop and settle. Mr. S.S. Rogers was the first homesteader in what would later become Liberal. Outside of the Cimarron River, water was very scarce in Southwestern Kansas and there was usually a charge for even a small amount; however Mr. Rogers always gave his water free to passing travelers. Quite often he would hear a reply of "that's mighty liberal of you" from the grateful recipients. By 1885 Mr. Rogers had opened a general store and the government established an official Post Office. It seemed only natural to call the new town "LIBERAL".

As the Railroad extended its line through Seward County people became interested in the area and Liberal's growth began. In April of 1888 the plat for the present town site was created. In eight days 83 plank constructed houses were built. Within a year the population grew to 800. Drought and the opening of the Oklahoma Strip did much to decrease the population in a town whose economy was entirely dependent on crops and cattle. Although the population was low, the spirits of the remaining settlers were not. Always optimistic that something wonderful would come in the future, these hardy souls remained and made it through some of the worst years the state would see.

Because of county seat difficulties between Springfield and Fargo Springs, the Rock Island deflected its route southward and really created the town of Liberal. Originally, the survey called for the railroad to leave Plains, in Meade County, and go through the center of Springfield in central Seward County and cross at the more accessible crossing of the Cimarron River, but the townspeople of Springfield offended the construction crew and the road was changed to cross the Cimarron River at Arkalon. Upon reaching the end-of-the-line, Mr. M.A. Low ordered the surveying of a new townsite a mile east of the Rogers place, having purchased part of four sections of land there for that purpose in the center of the present day Liberal, Kansas.

The plot of the townsite of Liberal was opened April 13, 1888. During the following twenty-four hours, the sale of lots totaled \$180,000.00 of which some \$60,000 was paid in cash. Within a week there were 83 wooden constructed houses in Liberal, and within a year the boom was on, and Liberal was incorporated as a third class city. In the following years citizens moved their homes and businesses from Fargo Springs, Arkalon and Springfield to Liberal, which became the new county seat.

In 1920, gas was discovered west of Liberal on what was to become the vast Hugoton Gas Field -- the largest gas reserve in the world. In early 1951, oil was discovered southwest of Liberal. During exploration, two layers of gas production below the Hugoton Gas field were discovered, extending life expectancy of gas in this area into the next century.

According to the 2000 Census, there were 19,666 people, 6,498 households, and 4,756 families residing in the city. The population density was 1,778.4 people per square mile (686.5/km<sup>2</sup>). There were 7,014 housing units at an average density of 634.3/sq mi (244.9/km<sup>2</sup>). The racial makeup of the city was 63.56% White, 4.21% African American, 0.72% Native American, 3.25% Asian, 0.06% Pacific Islander, 24.93%

from other races, and 3.27% from two or more races. 43.29% of the population was Hispanic or Latino of any race.

There were 6,498 households out of which 42.8% had children under the age of 18 living with them, 58.0% were married couples living together, 10.4% had a female householder with no husband present, and 26.8% were non-families. 21.3% of all households were made up of individuals and 8.1% had someone living alone who was 65 years of age or older. The average household size was 2.96 and the average family size was 3.46. In the city the population was spread out with 31.7% under the age of 18, 12.1% from 18 to 24, 30.5% from 25 to 44, 16.7% from 45 to 64, and 9.1% who were 65 years of age and over. The median age was 29 years.

The median income for a household in the city was \$36,482, and the median income for a family was \$41,134. Males had a median income of \$29,315 versus \$22,017 for females. The per capita income for the city was \$15,108. About 14.3% of families and 17.7% of the population were below the poverty line, including 21.8% of those under age 18 and 7.6% of those age 65 and over. (U.S. Census Bureau)

The janitorial services industry employs the most people, with an estimated employment of 175 individuals. The next highest industries include: support activities for oil and gas operations (93 employees), and specialized freight (except used goods) trucking, local (37 employees). The census reports the most established industries to be: mining (10 establishments) and health care and social assistance (7 establishments).

The area is served by USD 480, and has seven elementary schools: Garfield Elementary, Lincoln Elementary, MacArthur Elementary, McDermott Elementary, McKinley Elementary, Southlawn Elementary, and Washington Elementary, two middle schools: Liberal South Middle School and Liberal West Middle School, and one high school: Liberal Senior High. The district also has two intermediate schools: Cottonwood and Sunflower. Private and/or parochial schools that serve Liberal include: Fellowship Baptist School.

Liberal is also home to Seward County Community College / Area Technical School, established in 1967, which reported 2,305 students in 2008, 50% of which were Seward County residents.

### **3.9.2 Kismet (2007 Kansas Certified Population: 522)**

Kismet is the smaller city in Seward County and is located 19.2 miles northeast of Liberal, the county seat. According to the United States Census Bureau, the city has a total area of 0.2 square miles (0.6 km<sup>2</sup>), all of it land.

The town of Kismet was founded in January of 1908. A.C. Olin build the first store and hotel in the town. Kismet was incorporated on December 2, 1929, with the first election held on December 17, 1929. The purpose of incorporation was so the town could sell bonds to install a water system for the residents.

As of the census of 2000, there were 484 people, 159 households, and 123 families residing in the city. The population density was 2,097.0 people per square mile (812.5/km<sup>2</sup>). There were 172 housing units at an average density of 745.2/sq mi (288.7/km<sup>2</sup>). The racial makeup of the city was 71.90% White, 1.24% African American, 0.62% Native American, 21.07% from other races, and 5.17% from two or more races. Hispanic or Latino of any race was 32.23% of the population.

There were 159 households out of which 54.7% had children under the age of 18 living with them, 66.0% were married couples living together, 7.5% had a female householder with no husband present, and 22.6% were non-families. 19.5% of all households were made up of individuals and 7.5% had someone living

alone who was 65 years of age or older. The average household size was 3.04 and the average family size was 3.51. In the city, the population was spread out with 37.8% under the age of 18, 7.9% from 18 to 24, 29.5% from 25 to 44, 17.1% from 45 to 64, and 7.6% who were 65 years of age or older. The median age was 28 years.

The median income for a household in the city was \$39,531, and the median income for a family was \$38,750. Males had a median income of \$25,729 versus \$29,583 for females. The per capita income for the city was \$15,600. About 10.5% of families and 11.2% of the population were below the poverty line, including 12.8% of those under age 18 and none of those age 65 or over.

The pesticide and other agricultural chemical manufacturing industry provides the largest number of jobs, with estimated 2005 employment of 15 individuals. Other industries in the area that provide a high number of jobs are pipeline transportation of natural gas (15 employees) and wholesale trade agents and brokers (7 employees). The three industries with the most establishments are transportation and warehousing (4 establishments), construction (3 establishments), and retail trade (2 establishments).

USD 483 serves the community of Kismet in Seward County, and also areas of Meade County. The district has one elementary school in Kismet, Kismet Elementary, and a second school in Plains, Kansas (Meade County). The junior high school, Southwestern Heights Junior High, and high school, Southwestern Heights High School are not located within the city limits of Kismet (3 miles northeast of Kismet).

### 3.10 Mitigation Capabilities

This portion of the Plan assesses Seward County’s current capacity to mitigate the effects of the natural hazards identified in Section 4.0. The assessment includes a comprehensive examination of the following local government capabilities:

- Staff & Organizational Capability
- Administrative and Technical Capability
- Policy & Program Capability
- Fiscal Capability
- Legal Authority
- Political Willpower

The purpose of conducting this capabilities assessment is to identify potential hazard mitigation opportunities available to Seward County through its operation as a local government. Careful analysis should detect any existing gaps, shortfalls or weaknesses within existing government activities that could exacerbate jurisdiction vulnerability. The assessment will also highlight the positive measures already in place or being done at the county level, which should continue to be supported and enhanced, if possible, through future mitigation efforts.

The jurisdictions participating in this multi-jurisdictional plan believe it has the capacity to stand alone and will, for most situations, execute it as such. In the cases where the jurisdiction indicates a comprehensive plan, or related planning function, this plan will be used or incorporated into that process as a reference or guiding document. As part of plan maintenance, the yearly review will examine and document the integration of the mitigation plan with other plans and planning functions. This process will also review new opportunities to incorporate and integrate the plan.

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

TABLE 3.10 (1) CAPABILITIES SUMMARY

	Emergency Coordinator	Emergency Ops Plan	Planning Dept or Planner	Floodplain Manager	Mitigation Officer	Planning Commission	Building Codes/Inspection	Zoning Ordinances	NFIP Member	Community Rating System (CRS)	Floodplain Plan per CRS	Stormwater Management Plan	Comprehensive Land Plan	Subdivision Regulation	Economic Development Plan	GIS Capabilities
Seward (UnInc.)	X	X		X		X	X	X	X				X	X	X	X
Kismet			X			X			X				X	X		
Liberal			X			X	X	X	X				X	X	X	X
Seward Co. Community College/Area Technical School																
USD 480																
USD 483																

### 3.10.1 Staff and Organizational Capability

Seward County reported that they have sufficient staff and organizational resources to implement hazard mitigation strategies.

Seward County has a part-time five-member elected commission. Commissioners are elected through voter precincts (number of voters determined through district mapping, rather than as representatives of each township). Terms on the board are four-year terms and are staggered with elections held every two years.

The county, and in many cases in coordination and support from local municipalities, has a number of professionally staffed departments and organizations to serve the residents of Seward County and to carry out day-to-day administrative activities.

These include the following:

Seward County is responsible for property tax valuation and collection in support of county operations, and the public school system. School taxes are paid to the state then re-distributed back to the county's school districts based on formula. These funds usually maintain the buildings and provide funds for other capital projects, with state funds paying salaries, purchasing textbooks and supplies.

The Board of County Commissioners is responsible for applicable local codes and land use planning through a program of inspection and permitting in conjunction with the Planning and Zoning Department. Seward County and the City of Kismet have an active joint planning commission that meets regularly on the 2nd Monday of each month.

The County Commissioners, County Clerk, Treasurer, Register of Deeds, County Attorney, and Sheriff are elected every four years.

Appointed Positions include: Activity Center, Appraiser, Emergency Manager, Emergency Medical Services, Health Department, Information Technology, Landfill, Maintenance, Road & Bridge, and Rural Fire Department.

The Seward County Cooperative Extension office seeks to help individuals, families, and communities put research-based knowledge to work to improve their lives. Kansas's Cooperative Extension is based at Kansas's land grant institution, Kansas State University, but offices are located in all 105 counties in the State.

The Seward County Public Health Department seeks to help individuals, families, and communities put research-based knowledge to work to improve their lives.

The Emergency Management office is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events. The formation of an emergency management department in each county is mandated under Kansas General Statutes.

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

Of the above-listed county departments, the following are actively involved in mitigation activities or hazard control tasks: Department of Emergency Management, Planning and Zoning Department, and the Road & Bridge Department. Each of these departments have been involved in the hazard analysis and development of mitigation planning for the county in order to identify gaps, weaknesses or opportunities

for enhancement of potential mitigation programs.

### City Government

All incorporated cities within Seward County reported that they have limited staff and organizational resources to implement hazard mitigation strategies.

The governing body of Kismet includes five elected city council members and Mayor. These council members are elected at large and serve four-year terms, which are staggered.

Liberal has a five-member elected city council, one of whom serves as mayor. The council votes each year and selects one of the 5 to serve as mayor. Council members are elected at-large, and usually serve on the board for four-year terms, which are staggered with elections held every two years.

The Board of Education for each school district (USD 480 and USD 483) is responsible for the operation of the county school system, and is also elected at large by the people.

### **3.10.2 Legal and Regulatory Capability**

In implementing a mitigation plan or specific action, a local jurisdiction may utilize any or all of the four broad types of government authority granted by the State of Kansas. The four types are defined as: (a) Regulation, (b) Acquisition, (c) Taxation, (d) Spending.

The scope of this local authority is subject to constraints, however, as all of Kansas' political subdivisions must not act without proper delegation from the state. Under a principle known as "Dillon's Rule," all power is vested in the state and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Kansas' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

#### **Regulation**

##### **General Police Power**

Kansas' local governments have been granted broad regulatory powers in their jurisdictions. Kansas General Statutes (K.A.R.) bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances).

Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities, and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard.

*Seward County (unincorporated) and the incorporated cities have enacted and enforce regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry. These ordinances are discussed in this section.*

##### **Building Codes and Building Inspection**

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through the building code.

Kansas does not have state mandatory building codes. However, municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards".

Local governments in Kansas are also empowered to carry out building inspections, and may empower cities and counties to create an inspection department to enforce construction codes and ordinances.

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

*Seward County (unincorporated) adopted building codes and inspection procedures on July 7, 2008 (Resolution No. 2008-11) as follows: 2006 editions of the International Building Code, International Residential Code, International Plumbing Code, International Mechanical Code, International Property Maintenance Code, International Existing Building Code, International Fuel Gas Code, International Fire Code, as published by the International Code Council as well as the 2008 National Electric Code (NFPA 70), and the 2003 Life Safety Codes (NFPA 101) as published by the National Fire Protection Agency.*

*The City of Liberal has adopted building codes for their community including the 1997 Uniform Codes, 1999 NEC. It was reported that these codes are scheduled for review and update in 2010.*

*The City of Kismet adopted the following updated building codes for their community September 15, 2009: the 2006 Edition of the International Building Code, International Residential Code, International Plumbing Code, International Mechanical Code, International Property Maintenance Code, International Fuel Gas Code, and International Fire Code. The 2008 National Electric Code (NFPA 70) and 2003 Life Safety Code were also adopted at this time.*

### **Planning**

In order to exercise the regulatory powers conferred by the General Statutes, local governments in Kansas are required to create or designate a planning agency. The planning agency may perform a number of duties, which include the following: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is emphasized in Kansas statutes, which require that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted “in accordance with a plan”, the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the jurisdiction.

*Seward County (unincorporated) has established a Joint Planning Commission with the City of Kismet.*

*The City of Liberal has a city Planning Board with a full-time Planner.*

### **County Ordinances**

Seward County has two ordinances that are relevant to hazard mitigation. The ordinances will be considered when developing this Plan’s Mitigation Strategy.

*Seward County (unincorporated) has established an Emergency Management Department for protection of people, property and environment within the county.*

*Seward County (unincorporated) has adopted a floodplain management ordinance (No. 91-19) on July 18, 1994, to promote the public health, safety, and general welfare; to minimize loss in special flood hazard areas (SFHAs), and to maintain the county's eligibility for participation in the National Flood Insurance Program (NFIP).*

*Seward County (unincorporated) does not have a burn ban ordinance, but they do monitor national and state weather forecasts for drought, heat wave, and lightning events. When dangerous conditions are eminent the Seward County Fire Chief requests the county commission to issue a burn ban for protection from wildfire.*

### **City Ordinances**

Kismet - has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry. These ordinances include building codes, zoning, NFIP membership, subdivision regulations, and participates in the Seward County Comprehensive Land Use Plan and Sub-division Ordinances developed by the Joint Planning Committee.

Liberal - has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry. These ordinances include building codes, zoning, NFIP membership, subdivision regulations, burn ban ordinances, and a Comprehensive Land Plan.

### **Zoning**

Zoning is the traditional and most common tool available to local governments to control the use of land. Kansas statutes grant municipalities and counties broad enabling authority to engage in zoning for land use. Counties may also regulate inside municipal jurisdiction at the request of a municipality. The statutory purpose for the grant of zoning power is to promote health, safety, morals, and the general welfare of the community. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, etc.

Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, special use districts or conditional use districts. Zoning ordinances consist of maps and written text.

*Seward County (unincorporated) enforces county-wide zoning ordinances to enhance and manage growth in their communities. Zoning regulations were adopted in January 2008 (No. 2008-03).*

*The Cities of Liberal (April 2004), and Kismet have adopted zoning regulations to control and manage growth in their communities.*

### **Subdivision Regulations**

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division and/or sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land and the specifications for structures on that land.

Broad subdivision control authority resides with the county for areas outside of municipalities and municipal extra-territorial planning jurisdictions. Subdivision is defined as all divisions of a tract or parcel of land divided into two or more lots and all divisions involving new streets. Application and approval for water meter installation play an important part in the planning process.

*A joint subdivision ordinance was adopted by both Seward County (unincorporated) and the City of Kismet (Ordinance No. 152) on March 18, 2008 to enhance and manage growth in their communities.*

*The City of Liberal adopted subdivision regulations in April of 2004.*

### **Floodplain Regulation**

In February of 1992, the Kansas General Assembly approved legislation for floodplain management (K.S.A. 12-766, entitled “Floodplain Management”) authorizing the Department of Agriculture, Division of Water Resources, as the primary department to oversee and approve local zoning regulation. The regulation requires planning and approval to prevent inappropriate development in the one hundred-year floodplain and to reduce flood hazards (Reference Kansas Statute for details).

The purpose of the law is threefold: (1) minimize the extent of floods by preventing obstructions that inhibit water flow and increase flood height and damage; (2) prevent and minimize loss of life, injuries, property damage and other losses in flood hazard areas; and (3) promote the public health, safety and welfare of citizens of Kansas in flood hazard areas. The new statute affects local governments by directing, not mandating, them to do the following: (1) manage planned growth; (2) adopt local ordinances to regulate uses in flood hazard areas; (3) enforce those ordinances; (4) grant permits for use in flood hazard areas that are consistent with the ordinance. The act also makes certain that local ordinances meet the minimum requirements of participation in the National Flood Insurance Program (NFIP).

The incentive for local governments adopting such ordinances is that they will afford their residents the ability to purchase flood insurance through the NFIP. In addition, communities with such ordinances in place will be given priority in the consideration of applications for loans and grants from the Clean Water Revolving Loan and Grant Fund. Additional points may be awarded for actions taken toward the implementation of a comprehensive land-use plan, such as the adoption of a zoning ordinance or any other measure that significantly contributes to the implementation of the comprehensive land-use plan and the flood management ordinance.

*Seward County (unincorporated) has adopted a Floodplain Management Ordinance, and currently participates in the National Flood Insurance Program. The Floodplain Ordinance requires a floodplain development permit for all proposed construction or other development, including the placement of manufactured homes in all lands identified as unnumbered A zones on the Index Map dated September 13, 1977 of the Flood Insurance Rate Map (FIRM). Permits may only be granted by the County Commission or its duly designated representative.*

*The City of Liberal adopted a Floodplain Management Ordinance in November, 1990, and currently participates in the NFIP.*

*The City of Kismet adopted floodplain regulations (Ordinance No. 160) on August 18, 2009, and was recently accepted into the regular phase of the NFIP on October 7, 2009. The acceptance letter from FEMA is provided in the Appendix.*

### **Acquisition**

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely “hazard-proofing” a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development

occurring. Kansas legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain (County Home Rule Powers, K.S.A. 19-101, 19-101a, 19-212).

*Seward County (unincorporated) and the City of Kismet have not used acquisition as a mitigation tool in the past.*

*The City of Liberal has used acquisition as a mitigation tool in the past. South of Locke Street, near Calhoun Street, The City of Liberal purchased several homes that had flooded repeatedly and built a retention pond in the late 1990's.*

### **Taxation**

The power to levy taxes and special assessments is an important tool delegated to local governments by Kansas law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas.

Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood control within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development.

Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development.

*Seward County (unincorporated) and the cities of Kismet and Liberal do levy property taxes, but do not use any preferential tax districts or special assessments for mitigation planning activities.*

### **Spending**

The fourth major power that has been delegated from the Kansas General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption of annual budgets and a Capital Improvement Plan (CIP).

A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent, especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive.

In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

*Seward County (unincorporated) utilizes capital improvement planning capabilities for growth management in the county. Currently, the program is used to support feasibility studies, micro-loan programs, and to sponsor new business development. Kismet also uses capital improvement planning capabilities for growth management in the county, such as with the Miller Addition project.*

*The Cities of Liberal and Kismet do not utilize capital improvement planning capabilities for growth management in the county.*

### **3.10.3 Program Capability**

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

#### **National Flood Insurance Program (NFIP)**

The decision on whether to join the NFIP is very important for a jurisdiction (community). There is no Federal law that requires a jurisdiction to join the program, and participation is voluntary. A benefit of participation is that the citizens are provided the opportunity to purchase flood insurance to protect themselves against flood losses. Another consideration is that a jurisdiction that has been identified by FEMA as being flood-prone and has not joined the NFIP within one year of being notified of being mapped as flood-prone will be sanctioned.

Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). To participate in the NFIP the jurisdiction must adopt and enforce floodplain management regulations that meet or exceed the minimum requirements of the program.

The jurisdiction must submit an application package that includes the following:

- The jurisdiction must make an Application for Participation in the NFIP (FEMA Form 81-64);
- The jurisdiction must adopt a Resolution of Intent, which indicates an explicit desire to participate in the NFIP and a commitment to recognize flood hazards and carry out the objectives of the program;
- The jurisdiction must adopt and submit Floodplain Management Regulations that meet or exceed the minimum flood plain management requirements of the NFIP (Title 44 of the Code of Federal Regulations (44 CFR) section 60.3);
- The jurisdiction's floodplain management regulations must be legally enforceable.

*Seward County (unincorporated) adopted a floodplain management ordinance on July 18, 1994. The resolution applies to all areas designated as Zone A on the existing FEMA Firm Maps dated September 13, 1977. No development shall be permitted, except through the issuance of a floodplain development permit through the County Commission. The Floodplain Administer is responsible for review of all applications to assure that sites are reasonably safe from flooding, and that the floodplain development permit requirements of the resolution have been satisfied before presentation to the Commission for final approval. Further floodplain identification and mapping may be required in the future to update flood maps to determine base flood elevations in the county.*

*Liberal passed a Floodplain Management Ordinance in November 1990. The majority of the properties located within the city limits of Liberal are identified as Flood Zone A on the FEMA FIRM maps for the city. Currently, sixty-five residents have flood insurance with coverage of \$6,448,400. Liberal has had thirty-two insurance claims since 1978 totaling \$30,920. The City of Liberal is committed to continued compliance in NFIP.*

*The City of Kismet passed floodplain regulations on August 18, 2009, and was admitted into the NFIP on October 7, 2009. All flood zones in Kismet are identified as Zone A. As of the writing of this plan, Kismet has no insurance policies or claim histories with the NFIP. Kismet is committed to continued participation and compliance with the National Flood Insurance Program.*

*Unified School Districts 480 and 483 reported that their schools are not located within a floodplain and do not currently have flood insurance for their facilities.*

*Seward County and the City of Liberal are committed to continued participation and compliance with the National Flood Insurance Program (NFIP). Specific Actions that were identified in support of the NFIP are provided in Section 5.2 - Mitigation Actions.*

### **Community Rating System Activities (CRS)**

Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally backed flood insurance policies available for properties in the jurisdiction. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging jurisdiction floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes. Class 1 requires the most credit points and earns the largest premium reduction, while Class 10 receives no premium reduction. It is a long process to become a participating CRS community, taking almost one year from application to acceptance. New CRS communities are admitted only on October 1 and May 1 of each year.

*Seward County (unincorporated) and the cities of Kismet and Liberal do not participate in the CRS program.*

### **Recent Hazard Mitigation Efforts**

Seward County submitted four hazard pre-applications on November 24, 2007, to the Kansas Department of Emergency Management requesting grant funding for installation of safe rooms for the following locations.

Liberal Fire Station located at 15th and N. Grant

Liberal Fire Station located at 517 N. Washington

Seward County Courthouse located at 415 N. Washington

Seward County Administration Building located at 515 N. Washington

These actions have been included in Section 5.2.

**Emergency Operations Plan**

Seward County has developed and adopted an Emergency Operations Plan that pre-determines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. This plan was developed according to the requirements of the Kansas Planning Standard which incorporates federal requirements in place at the time of development. The plan was originally adopted in May of 2005 and was last updated to meet current state and federal standards in August of 2007. For the most part, the plan describes the county's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster.

*The plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the county to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Seward County's Emergency Operations Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). In addition, where appropriate, information is exchanged during the update of either plan.*

*The incorporated cities within Seward County are not designated as "jurisdictions" as defined by the State of Kansas and therefore have not developed and adopted an Emergency Operations Plan. The cities rely on the Seward County Emergency Operations Plan in the event of an emergency or disaster event.*

**Comprehensive Land Use Plan**

A Comprehensive Land Use Plan is designed with the goal of balancing environmental protection with economic development in all areas of the jurisdiction. This plan coupled with various other planning efforts provides resources to local leaders to establish policies to guide the development of the community. Annexation, expansion, and building projects are generally guided by these documents.

*Seward County (unincorporated) and the City of Kismet have developed and adopted a Joint Comprehensive Land Use Plan for their communities. The Comprehensive Land Use Plan does not address power of acquisition.*

*The City of Liberal implemented a Comprehensive Land Plan in 2002.*

*Seward County (unincorporated) and the City of Liberal support the National Flood Insurance Program.*

*Seward County (unincorporated) and the incorporated cities support the use of best management practice recommendations of the United States Soil Conservation Service.*

**Floodplain Management Plan**

A Floodplain Management Plan (FMP) is a future-oriented approach to planning in flood risk areas. It's a pre-disaster planning approach that is required by the Federal Emergency Management Agency (FEMA) to continue to participate in the National Flood Insurance Program's Community Rating System (CRS).

*Seward County (unincorporated) and the cities of Liberal and Kismet do not currently have floodplain management plans for purposes of the National Flood Insurance Program's Community Rating System (CRS). However, this Hazard Mitigation Plan is intended to fulfill the CRS planning requirement when it becomes adopted, and will be maintained as such.*

**Stormwater Management Plan**

The purpose of the Stormwater Management Plan is to comprehensively address how to meet the many different but related regulations, adopted plans and programs, and policies that affect urban stormwater, flooding and associated water-dependent resources.

*Seward County (unincorporated) and the cities of Liberal and Kismet have not adopted stormwater management plans but do apply stormwater management provisions through their subdivision regulations.*

### 3.10.4 Fiscal Capability

Seward County (unincorporated) has reported that they have limited fiscal capability to implement hazard mitigation strategies due to general economic, environmental, and budget pressures on the county. For fiscal year 2007, Seward County's adopted budgeted expenditures were \$22,709,928. The majority of these funds are obligated to basic county support services, human services and education. Seward County receives 34% of its revenues through Ad Valorem taxes with the remaining revenues coming from various other sources.

It is possible, with advance planning, that Seward County could afford to provide the local match for the existing hazard mitigation grant programs if the State of Kansas did not do so itself. However, the current revenue shortfalls at both the state and local government level in Kansas, and the apparent increased reliance on local accountability by the federal government, are a significant and growing concern for Seward County.

Kismet has reported that they have very limited fiscal capability to implement hazard mitigation strategies due to the general economic, environment, and budget pressures in the city. For fiscal year 2008, Kismet adopted budgeted expenditures were \$444,948. The majority of these funds are obligated to basic support services, with 30% of the revenue coming from Ad Valorem taxes. Kismet reported that they could not provide the local match for the current hazard mitigation grant program.

Liberal has reported that they have limited fiscal capability to implement hazard mitigation strategies due to the general economic, environment, and budget pressures in the city. For fiscal year 2008, Liberal's adopted budgeted expenditures were \$30,577,991. The majority of these funds are obligated to basic support services and human services, with 14.44% of the revenue coming from Ad Valorem taxes. Liberal estimates that it could provide the local match for the current hazard mitigation grant program.

USD 480 is funded through local taxation. Seward County is responsible for property tax valuation and collection in support of operation of the public school system based on public education levy. Taxes are paid to the state then re-distributed back to the county's school districts based on state formula. These funds are generally used for building maintenance, capital projects, salaries, and purchasing textbooks and supplies. The operating budget for the district in 2008 was \$42,000,000. USD 480 estimates that it could afford to provide the local match for the existing hazard mitigation grant programs through bond issues.

USD 483 is funded through local taxation. Seward County is responsible for property tax valuation and collection in support of operation of the public school system based on public education levy. Taxes are paid to the state then re-distributed back to the county's school districts based on state formula. These funds are generally used for building maintenance, capital projects, salaries, and purchasing textbooks and supplies. The operating budget for the district in 2008 was \$8,000,000. USD 483 estimates that it could afford to provide the local match for the existing hazard mitigation grant programs through bond issues.

#### **Small Impoverished Community Criteria**

Under the Disaster Mitigation Act of 2000, FEMA has made special accommodations for "small and impoverished communities", who will be eligible for a 90% Federal share, 10% non-Federal cost split for projects funded through the Pre-Disaster Mitigation Grant Program. The community must meet all of the following criteria:

- Must be a community of 3,000 or fewer individuals that is identified by the state as a rural community, and is not a remote area within the corporate boundaries of a larger city;
- Must be economically disadvantaged, with residents having an average per capita annual income not exceeding 80 percent of the national per capita income, based on best available data;
- Must have a local unemployment rate that exceeds by one percentage point or more the most recently reported, average yearly national unemployment rate;

- Must meet any other factors as determined by the state/Indian tribe/territory in which the community is located.

Each jurisdiction should consider potential eligibility under these criteria when developing project grant applications and funding alternatives.

### **3.10.5 Political Willpower**

Many Seward County residents are becoming more knowledgeable about the potential hazards that their jurisdiction faces, and in recent years, they have become more familiar with the practices and principles of mitigation. With the exception of Liberal City the county is sparse in population density with a small tax base; their continued participation in the National Flood Insurance Program, in conjunction with the adoption of Building Codes, a Floodplain Management Ordinance, Comprehensive Land Plan, Zoning Regulations, Subdivision Regulations, and recent updating of the county Emergency Operations Plan (EOP), provides some insight into the community's desire to comply with mitigation policy and procedure. It is strongly believed that such tangible changes within the community have created a greater sense of awareness among local residents, and that hazard mitigation is a concept that they are beginning to readily accept and support.

These facts, coupled with Seward County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

## 4.0 Risk Assessment

This risk assessment identifies the natural hazards affecting Seward County. It provides information on the history and severity of hazards, evaluates the possible effects, identifies vulnerable populations and assets (buildings, critical facilities and essential infrastructure), and estimates potential losses that might occur. This risk assessment process identifies the most critical problems and issues--identified as "high" and "moderate"--that require mitigation actions. In summary, the assessment identifies the hazards, assigns a likelihood value, evaluates vulnerability, and then calculates an overall risk index value.

The goal of risk analysis is to formulate an assessment of the probability of occurrence for a hazardous event in tandem with its anticipated severity. Probability or likelihood of occurrence is expressed in terms of events over time. Probability of occurrence is determined from actual historical data when available. Otherwise, it may be described in relative terms (negligible, low, moderate, and high). Severity is expressed in relative terms of damage, injury, and overall residual impact resulting from the event. Severity is determined from utilizing established rating systems (e.g., National Fire Protection Association (NFPA) Material Factors, Fujita Scale, Mercalli/Richter Scale, etc.) or may be derived from subjective criteria based on justifiable assumptions. Worst-case scenarios can be assumed. Elaborate quantitative release probabilities are generally not required. Risk analysis should focus on creating reasonable estimates based on the best available data.

Primary components:

- Probability that a release will occur and any unusual environmental conditions, such as floodplain areas, seismic activity, or potential for simultaneous occurrence of emergency incidents (e.g., flooding or fire hazards associated with the release of hazardous materials).
- Classification of potential harm to humans (acute, delayed, chronic) and identification of high-risk groups.
- Classification of potential harm and damage to commercial livestock (when applicable).
- Classification of potential damage to property (temporary, repairable, permanent).
- Classification of potential damage to the environment (recoverable, permanent).

## 4.1 Identification of Hazards

### State Hazards Review

When considering the hazards identified for Seward County, the State Mitigation Plan was referenced as a comparison to the identified county hazards. The hazards identified on the State list were compared/eliminated based on the county-specific hazard analysis.

TABLE 4.1 (1) STATE OF KANSAS HAZARDS LIST (Alphabetically)

Agricultural Infestation	Dam and Levee Failure	Drought
Earthquake	Expansive soils	Extreme Temperatures
Flood	Fog	Hailstorm
Hazardous Materials	Land Subsidence	Lightning
Major Disease Outbreak	Radiological	Soil Erosion and Dust
Terrorism/Agri-Terrorism/Civil Disorder	Tornado	Utility/Infrastructure Failure
Wildfire	Windstorm	Winter Storm

The state, county, and local plans do not address the State Listed Hazards in Table 4.1 (2) because they do

not exist or threaten the jurisdictions of Kansas. As an example, the topography of Kansas does not contain mountainous areas which would support the possibility of avalanche; the county is not adjacent to a coastline.

TABLE 4.1 (2) NON-PROFILED HAZARDS

*Thunderstorm
Avalanche
Coastal Erosion
Coastal Storm
Hurricane
Tsunami
Volcano

\*NOTE: Thunderstorm, as a specific event, is not included in this analysis. Thunderstorms are common occurrences in Seward County, but are considered low-risk due to their typical weak intensity. However, this plan does address the more significant and severe effects of thunderstorms (i.e., severe thunderstorms can include lightning, hail, flood, and tornadoes, which can co-exist with microbursts) as stand-alone events in this report.

The jurisdictions comprising this plan have chosen to use the 58 years of data available from NOAA’s National Weather Service (NWS) in order to identify hazards which have had an impact on a local basis. The advantage to using this database is that it provides location, extent, and probability for documented and reported events over the 58 year period. The intent is to compare the hazards to the State Hazard list and then to apply extent and probability in order to prioritize and rank the hazards.

It should be recognized that the NOAA data for the overall multi-jurisdictional area did not document or report events for the following state listed hazards. The MPC found no local data to document or report on these hazards; estimated the overall probability as low; or found that they are covered by other circumstances or plans as noted below. Consequently, the MPC eliminated them as hazards to address in the plan.

Agricultural Infestation - The MPC found no jurisdiction specific data to support this hazard as a High or Moderate type. Generally, local infestations are mitigated by the land owner with limited other assistance. Livestock related infestation would be covered by the County Foreign Animal Disease Plan.

Drought - NOAA data for Drought matches this hazard and is addressed as such in the plan.

Soil Erosion and Dust – No documented or reported significant events. Related crop or agro damage was found to be covered by private insurance.

Expansive soils; Land Subsidence - The MPC found no jurisdiction specific data to support this hazard as a High or Moderate type. Geology would not indicate a significant issue.

Extreme Temperatures and Excessive Heat – The MPC found no jurisdiction specific data to support these hazards as High or Moderate.

Fog - The MPC found no jurisdiction specific data to support this hazard as a High or Moderate type.

Flood, Flash Flood, Heavy Rain, and Urban Flood are classified as Flood for planning purposes.

Hazardous Materials – The MPC found that this potential hazard is addressed by the County Local Emergency Operations Plan (LEOP) and other requirements of SARA Title III. Preparation, mitigation, and funding are addressed by the LEOP.

Lightning - NOAA data for TSTM (Thunderstorm) Wind has been matched to this hazard and is addressed in the plan as such.

Major Disease Outbreak – The MPC found that this potential hazard is addressed by the County Public Health Plan (CPHP) and its continuing development. Preparation, mitigation, and funding is addressed by the CPHP.

Radiological - No documented or reported significant events. No reported facilities in the jurisdictions with reportable quantities per SARA Title III. This hazard would also be addressed as part of the Local Emergency Operations plan when identified.

Windstorm - NOAA data for High Wind has been matched to this hazard and is addressed in the plan as such.

NOAA also documents and reports several other potential hazards in a more detailed fashion. This would include TSTM Wind, High Wind, Blizzard, Ice Storm, Heavy Snow, Extreme Windchill, and Winter Storm. After reviewing the NOAA definitions, the MPC elected to address TSTM Wind and High Wind as TSTM Wind; and to address Winter Storm, Blizzard, Ice Storm, Extreme Windchill, and Heavy Snow as Winter Storm. Where provided, the table data for all is listed for informational purposes and future planning consideration.

Please note the following with regard to the following Tables and Figures:

- Magnitude classifications for tornadoes are based upon the accepted intensity scales for each. Other hazards are classified by their maximum potential severity or as otherwise deemed appropriate.
- The following tables illustrate the results from applying the risk-rating algorithm for analysis and hazard profile, and form the basis of risk for each type of potential hazard event identified in Seward County.
- The hazards Dam/Levee, Terrorism/Agri-Terrorism/Civil Disorder, and Utility Failure are State mandated hazards which must be considered and addressed in all Kansas plans. Table 4.1 (3) indicates no documented or reported events in the NOAA database. Any documentation of events outside this database will be discussed in the Hazard Profile. Since the MPC has elected to address only hazards ranked as High and Moderate, these hazards were given a Risk Rating of 1, which would cause them to rank in the Moderate category. This will also incorporate the hazards into the review process over the next five years.

TABLE 4.1 (3) SEWARD COUNTY RISK RATING

Event	# Events	# Years	Likelihood (Li)	Severity Index (Avg)	Severity Rating	Risk Rating				
			Events/ Years	M	D	I	Pd	Cd	Sr=M+D+ I+Pd+Cd	R=(Sr) x (L)
Hail	265	50	5.30	2	0.5	0.5	1	0.5	4.5	23.85
Winter Storm	42	15	2.80	3.5	2	0.5	1	0.5	7.5	21.00
* Wildfire	302	52	5.81	0.5	0.5	0.5	0	1	2.5	14.52
TSTM Wind	123	52	2.37	1	0.5	0.5	1.5	0.5	4	9.46
Flood	10	15	0.67	2.5	0.5	0.5	2	0.5	6	4.00
Tornado	31	57	0.54	1	0.5	0.5	2	2	6	3.26
Drought	2	15	0.13	4	0.5	0.5	0.5	4	9.5	1.26
(M) Terrorism / AT / CD	0	0	0.00	0	0	0	0	0	0	1.00
(M) Dam/Levee	0	0	0.00	0	0	0	0	0	0	1.00
(M) Utility Failure	0	0	0.00	0	0	0	0	0	0	1.00
** Earthquake	25	110	0.23	1	0.5	0.5	0.5	0.5	2.5	0.68

## Table Footnotes:

\*Reported events and likelihood estimates are based on averages from wildfire exponential smoothing of Kansas Fire Marshal data.

\*\*Reported events and likelihood estimates are based on KSGS data for earthquake, and include an analysis for the State average of occurrences.

(M) = State-mandated planning hazard. (Dam data is provided by the State of Kansas Department of Agriculture-Water Resources, and provides dam “classifications” based on potential downstream damage, and is not an evaluation of dam condition or determination of “likelihood”.)

## 4.2 Risk and Vulnerability

Due to the limitations of capabilities, discussed in other sections, and the overall desire to focus on the key hazards, the participating jurisdictions chose to rank or prioritize the local hazards. As most jurisdictions are just beginning the overall mitigation planning process and are cognizant of the need to focus the available time and effort, the following methods were used to produce the overall priority rankings of the local hazards. Each year the jurisdictions will review and update its available resources and evaluate the benefit of including low or negligible hazards.

The availability of detailed, consistent, and reliable data provided by the National Climatic Data Center (NCDC) allows the calculation of relative risk values for natural weather events. A standardized set of data is routinely tracked by the NCDC for an established inventory of individual natural hazard types. NCDC has tracked this type of data for over 58 years, and has set the standard for developing likelihood and severity for damage events. For this reason, a similar algorithm has been established for other hazards identified in this plan to formulate a hazard risk rating to normalize risk comparison.

The columns in Table 4.1 (3) record information regarding the frequency, and impact (or strength) of the particular natural event and include the following:

- Likelihood (occurrences over time)
- Magnitude (in terms of Fujita Scale, hail diameter, or wind speed)
- Deaths
- Injuries
- Property damage
- Crop damage

This information provides the basis for establishing likelihood and severity ratings. The rate of occurrence is established from the data record time interval and the number of events recorded. These primary factors of severity and likelihood of occurrence provide the basis for calculating hazard risk.

As published in "Hazard Identification and Risk Assessment" by Geoff Wells (copyright 1996), a reasonable determination of risk may be obtained through the combined calculation of measured severity and the likelihood of occurrence for any particular hazard. Risk Rating can then be defined in the following equation:

$$\text{Risk Rating (RR)} = \text{Severity Index (Si)} \times \text{Likelihood of Occurrence (Li)}$$

Risk Ratings were calculated for individual weather events and are presented in column 10 of Table 4.1 (3) – Seward County Risk Rating. This table combines the categories of likelihood and vulnerability to obtain the risk rating for each potential hazard.

The following table and figures have been completed to provide a summary of hazard events analysis, and present a broad profile of each hazard relative to one another. Determining the risk rating establishes a numeric ranking for each hazard relative to one another. The risk-rating process is then simplified into the risk index, Table 4.3 (1), which leads to conclusions on hazard risk and forms a basis for prioritizing future mitigation efforts as outlined in this plan.

The columns for Table 4.1 (3) are defined per the following two Figures. These assigned values are taken directly from the NWS data and allow for a direct calculation of overall risk by providing severity and likelihood.

The column labeled Severity Rating, or M, in Table 4.1 (3) is defined by Figure 4.2 (1) which is itself

titled Event Magnitude Ratings (M) for natural events. Each event has been assigned a severity rating for magnitude based on the probable impact of the event. Gradational rating systems were employed to allow a more precise determination of magnitude. Where possible, gradational rating systems were developed from widely accepted rating systems currently in use. Gradational rating systems have been established for the following natural events: hail, wind, seismic, and wildfire. Magnitudes for hail events were developed from an assessment of the NCDC severe weather event database and are based on hailstone diameter. Magnitudes for tornado and high wind events are drawn directly from the Fujita Scale and are based on wind speed ranges. Magnitudes for seismic events were assigned relative to the Modified Mercalli Index Rating System which establishes earthquake magnitudes relative to damage thresholds. Magnitudes for wildfire events were generated through an assessment of the State Fire Marshal's Office database and are based on financial loss in terms of appraised value per acre burned.

The columns labeled (D) Death, (I) Injury, (Pd) Property Damage, and (Cd) Crop Damage in Table 4.1 (3) are defined by Figure 4.2 (2) Severity Ratings. All of these categories are common parameters to natural events and are typically captured when recording and reporting natural event data. Death and injury indices are measured in terms of population impacted. Property and crop damage indices are measured in terms of financial loss (dollars). The gradational rating system for population and assets severity indices was established through evaluation of severity categories published in the Geoff Wells text, "Hazard Identification and Risk Assessment" (1996). These values are assigned based on the parameters listed in the body of the matrix, which is in the last column.

Table 4.1 (3) uses all this data to calculate the Likelihood, and a total Severity value, and then uses the formula of Likelihood X Severity = Risk to produce a risk or vulnerability value for each local hazard.

The data in images 4.2 (1) and 4.2 (2) are either NOAA provided ratings or calculated ratings.

FIGURE 4.2 (1) MAGNITUDE RATINGS

Event Magnitude Ratings (M)								
Weather Event	Criteria	Assigned Values					Ratings	
		0.5	1	2	3	4		5
Drought						X	4	
Earthquake (MMI)	IV	X					0.5	
Earthquake (MMI)	V		X				1	
Earthquake (MMI)	VI - VII			X			2	
Earthquake (MMI)	VIII				X		3	
Earthquake (MMI)	IX - X					X	4	
Earthquake (MMI)	XI						X	5
Flood						X	4	
Hail	<0.75 inch dia	X					0.5	
Hail	> 0.75 to 1.0 inch dia		X				1	
Hail	> 1.0 to 1.25 inch dia			X			2	
Hail	> 1.25 to 1.5 inch dia				X		3	
Hail	> 1.5 to 2.0 inch dia					X	4	
Hail	> 2.0 inch dia						X	5
Tornado (F0)	65 - 85 MPH	X					0.5	
Tornado (F1)	86 - 110 MPH		X				1	
Tornado (F2)	111 - 135 MPH			X			2	
Tornado (F3)	136 - 165 MPH				X		3	
Tornado (F4)	166 - 200 MPH					X	4	
Tornado (F5)	> 200 MPH						X	5
TSTM/Tstorm Wind(s)	40 - 72 MPH (35-62 knots)	X					0.5	
TSTM/Tstorm Wind(s)	73 - 112 MPH (63-97 knots)		X				1	
TSTM/Tstorm Wind(s)	113 - 157 MPH (98-136 knots)			X			2	
Wild / Forest Fire	<= 1000	X					0.5	
Wild / Forest Fire	> 1000 - 2000		X				1	
Wild / Forest Fire	> 2000 - 3000			X			2	
Wild / Forest Fire	> 3000 - 4000				X		3	
Wild / Forest Fire	> 4000 - 5000					X	4	
Wild / Forest Fire	> 5000						X	5
Winter Storm				X			2	

The 3 hazards: Dam/Levee, Terrorism/AT/CD, and Utility Failure are mandated hazards. Each is assigned a Rating of 1.

FIGURE 4.2 (2) SEVERITY RATINGS

Parameter	Severity Ratings for People and Assets					
	0.5	1	2	3	4	5
Death (D)	0	1	>1 - 5	>5 - 10	>10 - 50	>50
Injury (I)	1	>1 - 10	>10 - 50	>50 - 100	>100 - 500	>500
Property Damage (Pd)	< 10K	>10K - 100K	>100K - 1M	>1M - 10M	>10M - 100M	>100M
Crop Damage (Cd)	< 10K	>10K - 100K	>100K - 1M	>1M - 10M	>10M - 100M	>100M

### 4.2.1 Likelihood of Occurrence

The data record time interval is determined from the difference between the beginning and ending dates of the record inventory. For natural hazard data, the data record time varies from approximately 15 years to 58 years. (EFM updates its overall NCDC database every three years.) Table 4.1(3) provides the data record time in the “#Years” column. The total number of individual weather events can be extracted from the inventory of data. Given this information, likelihood of occurrence (in units of events/year) for a particular weather event is calculated as the quotient of the number of weather events as the numerator and data record time interval as the denominator. Similar data is extrapolated for other hazards.

Likelihood of Occurrence (Li) = Number of Events / data record time interval (years).

Risk ratings for other types of hazards may be determined on the availability of historical frequency data and a subjective assessment of predicted severity.

E-Fm updates the national weather data on a three-year basis. In some cases the reported number of hazard events in E-Fm's Risk Rating Table may vary from data found on the NCDC Storm Event Reporting Tool.

The NCDC also reports certain types of storm events, such as blizzards, in regions or "zones", and as a consequence does not attribute certain hazard events to individual counties. To increase the accuracy of individual county event reporting, E-Fm's algorithm adjusts for the zone factor and attributes the events to each county that is included in the zone.

#### 4.2.2 Severity Rating

Severity rating tables were established for each of the standard data categories tracked by the NCDC and assigned a lower limit of 0.5 and an upper limit of 5.0. From these tables, severity ratings were derived for each of the possible natural events. The severity ratings are identified as follows:

- Magnitude Sr (M)
- Death Sr (D)
- Injury Sr (I)
- Property damage Sr (Pd)
- Crop damage Sr (Cd)

The Severity (check this for error) Index (Si) for a particular event (Column 9 in Table 4.1 (3)) is calculated as the sum of the five individual Severity ratings (Sr)).

#### 4.2.3 Other Likelihood and Severity Values

##### Kansas Wildfire Risk Rating Procedure

The State Fire Marshal's Office has required counties to formally report wild/rangeland fires since 1997. A summary of the database, by county, was provided to E-Fm for use in developing a severity and risk rating for this hazard event. Relatively little historical data was available, making a comparative analysis to other hazard events difficult. It was necessary to develop an events/time baseline for comparison of wildfire to other reported hazard events. To obtain the desired results, the consultant normalized existing data to more closely resemble reporting patterns found in the NCDC database, and expands the time element of the wildfire reporting data. Our target was to predict data for the time period of approximately 1950 to 2002.

The Plan Author compiled a state-wide database from all reported NCDC weather events since 1950 to develop the annual reporting events for the State of Kansas. This data was then sorted by year and analyzed utilizing exponential smoothing of the data. This is an accepted methodology to produce a smoothed Time Series. Comparatively, in single moving averages, the past observations are weighted equally, exponential smoothing assigns exponentially decreasing weights as the observations get older. In other words, recent observations are given relatively more weight in forecasting than the older observations. Based on the review of weather data, the assumption that wildfire reporting would follow a similar pattern was adopted.

In the case of moving averages, the weights assigned to the observations are the same and are equal to  $1/N$ . In exponential smoothing, however, there are one or more smoothing parameters to be determined (or estimated) and these choices determine the weights assigned to the observations. For this analysis, 0.25 was used as the damping factor to eliminate unwanted cyclical and irregular variations. The result was a representative curve which could be used to predict past reporting of wildfire data.

The seven years of county data was averaged and used as the maximum value on the curve. The exponential curve was applied using this maximum value and individual yearly data were produced. This process provided a longer reporting period which effectively lowered the overall likelihood value and placed the risk rating for wildfires in a more usable range.

For more information regarding risk and vulnerability analysis reference Seward County's Hazard Analysis.

#### Seismic Risk Rating

Advances in technology, coupled with numerous federal, state and local research institutions have increased our awareness and understanding of seismic events through monitoring and tracking seismic activity across the country. There are two generally accepted methods for measuring the strength of a seismic event. The Richter scale is the most common method used by seismologists to quantify the "magnitude" of an earthquake. The Modified Mercalli Index (MMI) provides a semi-quantitative method for expressing earthquake "intensity" and is based on the type and amount of damage caused by the earthquake and the observations of people within the area where the activity is felt. By comparative conversion of the Richter and Mercalli measurements, in conjunction with past-recorded events and the seismic zone rating map of the United States, it possible to develop relative probability of occurrence for seismic events in tandem with its anticipated severity.

An objective assessment of this information will be made to determine the best available data for risk calculation. Likelihood of Occurrence will be measured in units of events/year. In cases where local or regional data is unavailable, state averages for occurrence frequencies will be used. Risk ratings for other hazards may be based on the availability of historical frequency data and a subjective assessment of predicted severity. Seismic event (earthquake) likelihood is based on statewide recorded events across a database timeframe of approximately 110 years.

### 4.3 Risk and Vulnerability Index

In order to accomplish the final relative priority ranking, a statistical analysis of the Risk Ranking values was undertaken for a representative number of values from across the state. The analysis was used to produce quadrants which could be used to identify the highest ranking through the lowest ranking hazards. The graphing of the data produced the normal curve of values and the three interior break points (changes in the slope of the curve) were identified. The analysis suggested the following values as dividing lines to form four ranking quadrants. The jurisdictions agreed to use the following definitions based on the Risk Ranking value analysis.

- High Risk = 5.0 or greater
- Moderate Risk = 1.00 to 5.0
- Low Risk = 0.76 - 0.99
- Negligible Risk = less than 0.75

Risk Index: reference the methodology section for greater detail in development of hazard risk-ratings for the identified hazards. For ease of interpretation in this format the Hazard Risk Index Ratings are based on either:

- 1 = "High Risk"
- 2 = "Moderate Risk"
- 3 = "Low Risk"
- 4 = "Negligible"

TABLE 4.3 (1) SEWARD HAZARD RISK INDEX

Hazard	Relative Risk Rating	Hazard Risk Index Rating
Hail	23.85	1
Winter Storm	21	1
Wildfire	14.52	1
TSTM Wind	9.46	1
Flood	4	2
Tornado	3.26	2
Drought	1.26	2
Terrorism / AT / CD	1	2
Dam/Levee	1	2
Utility Failure	1	2
Earthquake	0.68	4

Table Footnote: M - State Mandated

#### 4.3.1 Seward County Hazards Index

In many cases, the hazards common to the State Plan and Seward County's hazard assessment were determined to be low or negligible risk, and as a consequence, are not included as primary planning risks for the county. The focus of this mitigation plan is natural hazards, and also includes State-required planning hazards for Terrorism/Agri-terrorism/Civil Disorder, and Dams/Levees planning requirements.

Seward County, Kansas, is faced with the following prioritized hazards and potential hazardous events. For the purposes of this planning event, Seward County has elected to only address the hazards classified as "High" and "Moderate", based on severity and frequency of occurrence. The results are presented in the following table:

Table 4.3.1 (1) NATURAL HAZARDS PRIORITIZATION (High, Moderate, Low, Negligible)

High Risk	Moderate Risk	Low Risk	Negligible Risk
Hail	Flood		Earthquake
Winter Storm	Tornado		
Wildfire	Drought		
TSTM Wind	Terrorism / AT / CD		
	Dam/Levee		
	Utility Failure		

### 4.3.2 Conclusions on Hazard Risk

Based upon the completion of the hazard identification and analysis, hazards of significance have been classified as “high” or “moderate”. A majority of these hazards impact the entire county and are considered multijurisdictional hazards. FEMA and the State of Kansas have further delineated Terrorism/Agri-Terrorism/Civil Disorder, Dams/Levees, and Wildfire as hazards that vary across the planning area, and will be addressed as such in this plan. These classifications will be used as a basis for concentrating and prioritizing current and future mitigation efforts.

A summary of hazards is provided in Table 4.3.2 (1) for jurisdictions included in the Seward County Plan.

TABLE 4.3.2 (1) SEWARD COUNTY HAZARDS SUMMARY

	Dam / Levee	Drought	Flood	Hail	Terrorism / AT / CD	Tornado	TSTM Wind	Utility Failure	Wildfire	Winter Storm
Seward (UnInc.)	X	X	X	X	X	X	X	X	X	X
Kismet		X	X	X	X	X	X	X	X	X
Liberal		X	X	X	X	X	X	X		X
Seward Co. Community College/Area Technical School		X		X	X	X	X	X		X
USD 480		X	X	X	X	X	X	X		X
USD 483		X		X	X	X	X	X		X

### 4.4 Moderate / High Hazard Profiles

A descriptive analysis follows with the general hazard profile, history and jurisdiction impacts, location and extents, and probability of occurrence for the significant hazards identified in Seward County. Historical records are used to help identify the level of risk, with the methodological assumption that the data sources cited are reliable and accurate.

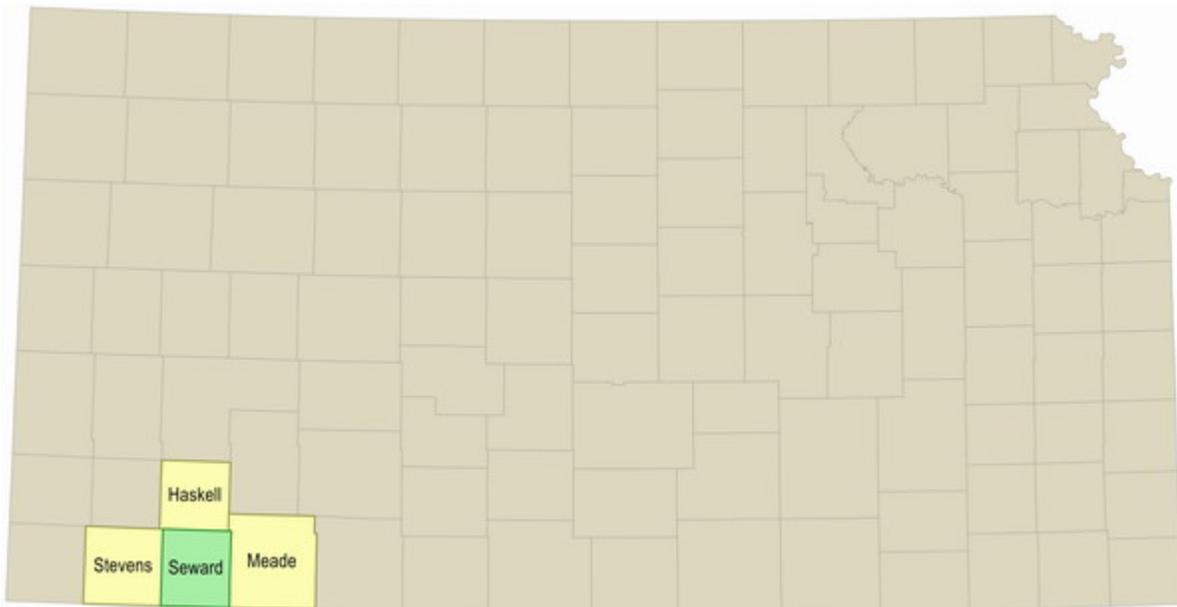
Due to its unique geographical setting, Seward County is vulnerable to a wide array of natural and manmade phenomena that pose a threat to life and property. This multi-jurisdictional mitigation plan is developed to address only the High and Moderate hazards classified in the hazard/risk assessment. Other hazards identified during the assessment which were classified as “Low” or “Negligible” were statistically eliminated from priority planning based on the probability (likelihood) and vulnerability (severity) of these hazard events.

#### Seward County Profiles

Some hazards common to the State Plan and Seward County's hazard assessment were determined to be low or negligible risk, and as a consequence, are not included as primary planning risks for the county. The focus of this mitigation plan is natural hazards, and also includes FEMA and State required planning hazards for Flood, Terrorism/Agri-terrorism/Civil Disorder, and Dams/Levees planning requirements.

In some instances, local jurisdictions have identified unique hazards not identified at the county level. These hazards are profiled by the specific jurisdiction.

Seward County and Surrounding Counties



## 4.4.1 MultiJurisdictional Hazard Profiles

## Utility Failure

### Hazard Profile

The concept of “cascading hazards” relates to the propensity of a primary or source hazard to spawn or generate additional hazards, commonly known as cascading hazards. On the first level, primary hazards can bring about secondary hazards. Subsequently, secondary hazards may escalate into tertiary hazards and so forth. The extent of cascading hazards is potentially limitless.

Power failure can be defined as any interruption or loss of electrical service due to disruption of power transmission caused by natural hazards (weather events), accident, sabotage, or equipment failure. A significant power failure is defined as power incident which would require the involvement of the local and/or state emergency management organizations to coordinate provision of food, water, heating, shelter, etc. Typically, a power outage is a cascading effect of a larger natural hazard.

In terms of electric power, Seward County is serviced by Southern Pioneer Electric, CMS Electric Cooperative, Inc., and Pioneer Electric Cooperative Inc.

This disaster deals with the loss of electric power supplied by the local utility providers for potential loss of electricity during severe storms, or ice accumulation on lines causing large areas of power outages within Seward County.

Additionally, this disaster could also cover very high levels of power usage during a severe heat wave that causes a utility company to resort to a series of rolling blackouts in which certain areas would be purposely shut off from power during peak usage times for four to five hours or more.

The failure of larger main electric feeder lines can also result in large area power outages.

### History and Jurisdiction Impacts

The State of Kansas is part of one of four interdependent power grids (Eastern Interconnection) spanning the United States and Quebec, Canada. The electric power grid is a highly interconnected and dynamic system of over 3,000 public and private utilities and rural cooperatives. These utilities have incorporated a wide variety of information and telecommunication systems to automate the control of electric power generation, transmission, and distribution. Due to this interconnectivity, small outages can sometimes create problems on a large scale.

In recent years, regional electric power grid system failures in the western and northeastern United States have demonstrated that similar failures could happen in Kansas. This vulnerability is most appropriately addressed on a multi-state, regional or national basis. Another recent concern that could affect the functioning of utilities and infrastructure is cybersecurity.

For the most part, it appears severe winter storms create the most widespread threat to electrical transmission failure in Seward County. Recent winter storms causing power outages are listed below.

On December 6, 1994, a winter storm event occurred across a twenty-six county area, which included Seward County. The ice storm coated surfaces with 1/2 to 1 inch of ice, causing a tremendous amount of tree damage. Damage to power lines was minimal according to electric companies but there were communities without power for several hours. There was \$50,000 in reported property damage for the twenty-six county area, but no crop damage, deaths, or injuries were associated with the December 6th event.

On March 16, 1998, a winter storm brought snow and ice accumulations between 1/2 and several inches

to a twenty-four county area. Seward County was affected by this storm, but total accumulations are not known. Some areas reported power outage for as many as six days. There was \$1,200,000 in property damage reported for the entire twenty-four county area, but no reports of crop damage or personal injury were attributed to this winter storm.

On January 5, 2005, Seward County experienced a winter storm. The January 5th storm caused no deaths or injuries, and did not damage any property or crops.

#### Location and Extents

Electrical power outages/blackouts or loss of transmission lines are hard to quantify, and are generally unpredictable in nature. Additionally, power outages could have a county-wide impact.

#### Probability of Future Occurrences

Statistical data for analysis at the county level was not readily available from local sources, so Seward County relied on the data provided in the State of Kansas Mitigation Plan, and past severe weather events, to quantify this hazard. This hazard's probability for significant events in Seward County is calculated to be a moderate risk based on winter storm probability of 2.8 events occurring every year. Although we can extract data and probability of occurrence from historical information, the risk of a severe event occurring and the location of damage appear to be a random event.

## Drought

### Hazard Profile

Drought can be defined as a period of abnormally dry weather sufficiently long enough to cause serious effects on agriculture and other activities in the affected area.

### Categories of Drought

Droughts can be grouped into four basic categories based on the severity and impact of the occurrence. These are meteorological, hydrological, agricultural, and socioeconomic. Since they are largely categorized by impact, it is possible, if not likely that these conditions could exist simultaneously.

Meteorological drought is defined solely on the basis of the degree of dryness, expressed as a relationship between actual precipitation and the expected average or normal amount, based on monthly, seasonal, or annual time scales. A meteorological drought description considers only the physical attributes of the event and not the impact on social or environmental systems.

The remaining three categories consider both the meteorology of the event as well as the various impacts.

Hydrological drought is associated with the effects of periods of precipitation (including snowfall) short falls on surface or subsurface water supply (e.g., streamflow, reservoir and lake levels, ground water) . The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate from a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with, or lag behind the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and ground water and reservoir levels. As a result, these impacts are also out of phase with impacts in other economic sectors. For example, a precipitation deficiency may result in a rapid depletion of soil moisture that is almost immediately discernible to agriculturalists, but the impact of this deficiency on lake and stream levels may not affect fisheries or recreational uses for many months.

Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts. This view of drought focuses on precipitation shortages, differences between actual and potential evapo-transpiration, soil water deficits, and reduced groundwater or reservoir levels, and their effects on agricultural production. Plant water demand depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil. The definition of agricultural drought accounts for the variable susceptibility of crops during different stages of crop development, from emergence to maturity.

Socioeconomic definitions of drought associate the supply and demand of economic goods with elements of meteorological, hydrological, and agricultural drought . The supply of many economic goods, such as water, forage, food grains, fish, and hydroelectric power, depends on weather. Because of the natural variability of climate, water supply is ample in some years but unable to meet human and environmental needs in other years. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related short fall in water supply.

### Heat Wave

Although there is no official definition of heat wave (extreme heat), it can be described as a period of time when temperatures hover ten degrees or more above the average high temperature for the region and last for several weeks. Humid or muggy conditions occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground. The combination of high temperatures and humid conditions increase the

level of discomfort and the potential for danger to humans. Droughts occur when a long period passes without any substantial rainfall. A heat wave combined with a drought is a dangerous situation.

The human risk associated with extreme heat includes heatstroke, heat exhaustion, heat syncope, and heat cramps.

Extreme heat often brings about drought. Risks associated with drought include, effects to the water supply, impact on agriculture, increase in wildfires, negative impact on hydroelectric power, and other activities dependent upon water such as recreation and navigation.

#### History and Jurisdiction Impacts

During the summer months, the State of Kansas is frequently affected by severe heat hazards. Persistent domes of high pressure establish themselves, which set up hot and dry conditions. This high pressure prevents other weather features such as cool fronts or rain events from moving into the area and providing necessary relief. High temperatures ranging into the upper 90's and low 100's combined with the lack of precipitation often results in the damage of local the local agriculture.

Seward County falls in an area that can experience extreme summer heat. Farming in Seward County remains the mainstay for the county. The 2007-2008 Kansas Department of Agriculture Farm Facts Report indicates 330 farms, ranking 89th in the state, and 363,000 acres of land in farms, ranking 76th in the state. Seward County ranks 15th in value of crops harvested (\$99,587,700), and 9th in the value of cattle and milk production in the state (\$114,222,200). Crops consist of wheat (3,528,000 bushels), corn (13,692,000 bushels), and sorghum (1,641,200 bushels). Cattle and calves inventory in January 2008 was valued at \$116,670,000. Data for hogs, sheep, and poultry were not available at the county level. The only two reported events for Seward County in the NCDC database are provided as follows:

March 1, 1996: March began another month of extreme dryness. The period from July 1995 through March was the driest period ever with records dating back 120 years and affected as many as twenty-seven counties across Kansas. The wheat crop was almost completely wiped out by the drought. There were no reports of property damage, crop damage, injuries or deaths for this event.

August 28, 2003: a two to three year drought plagued as many as twenty-seven counties across Kansas. Some rainfall deficits were as high as 20 inches over a 28 month long period. Record low river and stream levels were noted across much of the area. Summer crops suffered greatly with yields of beans, corn and milo being much less than normal. Beneficial rains fell in the last three days of August but at least 50 percent of western Kansas was still in a drought with continued large deficits of rainfall. There was not reported property damage but reported crop damage for the twenty-seven county area totaled \$20 million. There were no reports of deaths or injuries for this event.

#### Location and Extents

There is no distinct geographic boundary to Drought, and it can occur in every area of the county equally. While Seward County buildings, critical facilities, infrastructure and lifelines, and hazardous materials facilities may be exposed to extreme weather related conditions brought on by a period of drought and could potentially be impacted, it is expected that the greatest exposure to this hazard is on the population, agriculture, and livestock of Seward County. Hazard workshops are considered a viable option to educate the local residents and will be considered in the future. See Section 5.2 Mitigation Actions.

#### Probability of Future Occurrences

The likelihood or future probability of a significant occurrence of excessive summer heat / drought in the county is considered moderate. Based on historical data the county can expect one significant event every 7.5 years (0.13 probability of an event each year).

Although we extract data and probability of occurrence from historical information, the risk of drought occurring and the location of damage appear to be a random event. This hazards probability for significant events in Seward County is considered to be moderate.

## **Terrorism / AT / CD**

### Hazard Profile

Vector-based hazards have become an "emerging" threat to the state, local governments, and their citizens. Insects, infectious diseases, and naturally-occurring and manmade biological agents can pose a direct or indirect hazard to humans, livestock, and the state's economy. The State of Kansas has made this hazard a priority for the state and local government planning requirements.

Numerous definitions for "vector" have been proposed, and vary with the nature and focus of the specific discipline of research such as epidemiology, public health, mathematics, and most recently - Emergency Management. This section will focus primarily on Emergency Management's role with infectious Foreign Animal Disease (FAD), biological agents, and/or by-products utilized to create weapons of mass destruction (WMD), which could otherwise require a response from emergency management departments.

Other forms of communicable disease and biological/chemical agents are causes for concern. However, authority and response to these potential health issues resides with agencies and disciplines such as the Food and Drug Administration (FDA), Centers for Disease Control (CDC), and Public Health Departments, and therefore will not be mentioned in this section. Emergency Management roles and responsibilities will likely change with time requiring refinement and expansion of response for this discipline.

Potential threats to U.S. agriculture and livestock can arise from a variety of pathogens and causative agents. Terrorist attacks against agricultural assets might be tempting, due to the perceived relative ease of attack, the plausible deniability toward accusations, and the limited number of plant seed varieties in use. Highly infectious naturally-occurring plant and animal pathogens exist outside the U.S. borders, and some agents are readily transported, inadvertently or intentionally, with little risk of detection.

Nature has already shown how easy it might be for a sophisticated, technically-informed state, group, or individual to attack crops and livestock by introducing a new parasite, predator, or disease. There are a host of "rusts" and "smuts" that can attack grain crops, as evidenced by past naturally-occurring events in the U.S.

The list of threats (exotic diseases) to livestock is substantial. They include, but are not limited to, animal disease, plant disease, Foot and Mouth Disease (FMD), vesicular stomatitis, Bovine Spongiform Encephalopathy (BSE), rinderpest, gibberella, African swine fever, highly pathogenic avian influenza, Rift Valley fever, lumpy skin disease, blue tongue, sheep and goat pox, swine vesicular disease, contagious bovine pleuropneumonia, Newcastle disease, African horse sickness, and classical swine fever.

Animal health officials define an exotic or FAD as an important transmissible livestock or poultry disease believed to be absent from the United States and its territories, and capable of generating potential significant health or economic impact. FMD, anthrax, BSE, rinderpest, and swine fever are potential ways to attack livestock.

### History and Jurisdiction Impacts

Although terrorist-type activities/incidences are a relatively new type of threat to Kansas, these types of activities, if present, are not readily available or reported to the public. Seward County has not documented terrorist activities in their county, but the State of Kansas has made this hazard a priority for the State and local government planning requirements. Federal and state officials understand local-level resources will be the first to respond to any emergency situation and have acknowledged the fact that local planning and preparation, even if resources are exhausted quickly, will play a major role in mitigating a terrorist attack or outbreak of an exotic disease. Research suggests the best approach is to broaden the

prevention, response and recovery spectrum for emergency operations planning to include all hazards, with the understanding that limited resources and funding at the local level will require quick evaluation of an event in order to efficiently respond to the emergency and to obtain state and federal assistance in a timely fashion.

The Department of Homeland Security required all states and local jurisdictions to update their terrorist security databases in 2003. Seward County provided a self-assessment of risk and vulnerability during this planning event. Additionally, the State of Kansas required all jurisdictions to plan for potential bio-terrorism events, and develop local Foreign Animal Disease Plans. As a result, Seward County has selected this hazard category as a priority for inclusion in the county's Mitigation Plan, as the role of emergency management will be fine tuned for prevention, response, and recovery activities involving a FAD and/or bio-terrorist event to provide the resource support needed to effectively and efficiently deal with the disease onset and lifespan.

#### Location and Extents

The entire county is considered equally susceptible to Terrorism and FAD.

#### Probability of Future Occurrences

Although initial detection of this type of event is considered uncontrollable, it is highly possible an act of terrorism (domestic or other) could occur at any time given the right circumstances. However, the probability of future occurrence is reduced due to proactive preventative action on the part of Federal, State and local authorities. This proactive approach to preparation and prevention will help reduce the potential for losses to property and life as a result of terrorism or FAD outbreaks. The risks associated with terrorism appear to be a random event with a low risk probability, but terrorism is included in the plan as a state-mandated planning hazard.

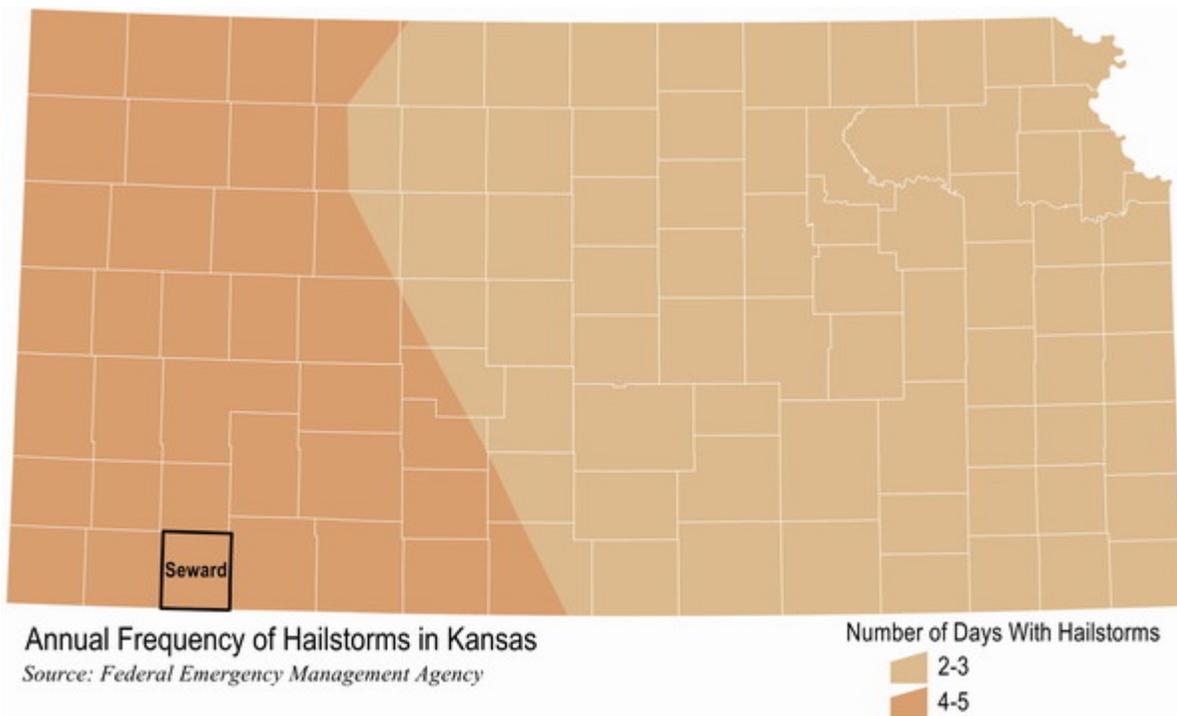
# Hail

## Hazard Profile

Hail can be produced from many different storm types. Typically, hail is a cascading hazard of a thunderstorm event. It is estimated that damage from hail approaches \$1 billion in the U.S. annually. U.S. agriculture is typically the most affected by such hail storms. Hail causes severe crop damage and even a minor storm with relatively small-size hailstones can have a devastating effect. Damage to vehicles, roofs (residential/commercial), and landscaping are the other things most commonly damaged by hail, according to the National Weather Service (NWS) and National Oceanic and Atmospheric Administration (NOAA).

Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation—as balls or irregularly shaped masses of ice greater than 0.75 in. (1.91 cm) in diameter. The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth’s surface. Higher temperature gradients relative to elevation above the surface result in increased suspension time and hailstone size. Figure 1 shows the annual frequency of hailstorms in the State of Kansas.

Figure 1 - FEMA Hailstorm Map



## History and Jurisdiction Impacts

There were 265 reported hail events in the 50-year recorded time frame for Seward County. No deaths or injuries were attributed to any of the reported events. The National Climatic Data Center (NCDC) reported \$2,200,000 in accumulative property damage but no crop damages.

The largest event reported in the county was a 6.0-inch hail event which occurred July 12, 1958. There were no associated property or crop damage reports available, and no reported deaths or injuries through

the NCDC for the July 12 event.

On June 10, 1994, the City of Liberal experienced hail 2.75 inches in size. The hail caused \$50,000 in property damage, but did not harm any crops or people.

On June 8, 1995, just south of Liberal, hail almost 2.0 inches in size caused \$100,000 in property damage. No crop damage was reported and no people were harmed.

On May 15, 2003, the town of Kismet was hit with 1.75 inch hail. The storm lasted for about thirty minutes and caused significant damage. \$2,000,000 worth of property was damaged in Kismet that day. No crops or people were harmed during this storm.

#### Location and Extents

The entire Seward County area is equally susceptible to damage from hail in association with severe thunderstorms.

#### Probability of Future Occurrences

The probability of a hailstorm event depends on certain atmospheric and climatic changes. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect approximately 5.30 hail events per year. Average annual damages from hail storm events are estimated at \$44,000. However, because the entire Seward County area is equally susceptible to the risk of a severe thunderstorm, the occurrence of a hail event at any one location and the resultant damage severity is deemed as a random act of nature.

## Tornado

### Hazard Profile

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. It is most often generated by a thunderstorm and produced when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage from a tornado is a result of the high wind velocity and wind-blown debris, although they are commonly accompanied by large hail as well. The most violent tornadoes have rotating winds of 250 miles per hour or more and are capable of causing extreme destruction, including uprooting trees and well-made structures, and turning normally harmless objects into deadly missiles.

Most tornadoes are just a few dozen yards wide and touch down only briefly, but highly destructive tornadoes may carve out a path over a mile wide and several miles long. The destruction caused by tornadoes may range from light to inconceivable depending on the intensity, size and duration of the storm. Typically, tornadoes cause the greatest damages to structures of light construction, such as residential homes, and are quite localized in impact.

Each year an average of 800-1,000 tornadoes are reported nationwide and they are more likely to occur during the spring and early summer months of March through June. Tornadoes can occur at any time of day but are mostly likely to form in late afternoons and early evenings.

The magnitude or severity of a tornado was originally categorized using the Fujita Scale or Pearson Fujita Scale (introduced in 1971). The Fujita Scale categorizes tornadoes from F0 (Gale) to F5 (Inconceivable) based on wind speed. It is used to rate the intensity of a tornado by examining the damage caused by the tornado after it has passed over a manmade structure.

Other scales have been developed to measure wind and tornado intensity including the Beaufort Wind Scales (B-Scales) and Britain's Tornado Storm and Research Organization (TORRO) Scale (T-Scale). However, the Beaufort and TORRO scales are generally not used to identify the severity or intensity of a tornado or wind event in the United States.

The Fujita Scale recently became obsolete, due to many weaknesses in the system that have resulted in misuse and/or misunderstanding of the scale. It was replaced on February 1, 2007 by the Enhanced Fujita Scale, or EF Scale (Figure 1). This new scale continues to rate the strength of tornadoes in the United States based on the damage caused. The scale has the same basic design as the original Fujita Scale (six categories from 0 to 5 representing increasing degrees of damage). It was revised to reflect better examinations of tornado damage surveys, to align wind speeds more closely with associated storm damage. As with the Fujita Scale, though, each damage level is associated with a wind speed; the Enhanced Fujita Scale is a damage scale and the wind speeds associated with the damage listed remain unverified and little more than educated guesses. The EF Scale improved on the old scale on many counts - it accounts for different degrees of damage that occur with different types of structures based on how they are designed, both man-made and natural. It also provides much better estimates for wind speeds and sets no upper limit on the wind speeds for the strongest level, EF5 (NOAA-SPC, 2007).

Enhanced Fujita Scale - Figure 1

Enhanced Fujita Scale Summary			
EF Scale Number	Intensity Phrase	Wind Speed (mph)	Type of Damage and Observations
EF0	Light Tornado	65-85	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0.
EF1	Moderate Tornado	86-110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	Significant Tornado	111-135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	Severe Tornado	136-165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	Devastating Tornado	166-200	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	Incredible Tornado	>200	Total destruction. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (300 ft); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation; incredible phenomena will occur.

### History and Jurisdiction Impacts

There were 3,454 confirmed tornadoes in Kansas between 1950 and 2008, resulting in 228 deaths and 2,699 injuries, with total damages estimated at \$2,602,507,870. Typically, Kansas' tornadoes can be severe when compared to other parts of the country. Compared with other states, Kansas ranks number four in the country for frequency of tornadoes, third for number of deaths, third for injuries, and third for cost of damages.

According to the National Climatic Data Center, there have been 31 confirmed tornadoes in Seward County since 1951 which have resulted in no deaths, but twelve reported injuries and approximately \$15.657 million in property damages. The strongest tornadoes recorded in Seward County had magnitudes of F3. These events occurred June 21, 1974 and June 6, 1989. To view the entire record of Seward County tornado events reference Figure 3.

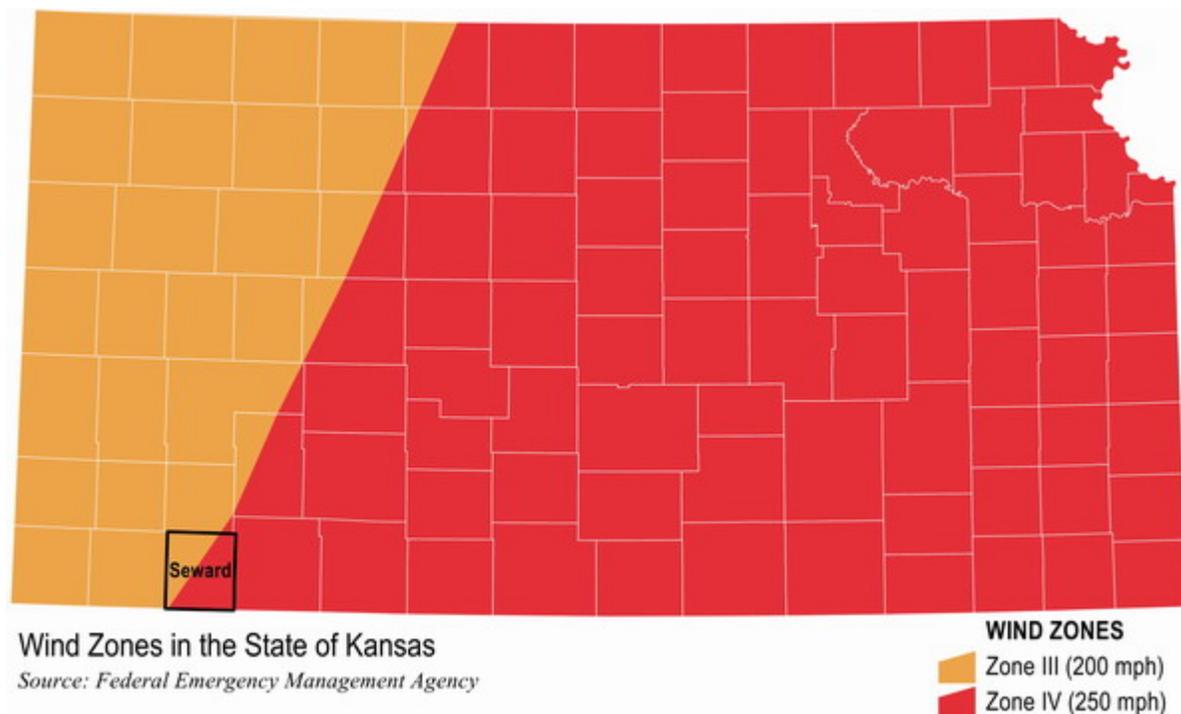
An F3 tornado occurred in Seward County on June 21, 1974. The tornado was reported to be 30 yards wide and on the ground for 3 miles. Property damage was estimated to be \$25,000, with no crop damage reported for this event. There were no fatalities, but two injuries were reported.

An F2 tornado event occurred on May 26, 1996, eleven miles north of Liberal. The tornado was reported to be 450 yards wide and on the ground for 14 miles. The storm caused \$200,000 of property damage and \$140,000 in crop damage. No fatalities or injuries were reported.

An F2 tornado was reported on May 15, 2003, one-mile north-northeast of Liberal. The tornado was reported to be 100 yards wide and on the ground for 3 miles. The storm caused \$6,000,000 in property damage, with no associated fatalities or crop damage reported.

The Wind Zones in the State of Kansas (Source: FEMA), depicted in Figure 2, provide an overview of potential wind strength. Seward County lies within Zone III and Zone IV, with wind speeds capable of 200 to 250 miles per hour based on past historical data.

FEMA Wind Zones Map - Figure 2



### Location and Extents

The damage from a tornado is a result of high wind velocity and wind-blown debris. The potential damage resulting from a tornado is directly correlated to the strength of the particular tornado and is qualified utilizing the Enhanced Fujita Scale. The EF Scale assigns numerical values based on wind speeds and categorizes tornadoes from EF0 through EF5. The Enhanced Fujita Scale is shown in Figure 1.

The entire planning area is equally susceptible to damage from tornadoes.

Probability of Future Occurrences

Tornado - Figure 3

Date	Time	Mag	Dth	Inj	PrD	CrD
4/26/1951	7:15 PM	0	0	0	\$0	
5/28/1953	8:40 PM	1	0	0	\$25,000	\$0
10/26/1954	12:05 AM	0	0	0	\$2,500	\$0
6/4/1955	10:43 PM	0	0	0	\$0	\$0
6/4/1955	10:52 PM	0	0	0	\$0	\$0
7/3/1967	5:25 PM	1	0	0	\$0	\$0
6/21/1974	5:35 PM	3	0	2	\$25,000	\$0
4/14/1976	7:30 PM	1	0	0	\$250,000	\$0
8/5/1980	4:45 PM	1	0	0	\$250,000	\$0
7/17/1981	5:45 PM	1	0	0	\$2,500	\$0
3/18/1982	7:26 PM	2	0	0	\$25,000	\$0
5/15/1982	7:45 PM	0	0	0	\$30	\$0
8/29/1982	5:45 PM	1	0	0	\$250,000	\$0
6/6/1989	3:58 PM	3	0	0	\$25,000	\$0
4/9/1994	3:25 PM	2	0	8	\$50,000	\$0
5/22/1995	6:57 PM	0	0	0	\$0	\$0
5/26/1996	2:49 PM	1	0	0	\$150,000	\$0
5/26/1996	3:03 PM	2	0	0	\$200,000	\$140,000
5/26/1996	3:20 PM	0	0	0	\$2,000	\$0
8/18/1997	6:41 PM	0	0	0	\$0	\$0
5/7/1998	6:04 PM	0	0	0	\$0	\$0
3/7/2000	4:20 PM	1	0	2	\$250,000	\$0
5/29/2001	6:51 PM	0	0	0	\$0	\$0
7/10/2002	9:49 PM	0	0	0	\$0	\$0
5/15/2003	6:40 PM	2	0	0	\$150,000	\$0
5/15/2003	8:30 PM	2	0	0	\$8,000,000	\$0
5/15/2003	6:29 PM	2	0	0	\$6,000,000	\$0
4/5/2005	1:33 PM	1	0	0	\$0	\$0
4/5/2005	1:35 PM	0	0	0	\$0	\$0
6/16/2005	5:52 PM	1	0	0	\$0	\$0
6/22/2006	7:00 PM	0	0	0	\$0	\$0

Source: National Climatic Data Center

Mag: Magnitude

PrD: Property Damage

Dth: Death

CrD: Crop Damage

Inj: Injury

The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect a tornado event every two years (0.54 expectancy of occurrence during a single year), with expected damages of \$274,684 per year. Although we extract data and probability of occurrence from historical information, the risk of a tornado occurring and the location of damage appear to be a random event.

## TSTM Wind

### Hazard Profile

High winds are generally the result of severe thunderstorms. Straight-line winds, which in extreme cases have the potential to exceed 100 miles per hour, are responsible for most thunderstorm wind damage. One type of straight-line wind, the microburst, can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation. Thunderstorms are also capable of producing tornadoes and heavy rain that can lead to flash flooding.

A severe thunderstorm is defined by the National Weather Service as a storm that has a wind velocity of 58 miles per hour or higher, or produces hail at least three-quarters of an inch in diameter, or produces a tornado(es). Thunderstorms simply require moisture to form clouds and rain, coupled with an unstable mass of warm air that can rise rapidly. Thunderstorms affect relatively small areas when compared with hurricanes and winter storms; the average storm is 15 miles in diameter and lasts an average of 30 minutes. Nearly 1,800 thunderstorms are occurring at any moment around the world. However, of the estimated 100,000 thunderstorms that occur each year in the United States, only about 10 percent are classified as severe. Thunderstorms are most likely to happen in the spring and summer months and during the afternoon and evening hours, but can occur year-round and at all hours.

Despite their small size, all thunderstorms are dangerous and capable of threatening life and property in localized areas. Every thunderstorm produces lightning, which results from the buildup and discharge of electrical energy between positively and negatively charged areas. Each year, lightning is responsible for an average of 93 deaths (more than tornadoes), 300 injuries, and several hundred million dollars in damage to property and forests across the United States.

### History and Jurisdiction Impacts

Severe thunderstorms and high wind events are very common in Kansas, and cause a significant amount of property and crop damage annually.

According to the National Climatic Data Center, there were a total of 123 reported severe thunderstorm/high wind events in Seward County during the period of 1956 to 2008 that caused \$9,201,000 in property damage and \$150,000 in crop damage. Damages recorded included downed trees and damaged roofs and structures (these events do not include tornadoes, as this hazard is discussed separately). Three examples are as follows:

On June 30, 1988, a thunderstorm crossed Seward County causing seven injuries. No fatalities, property, or crop damage were reported for the June 30th event.

On June 10, 2000, four miles east of Liberal, a thunder storm caused \$50,000 in property damage, where five trailer houses were blown off their foundations. No fatalities, injuries, or crop damage were reported for this June 10th event.

On June 28, 2003, a thunderstorm with winds 80 to 100 mph caused \$8,000,000 in property damage in Liberal, with no associated crop damage. No fatalities injuries were reported for the June 28th event.

### Location and Extents

The entire planning area is equally susceptible to damage from thunderstorm high wind.

### Probability of Future Occurrences

The probability of a thunderstorm event depends on certain atmospheric and climatic changes. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect approximately 2.37 high wind events per year. Average annual damages from thunderstorm winds

are estimated at \$179,826. Although we can extract data and probability of occurrence from historical information, the risk of a severe event occurring and the location of damage appear to be a random event.

## Winter Storm

### Hazard Profile

Severe winter storms can produce an array of hazardous weather conditions, including heavy snow, freezing rain and ice pellets, Ice Storm, high winds, and extreme cold. Severe winter storms are usually fueled by strong temperature gradients and an active upper-level cold jet stream. Winter storms can paralyze a community by shutting down normal day-to-day operations, as accumulating snow and ice result in downed trees, power outages and blocked or hazardous transportation routes. Heavy snow can also lead to the collapse of weak roofs or unstable structures. Frequently the loss of electric power means loss of heat for residents, which poses a significant threat to human life, particularly the elderly.

For the purposes of Seward County, Heavy Snow events will be included as a sub-category of Winter Storm.

The level of impact severe winter weather will have upon a community greatly depends on it's ability to manage and control the effects, such as the rapid mobilization of snow removal equipment. Severe winter weather is a frequent occurrence in Kansas, and can reach blizzard proportions under the right weather conditions. Many Kansas counties are small, and the costs to acquire and maintain the necessary resources to combat winter storm effects is expensive, hence, many small communities are not prepared for such events.

### History and Jurisdiction Impacts

Severe winter storms are typically associated with cold climates; but it is not uncommon for the State of Kansas to experience significant and even disastrous winter weather events. Since 1993, 38 deaths and 98 injuries have been attributed to snow and ice events throughout the state, along with an estimated \$81,900,000 in property damage. In most instances, these impacts are determined by weather patterns and cannot be readily identified to particular regions of the state.

Seward County averages 17-inches of snow per year and experiences severe winter storms on occasion, with 13 severe winter storms recorded since 1993. The three worst storms occurred on December 18, 1995, March 12, 1999, and January 5, 2005.

On December 18, 1995, a winter storm event occurred in Seward County. One person died and three others were injured in an accident caused by the December 18th event. No property or crop damage was reported.

On March 12, 1999, a winter storm brought snow amounts of 7 to 18 inches of snow; Seward County was affected by this storm, but total accumulations are not known. There was \$170,000 in property damage as a result of the March 12th event. There were no reports of crop damage or personal injury attributed to this winter storm.

On January 5, 2005, Seward County experienced a winter storm. The January 5th storm caused no deaths or injuries, and did not damage any property or crops.

### Location and Extents

The entire county is equally susceptible to damage from severe winter storms.

### Probability of Future Occurrences

The probability of a severe winter storm event depends on winter weather patterns that pass through the state. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect 2.8 winter storms every year. Average annual damages for the area from winter storms are estimated at \$175,400. Although we can extract data and probability of occurrence from historical

information, the risk of a severe event occurring and the location of damage appear to be a random event.

## 4.4.2 Jurisdiction Hazard Profiles

## Flood - Seward (UnInc.)

### Hazard Profile

Flooding is the most frequent and costly natural hazard in the United States. Floods are generally the result of excessive precipitation, and can be classified under two categories: flash floods, the product of heavy localized precipitation in a short time period over a given location; and general floods, caused by precipitation over a longer time period and over a given river basin. The severity of a flooding event is determined by a combination of stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions and the degree of vegetative clearing.

Flash flooding events usually occur within minutes or hours of heavy amounts of rainfall, from a dam or levee failure, or from a sudden release of water held by an ice jam. Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces.

General floods are usually longer-term events and may last for several days. The primary types of general flooding include riverine flooding, coastal flooding, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, nor'easters and other large coastal storms. Urban flooding occurs where man-made development has obstructed the natural flow of water and/or decreased the ability of natural groundcover to absorb and retain surface water runoff.

Periodic flooding of lands adjacent to rivers, streams and shorelines is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger magnitude.

A "floodplain" is the lowland area adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will likely be covered once every 10-years, and the 100-year floodplain covered once every 100-years.

Flood frequencies, such as the "100-year flood," are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1% chance of occurring in any given year.

### History and Jurisdiction Impacts

According to the National Climatic Data Center, there were a total of ten reported flood events in Seward County. All of the reported events in the NCDC database were reported for the Liberal area. There were no reported flood incidents in the database for the Seward County (unincorporated) area.

### Location and Extents

Due to the nature of flood this hazard will be evaluated on a jurisdictional basis.

In Kansas, floods usually occur during the season of highest precipitation or during heavy rainfall after long dry spells. Due to the flat topography of Seward County, flooding and flash flooding appears to be caused by heavy rains or rapid snow melt.

A review of the Kansas Department of Transportation map and Flood Hazard Boundary maps for Seward County show the principal stream to be the Cimarron River. Although the river bears no stream flow for much of its route through Seward County, it does begin to exhibit small amounts of flow near the Arkalon area and just west of the Mighty Sampson Railroad Bridge, which is primarily due to the pumping of storm water by the City of Liberal. The river enters the county from the northwest corner and exits the county to the southeast. Small tributaries exist along a narrow band of the stream that feed into the river bed. Flooding appears to be localized along a narrow area near the principal river bed. Maps that display the location and extent of flood hazard areas are provided in Section 4.5.2 Vulnerability Maps.

#### Probability of Future Occurrences

The likelihood of future events is estimated to remain the same as currently calculated. Seward County averages approximately \$66,666 per year in damage resulting from flooding, and it will become more of a concern as the rural areas of the county continue to grow in population. According to limited data analysis Seward County can expect a flood event every 1.6 years (0.667 chance/year).

## Wildfire - Seward (UnInc.)

### Hazard Profile

A wildfire is an undesirable, uncontrolled burning of grasslands, brush or woodlands. According to the National Weather Service, more than 100,000 wildfires occur in the United States each year. About 90% of these wildfires are started by humans (i.e., campfires, debris burning, smoking, etc.); the other 10% are started by lightning.

The potential for wildfire depends upon surface fuel characteristics, weather conditions, recent climate conditions, topography, and fire behavior. Fuels are anything that can and will burn, and are the combustible materials that sustain a wildfire. Typically, this is the most prevalent vegetation in a given area. Weather is one of the most significant factors in determining the severity of wildfires. The intensity of fires and the rate with which they spread is directly related to the wind speed, temperature and relative humidity. Climatic conditions such as long-term drought also play a major role in the number and intensity of wildfires, and topography is important because the slope and shape of the terrain can change the rate of speed at which fire travels.

There are four major types of wildfires. Ground fires burn in natural litter, duff, roots or sometimes high organic soils. Once started they are very difficult to control, and some ground fires may even rekindle after being extinguished. Surface fires burn in grasses and low shrubs (up to 4' tall) or in the lower branches of trees. They have the potential to spread rapidly, and the ease of their control depends upon the fuel involved. Crown fires burn in the tops of trees, and the ease of their control depends greatly upon wind conditions. Spotting fires occur when burning embers are thrown ahead of the main fire, and can be produced by crown fires as well as wind and topographic conditions. Once spotting begins, the fire will be very difficult to control.

Wildfires in the State of Kansas are better defined as rangeland fires. These fires generally originate as a surface fire and can spread quickly across large areas.

Wild/rangeland fires initiated by lightning are also an issue in the plains states. When wildfires do occur in Seward County, it is very rare that a home or business is lost; most damage is limited to field crops. Wildfires are most common in the spring when brush is still brown and dry, and in the fall months when fields have reached maturity .

### History and Jurisdiction Impacts

Wildfires can cause considerable damage and loss of life especially in areas where there is an interface between wild or range land and urban development. The topography and wind velocity of Seward County also influences the spread of wildfires, and the county has multiple fuel sources and is prone to drought and thunderstorms; therefore, wildfires are a risk for Seward County.

The NCDC database collects wildfire data for federally-owned land, but does not track private property; consequently, the Kansas Fire Marshal's office tracks fire data for private property owners in Kansas. Collection of data began in 1997. Current information is provided in summary form only and reflects reported fires on an annual basis by county.

### Location and Extents

Due to the nature of wildfire and the extremely rural setting of the county, the entire county is equally susceptible to damage from Wildfire.

### Probability of Future Occurrences

The probability of grass/cropland fire in Seward County is relatively high. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect an average of 5.81

significant wildfires per year that damage or destroy a total of 1,094 acres and an average of 182 acres. Although one can extract data and probability of occurrence from historical data, the risk of Wildfire occurring and the location of damage appear to be random.

## Dam / Levee - Seward (UnInc.)

### Hazard Profile

#### DAM

A dam failure is defined as an uncontrolled release of the reservoir. The causes of dam failures can be divided into three groups: dam overtopping, excessive seepage, and structural failure of a component. Despite efforts to provide sufficient structural integrity and to perform inspection and maintenance, problems can develop that can lead to failure. While most dams have storage volumes small enough that failures have little or no repercussions, dams with large storage amounts can cause significant flooding downstream. Dam planning is a state-mandated hazard for inclusion in this plan.

Dam failures can result from any one or a combination of the following causes:

1. Prolonged periods of rainfall and flooding, which cause most failures;
2. Inadequate spillway capacity, resulting in excess overtopping flows;
3. Internal erosion caused by embankment or foundation leakage or piping;
4. Improper maintenance, including failure to remove trees, repair internal seepage problems, replace lost material from the cross section of the dam and abutments, or maintain gates, valves, and other operational components;
5. Improper design, including the use of improper construction materials and construction practices;
6. Negligent operation, including the failure to remove or open gates or valves during high flow periods;
7. Failure of upstream dams on the same waterway;
8. Landslides into reservoirs, which cause surges that result in overtopping;
9. High winds, which can cause significant wave action and result in substantial erosion; and
10. Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, which can weaken entire structures.

#### LEVEE

A levee is a man-made structure; usually earthen embankments designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

A levee is generally built parallel to a body of water (most often a river) in order to protect lives and property behind it from some level of flooding (100-year; 300-year; 500-year flood). Some reasons a levee may fail include:

1. A flood that exceeds the specific flood level for which the levee was designed may “overtop” (water can go over the top of the levee);
2. Failure to perform required maintenance, the need for which increases with age;
3. Lack of advance planning, resources and timely action to make the levee system ready for a flood event;
4. Soil failure, erosion, and intrusion of animals.

### History and Jurisdiction Impacts

#### DAM

The Department of Agriculture - Water Resources did not identify any dams in Seward County as High Hazard, and there have been no reports of failure or damage from past incidents.

#### LEVEE

There have been no reports or past incidents regarding levee failure in Seward County.

Classification and discussions regarding dams and levees was required by FEMA as part of this plan.

#### Location and Extents

##### DAM

In Seward County there are 14 known dams included in the State of Kansas, Department of Agriculture, Division of Water Resources database. The State data includes publicly and privately-owned dams, as well as Federal Reservoirs, within the county boundary. The volume of water impounded, and the density, type, and value of development downstream determine the potential severity and potential classification of dam/levee failure.

The Department of Water Resources did not identify any high-hazard dams associated with reservoirs or state lakes in Kansas or Oklahoma (adjacent to Seward County) that could impact the county in the event of breach or dam failure.

##### LEVEE

In Seward County there were no levees identified by the MPC.

#### Probability of Future Occurrences

There are no high hazard dams or levees in or adjacent to Seward County, making the probability of future occurrences negligible.

## Flood - Kismet

### Hazard Profile

Flooding is the most frequent and costly natural hazard in the United States. Floods are generally the result of excessive precipitation, and can be classified under two categories: flash floods, the product of heavy localized precipitation in a short time period over a given location; and general floods, caused by precipitation over a longer time period and over a given river basin. The severity of a flooding event is determined by a combination of stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions and the degree of vegetative clearing.

Flash flooding events usually occur within minutes or hours of heavy amounts of rainfall, from a dam or levee failure, or from a sudden release of water held by an ice jam. Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces.

General floods are usually longer-term events and may last for several days. The primary types of general flooding include riverine flooding, coastal flooding, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, nor'easters and other large coastal storms. Urban flooding occurs where man-made development has obstructed the natural flow of water and/or decreased the ability of natural groundcover to absorb and retain surface water runoff.

Periodic flooding of lands adjacent to rivers, streams and shorelines is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger magnitude.

A "floodplain" is the lowland area adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will likely be covered once every 10-years, and the 100-year floodplain covered once every 100-years.

Flood frequencies, such as the "100-year flood," are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1% chance of occurring in any given year.

### History and Jurisdiction Impacts

According to the National Climatic Data Center, there were a total of ten reported flood events in Seward County. All of the reported events in the NCDC database were reported for the Liberal area. There were no reported flood incidents in the database for the city of Kismet.

### Location and Extents

Due to the nature of flood this hazard will be evaluated on a jurisdictional basis.

Similar to Seward County, Kismet's topography is generally flat which is conducive to widespread flooding and flash flooding during periods of heavy rain or sudden snow melt.

A review of the FEMA Flood Hazard Boundary Map (dated November 22, 1974) noted three flood zones,

all identified as Zone A, for the City of Kismet. There are two Special Flood Hazard Areas (SFHA) on the southern limits of the city, both less than two-hundred fifty feet in diameter and in relatively undeveloped areas. The third SFHA is located in the northern portion of the city and appears to cover some developed area.

#### Probability of Future Occurrences

The likelihood of future events is estimated to remain the same as currently calculated. Seward County averages approximately \$66,666 per year in damage resulting from flooding, and it will become more of a concern as the rural areas of the county continue to grow in population. According to limited data analysis, the City of Kismet can expect a flood event every 1.6 years (0.667 chance/year).

## Wildfire - Kismet

### Hazard Profile

A wildfire is an undesirable, uncontrolled burning of grasslands, brush or woodlands. According to the National Weather Service, more than 100,000 wildfires occur in the United States each year. About 90% of these wildfires are started by humans (i.e., campfires, debris burning, smoking, etc.); the other 10% are started by lightning.

The potential for wildfire depends upon surface fuel characteristics, weather conditions, recent climate conditions, topography, and fire behavior. Fuels are anything that can and will burn, and are the combustible materials that sustain a wildfire. Typically, this is the most prevalent vegetation in a given area. Weather is one of the most significant factors in determining the severity of wildfires. The intensity of fires and the rate with which they spread is directly related to the wind speed, temperature and relative humidity. Climatic conditions such as long-term drought also play a major role in the number and intensity of wildfires, and topography is important because the slope and shape of the terrain can change the rate of speed at which fire travels.

There are four major types of wildfires. Ground fires burn in natural litter, duff, roots or sometimes high organic soils. Once started they are very difficult to control, and some ground fires may even rekindle after being extinguished. Surface fires burn in grasses and low shrubs (up to 4' tall) or in the lower branches of trees. They have the potential to spread rapidly, and the ease of their control depends upon the fuel involved. Crown fires burn in the tops of trees, and the ease of their control depends greatly upon wind conditions. Spotting fires occur when burning embers are thrown ahead of the main fire, and can be produced by crown fires as well as wind and topographic conditions. Once spotting begins, the fire will be very difficult to control.

Wildfires in the State of Kansas are better defined as rangeland fires. These fires generally originate as a surface fire and can spread quickly across large areas. Wildfires are most common in the spring when brush is still brown and dry, and when fields have reached maturity in the fall months.

Wild/rangeland fires initiated by lightning are also an issue in the plains states. When wildfires do occur in Seward County, it is also very rare that a home or business is lost, with most damage is limited to field crops, but there is still the possibility that they spread into developed, populated areas.

### History and Jurisdiction Impacts

Wildfires can cause considerable damage and loss of life especially in areas where there is an interface between wild or range land and urban development. The topography and wind velocity of the county also influences the spread of wildfires, and the county has multiple fuel sources and is prone to drought and thunderstorms; therefore, wildfires are a risk for the City of Kismet.

The NCDC database collects wildfire data for federally-owned land, but does not track private property; consequently, the Kansas Fire Marshal's office tracks fire data for private property owners in Kansas. Collection of data began in 1997. Current information is provided in summary form only and reflects reported fires on an annual basis by county. At this time, specific incident loss data in the county is estimated based on reported information.

Although, the chances of wild/rangeland fire spreading into Kismet, the city does have helium plants and residential areas that could be devastated if overcome by wildfire. Therefore, it is critical to the safety of the community that fire fighting abilities are always operational.

Location and Extents

Due to the nature of wildfire and the extremely rural setting of the county, the entire county is equally susceptible to damage from Wildfire, including Kismet.

Probability of Future Occurrences

The probability of grass/cropland fire in Seward County is relatively high. With over 50-years of history, the likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect an average of 5.811 significant wildfires per year that damage or destroy a total of 1,094 acres and an average of 182 acres.

Although one can extract data and probability of occurrence from historical data, the risk of Wildfire occurring and the location of damage appear to be random.

## Flood - Liberal

### Hazard Profile

Flooding is the most frequent and costly natural hazard in the United States. Floods are generally the result of excessive precipitation, and can be classified under two categories: flash floods, the product of heavy localized precipitation in a short time period over a given location; and general floods, caused by precipitation over a longer time period and over a given river basin. The severity of a flooding event is determined by a combination of stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions and the degree of vegetative clearing.

Flash flooding events usually occur within minutes or hours of heavy amounts of rainfall, from a dam or levee failure, or from a sudden release of water held by an ice jam. Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces.

General floods are usually longer-term events and may last for several days. The primary types of general flooding include riverine flooding, coastal flooding, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, nor'easters and other large coastal storms. Urban flooding occurs where man-made development has obstructed the natural flow of water and/or decreased the ability of natural groundcover to absorb and retain surface water runoff.

Periodic flooding of lands adjacent to rivers, streams and shorelines is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger magnitude.

A "floodplain" is the lowland area adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will likely be covered once every 10-years, and the 100-year floodplain covered once every 100-years.

Flood frequencies, such as the "100-year flood," are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1% chance of occurring in any given year.

### History and Jurisdiction Impacts

According to the National Climatic Data Center, there were a total of ten reported flood events in Seward County. All of the reported events in the NCDC database were reported for the Liberal area. There were no reported flood incidents in the database for the Seward County (unincorporated) area.

October 1, 1998, historic flooding occurred in Seward County. The floods were caused by abnormally heavy rainfall in the preceding twenty-four hours. Five to eight inches of rainfall was reported. Streets were flooded that had not previously flooded, and a local disaster was declared. Damages to roads and property brought the reported property damage to \$1,000,000. There were no crop damages reported, nor any fatalities or injuries for this event.

May 15, 2003, two feet of water was reported over roadways three miles west of Liberal. Damages to

roads and property were not reported. There were no crop damages reported, nor any fatalities or injuries for this event.

July 5-6, 2006, there was extensive flooding in Liberal. It was reported that several vehicles stalled in roadways. Damages to roads and property were not reported. There were no crop damages reported, nor any fatalities or injuries for this event.

#### Location and Extents

Due to the nature of flood this hazard will be evaluated on a jurisdictional basis.

The City of Liberal topography is generally flat which is conducive to widespread flooding and flash flooding during periods of heavy rain or sudden snow melt. A review of the FEMA Flood Hazard Boundary Map noted three main flood zones in the City of Liberal. The zone farthest north covers much of the northern edge of Liberal along Fifteenth Street, and consists of both A and AE flood zones. Most of this area appears to be undeveloped land.

Another flood zone is located near the center of the city and extends to east edge enveloping the railroad lines (Burlington Northern-Santa Fe and Union Pacific). This area contains both A0 and AE flood zones, and is partially developed, especially in the northern portion of the flood zone.

The other major flood area consists of isolated flood zones along the southern edge of the city. The zones furthest east and west are both Zone A and are out of the developed areas of the city. A smaller zone in between the two outlying zones is identified as Zone AE, and appears to have some development within its borders.

There are several smaller flood zones within the city limits that are not outlined in the three flood areas above, but these flood zones are small and appear to have little impact on populated areas. Maps that display the location and extent of flood hazard areas are provided in Section 4.5.2 Vulnerability Maps.

#### Probability of Future Occurrences

The likelihood of future events is estimated to remain the same as currently calculated. Seward County averages approximately \$66,666 per year in damage resulting from flooding, and it will become more of a concern as the rural areas of the county continue to grow in population. According to limited data analysis, the City of Liberal can expect a flood event every 1.6 years (0.667 chance/year).

## 4.5 Vulnerability Assessment

The vulnerability assessment was completed predominantly through the use of objective hazard and risk analysis, along with the use of county-provided data and best available information at the time of the study. It describes the county's hazard prone locations and provides an inventory of repetitive loss properties (if applicable) and critical facilities. This portion of the plan also describes current development trends and implications for Seward County, and includes maps that were generated specifically to illustrate jurisdiction vulnerability. Lastly, this section discusses what was learned through the process of determining the county's current and future vulnerability to natural hazards, and provides several conclusions on community vulnerability.

### Natural Hazards

Situated in the central portion of the country, Seward County is located in an area that is prone to the effects of sudden collision of cold/warm fronts creating winter storms (blizzard, ice, heavy snow, etc.), and thunderstorms (high wind, hail, tornadoes, heavy rain, lightning, etc.). Areas throughout the county are vulnerable to the natural hazards identified in Section 4.0, and for the most part, face a uniform level of risk for each hazard, with the exception of flood, wildfire, and dam/levee failure. This is due to the nature of the natural weather events that occur in the county. Hail, thunderstorm high winds, winter storms, lightning, and tornadoes are unpredictable and random in nature. Since the majority of the county is rural, coupled with its sparse pattern of land development, it does not present areas that are significantly more vulnerable to property loss than others. The majority of people who live and work in Seward County reside in Liberal, but the probability that a jurisdiction would be affected more often than other areas in the county is considered statistically very low.

Based on historical data, and for purposes of this hazard mitigation plan, Seward County will assess the above-referenced natural hazards vulnerability on a countywide planning basis. Flood, dam/levee and wildfire will be addressed as separate geographic planning areas.

### **4.5.1 Damage and Vulnerability Overview**

The data to develop inventory estimates were obtained through various sources including the following:

- Seward County Appraiser
- Kansas Department of Revenue, Division of Property Valuation
- Seward County Mitigation Planning Committee
- Kansas Department of Transportation
- RS Means estimator tools
- Emergency Management Department
- Kansas Water Office

Where data failure occurred, subjective data was used to obtain estimated facility/infrastructure costs. The following tables attempt to assess the potential damage and vulnerability of Seward County based on these estimates. Table 4.5.1 (1) was completed to assess the current and future vulnerability of Seward County based upon the assessed value of assets within the jurisdiction. The inventory costs are based on the number and assessed valuation and do not reflect replacement value for other assets such as land, equipment, fixture, and furniture assets. A breakdown of public utilities was not readily available so data for this classification are included under Urban.

TABLE 4.5.1 (1) ALL-HAZARDS COUNTY POTENTIAL DAMAGE INVENTORY

Type of Development	Current Conditions		Projection Yr: 2040 (CAGR: 0.79%)
	Current Dollar Exposure	Number of Buildings	Future Replacement Value
Urban/Rural Real Property			
Residential	\$428,514,117	5757	\$550,693,207
Agricultural	\$17,444,680	0	\$22,418,554
Vacant Lots	\$6,663,366	0	\$8,563,243
Not-For-Profit	\$535,080	6	\$687,643
Com/Industrial	\$199,087,301	821	\$255,851,604
Ag Improvement	\$5,331,270	2354	\$6,851,336
All Other	\$188,260	3	\$241,937
<b>Total Real Property</b>	<b>\$657,764,074</b>		<b>\$845,307,524</b>
Urban/Rural Personal Property			
Res. Mobile Homes	\$16,409,452	656	\$21,088,159
Mineral Leasehold	\$462,130,291	0	\$593,894,114
Motor Vehicles	\$4,664,603	0	\$5,994,587
C/I Mach/Equipment	\$31,632,484	0	\$40,651,622
Boat/Marine/Trailer	\$965,893	0	\$1,241,291
Other	\$7,318,787	0	\$9,405,539
<b>Total Personal Property</b>	<b>\$523,121,510</b>		<b>\$672,275,313</b>
Public Utility			
Urban - Public Utility	\$15,356,164	48	\$19,734,555
Rural - Public Utility	\$145,711,021	0	\$187,256,537
<b>Total Public Utility</b>	<b>\$161,067,185</b>		<b>\$206,991,091</b>
<b>Totals</b>			
<b>Totals</b>	<b>\$1,341,952,769</b>		<b>\$1,724,573,928</b>

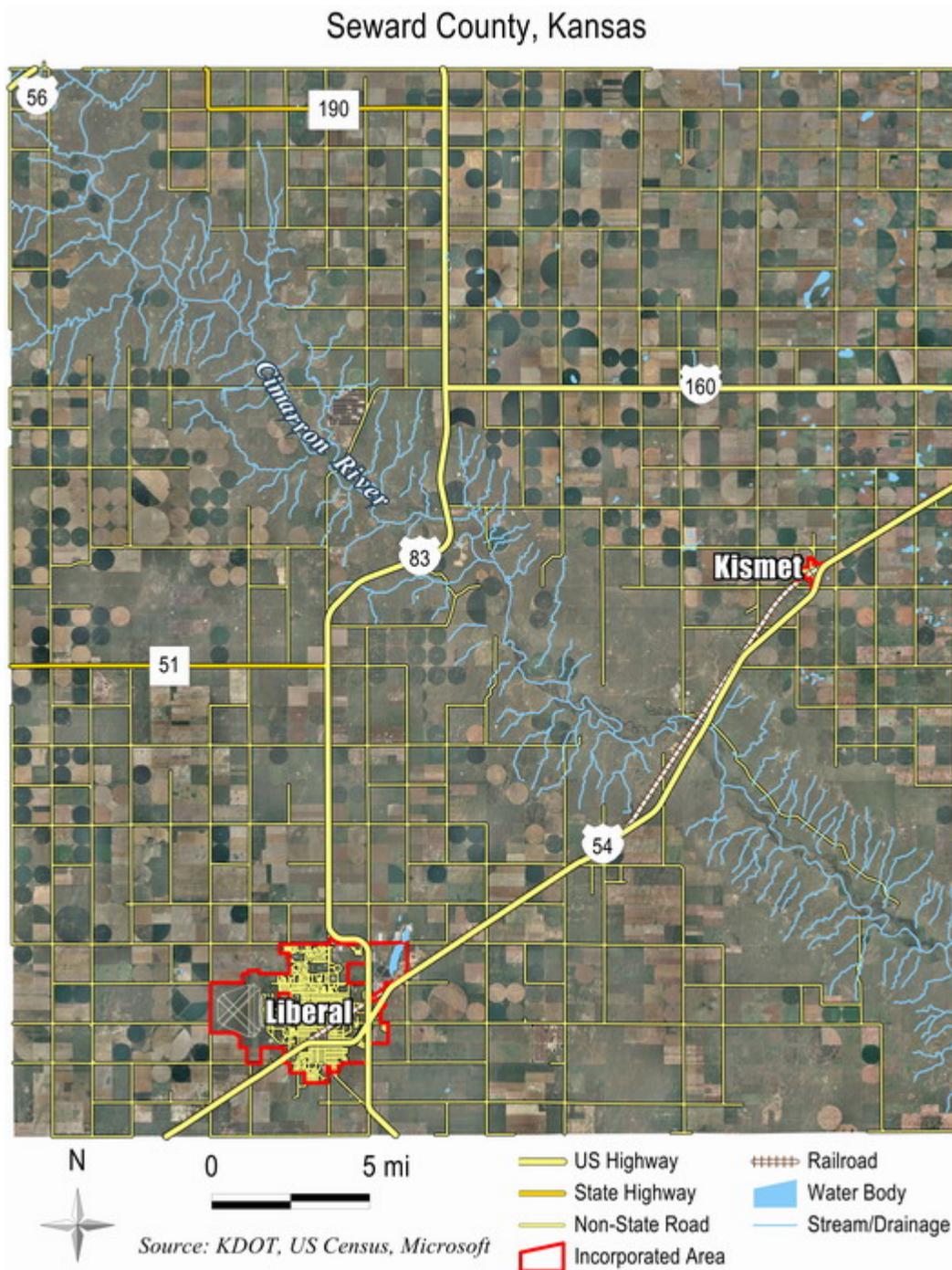
It is anticipated that when more data is obtained through development and cataloging of cadastral data, more accurate replacement cost data will be included in future updates to this Plan.

In addition to being used for general mitigation planning purposes, this vulnerability assessment can be used by Seward County as documentation to support the need for mitigation projects that can be funded through the Federal Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation Program (PDM) and/or similar grant programs. The information gathered for public buildings and critical facilities can also be used when applying for both Federal and State Public Assistance funds which provide assistance for the repair and mitigation of public facilities and infrastructure following declared disaster events.

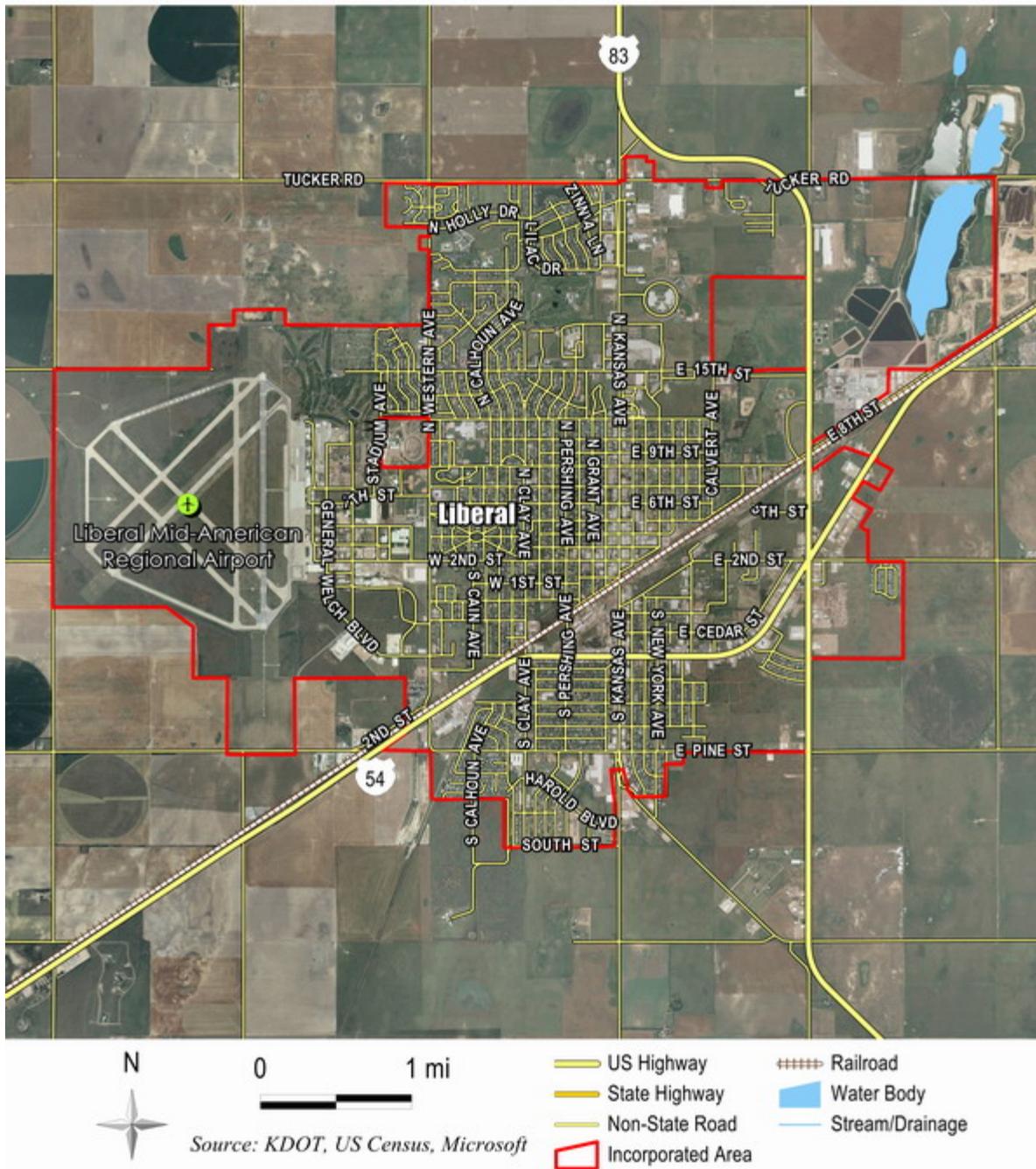
#### 4.5.2 Vulnerability Maps

The following maps provide brief descriptions for the data layers used to assess hazard vulnerability for Seward County. Digital data used for the production of these maps was acquired from the Kansas Geospatial Community Commons, U.S Census Tiger/Line, FEMA, and other resources.

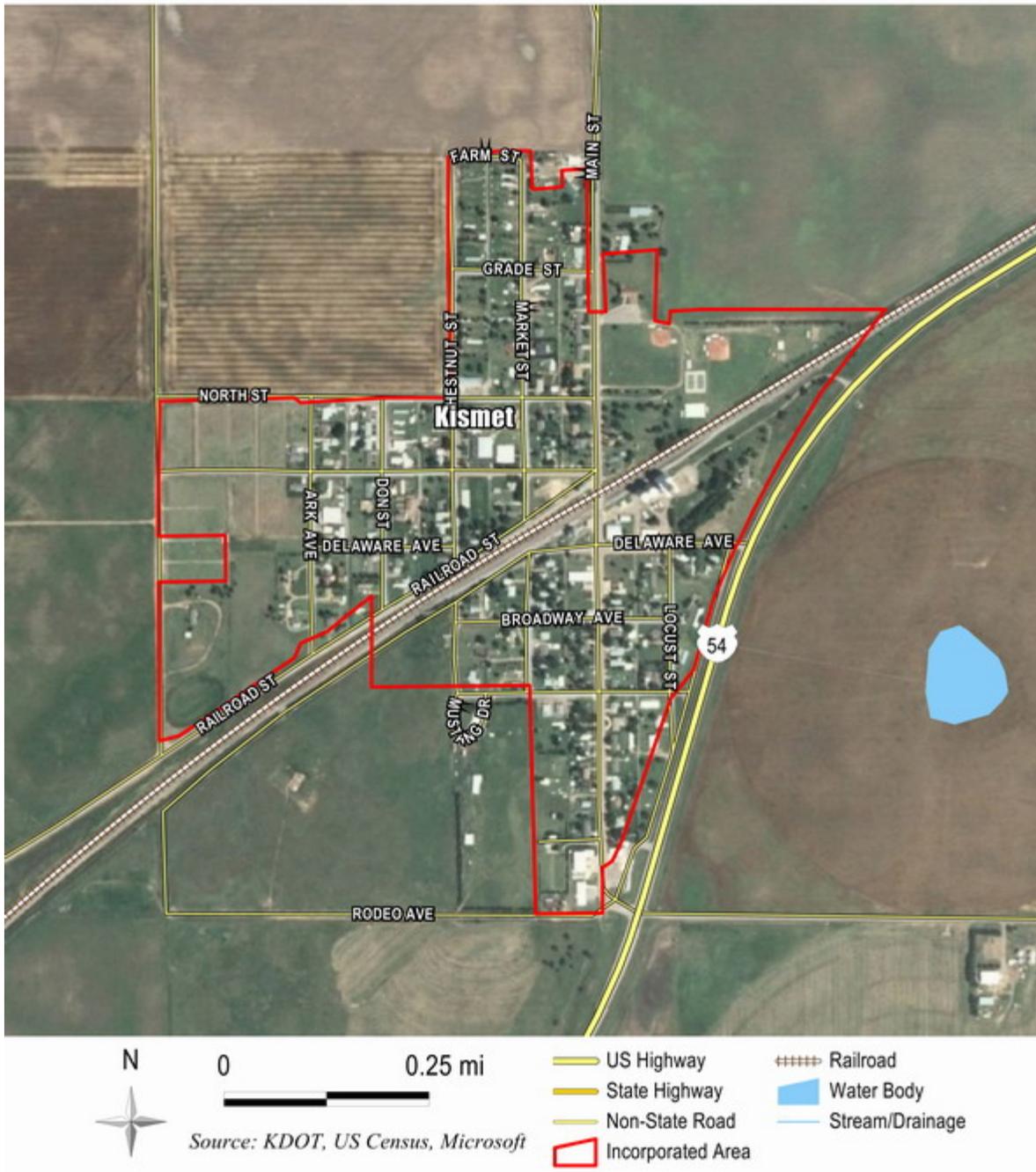
### 1. Seward County Base Maps



### Liberal, Kansas

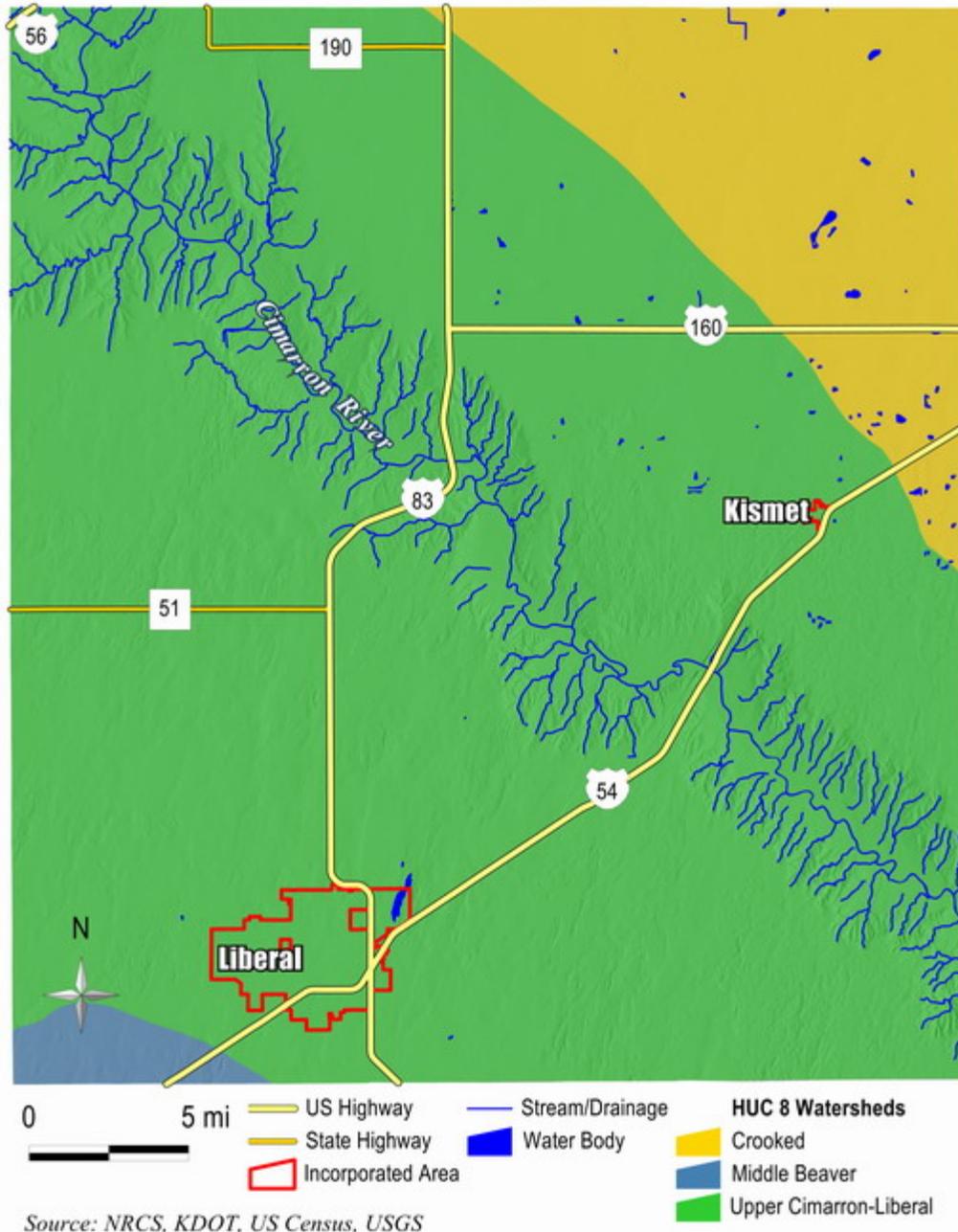


### Kismet, Kansas





### Hydrography Map Seward County, Kansas

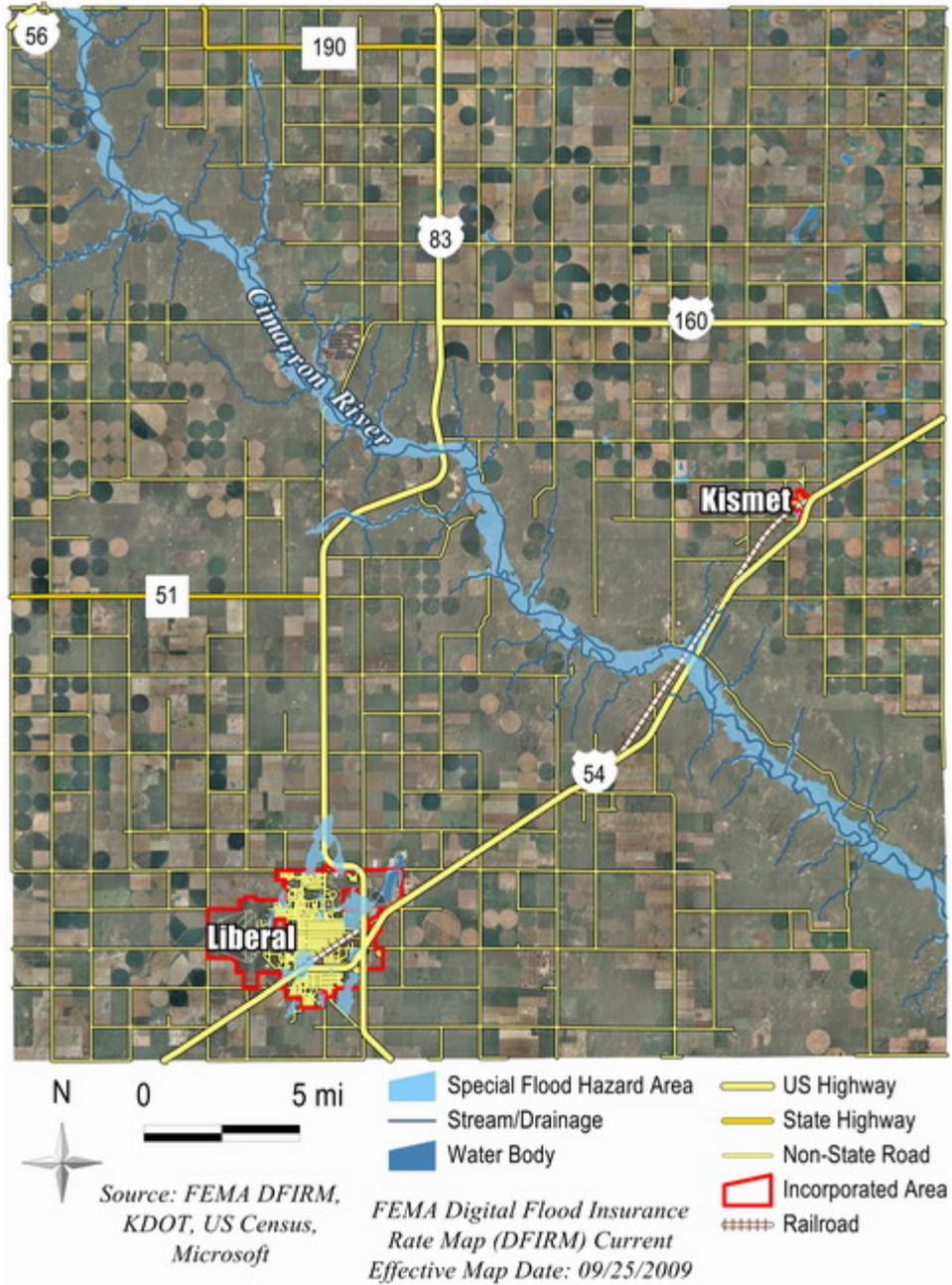


### 3. Flood Hazard Areas

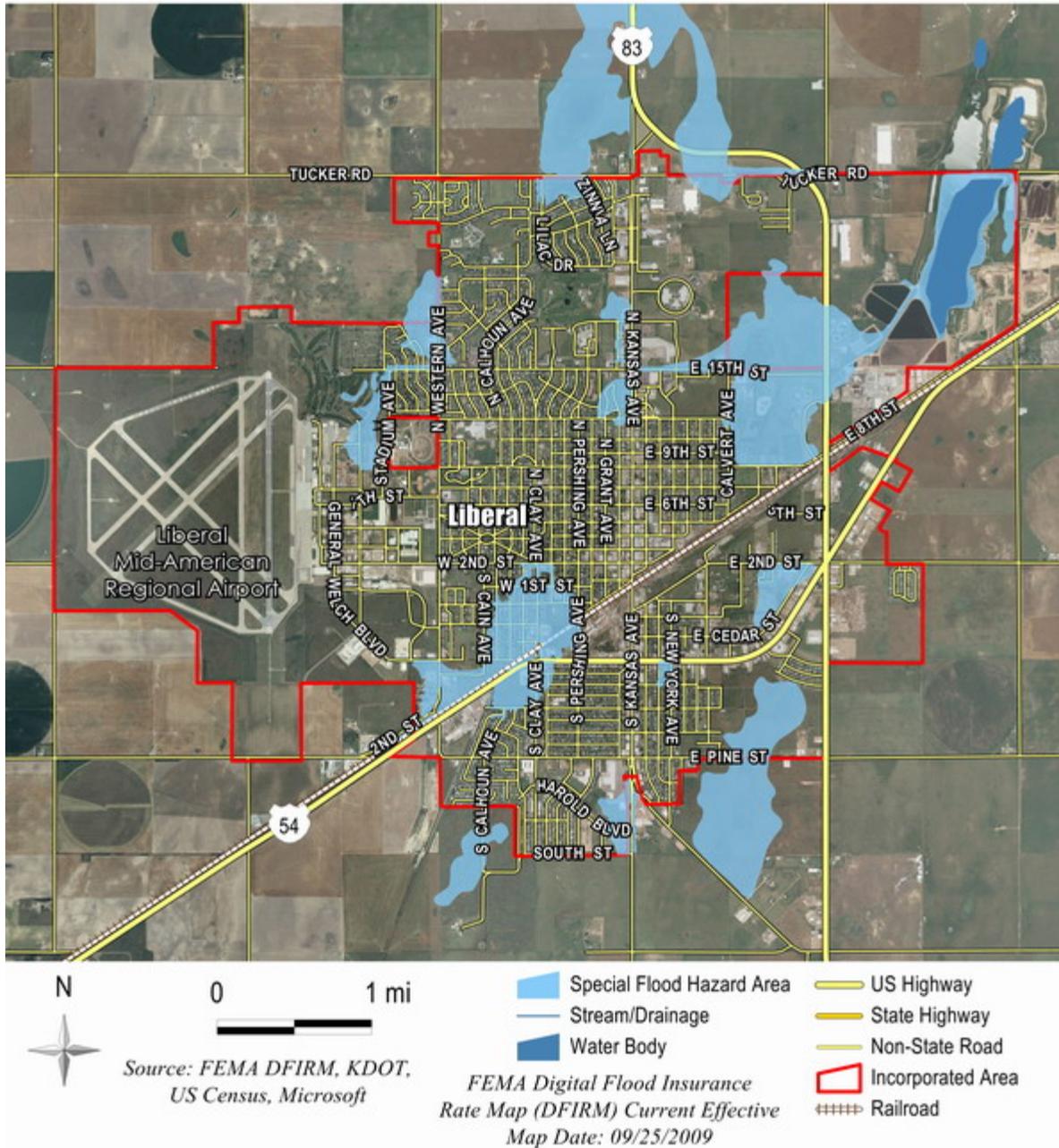
The following maps display the Special Flood Hazard Areas (SFHAs) in Seward County as delineated by the Federal Emergency Management Agency through their Flood Insurance Rate Maps. SFHAs are defined by one of the following: (1) areas inundated by 100-year flooding, for which no BFE’s have been determined, (2) areas inundated by 100-year flooding for which BFE’s have been determined, or (3) areas inundated by 100-year flooding with velocity hazard (wave action); BFE’s have been determined.

SFHAs are displayed below as light blue shaded areas.

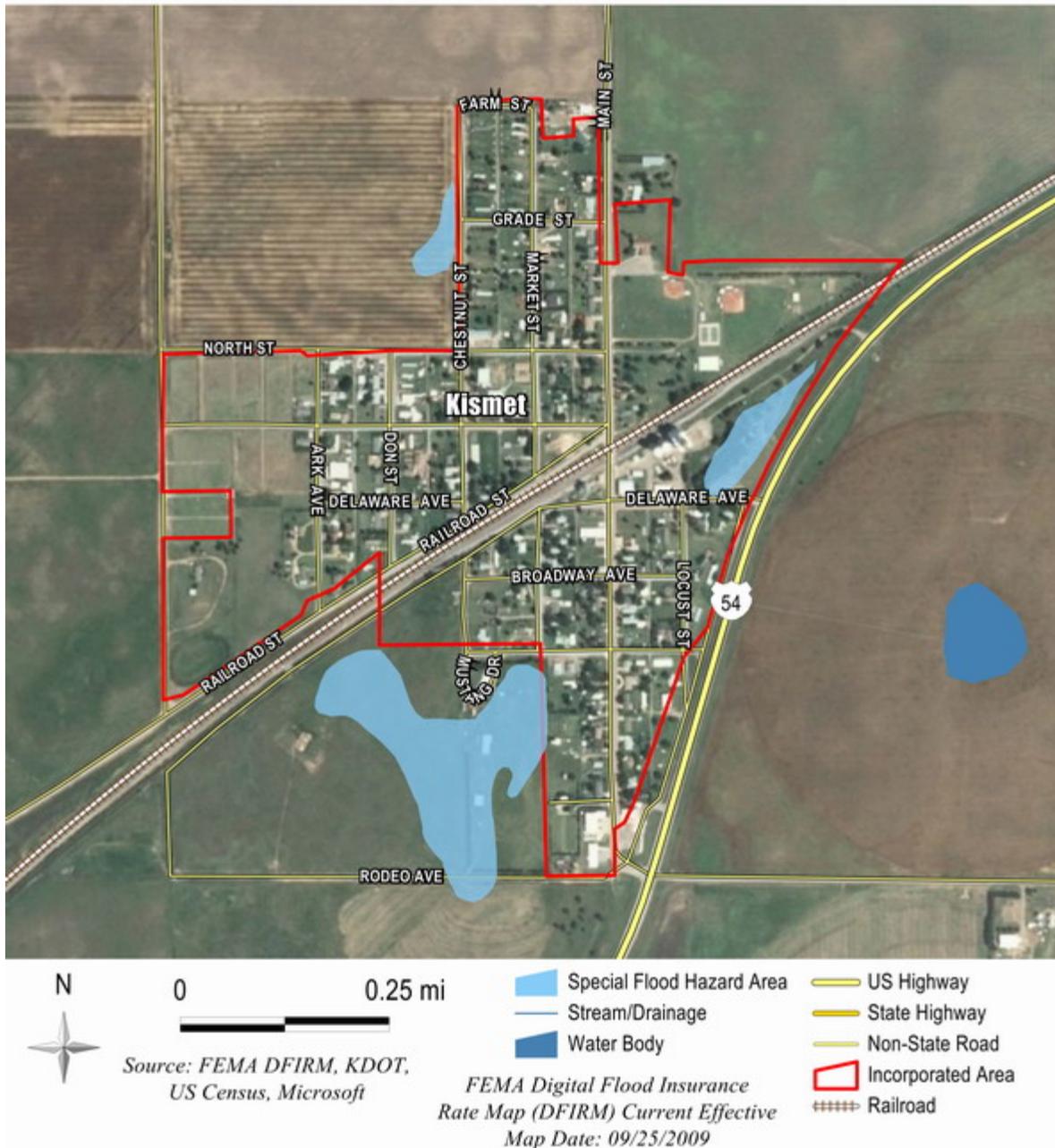
### FEMA Special Flood Hazard Areas Seward County, Kansas



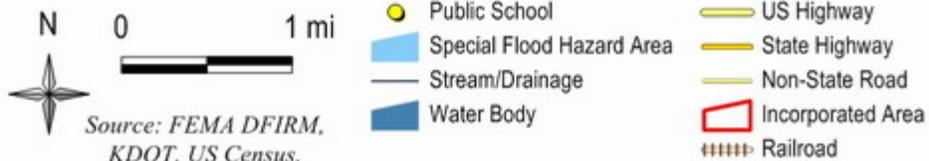
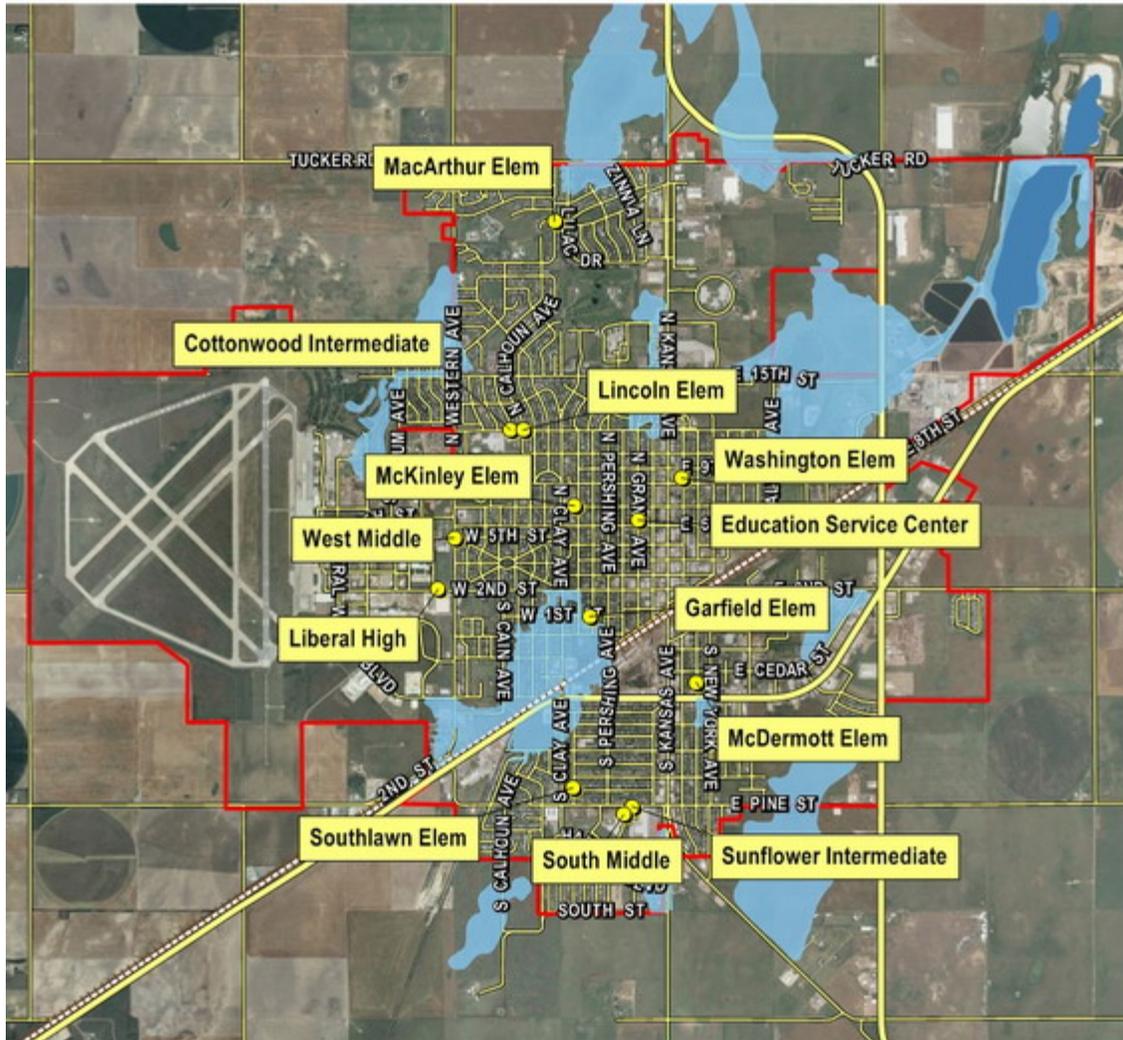
### FEMA Special Flood Hazard Areas Liberal, Kansas



## FEMA Special Flood Hazard Areas Kismet, Kansas

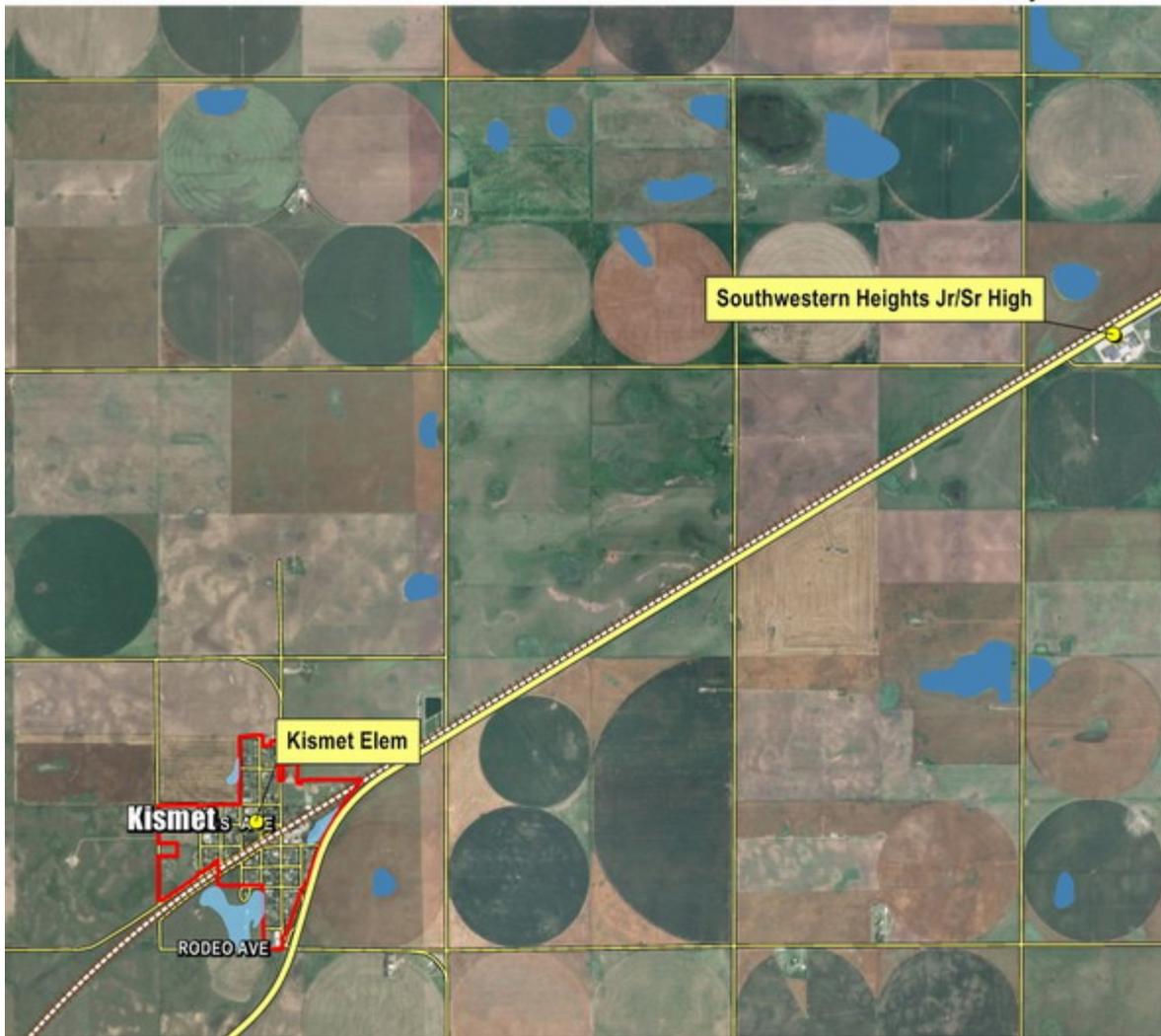


### FEMA Special Flood Hazard Areas Public Schools in Liberal USD 480



Source: FEMA DFIRM, KDOT, US Census, Microsoft  
 FEMA Digital Flood Insurance Rate Map (DFIRM)  
 Current Effective Map Date: 09/25/2009

### FEMA Special Flood Hazard Areas Public Schools in Kismet-Plains USD 483 Within Seward County



0 1 mi

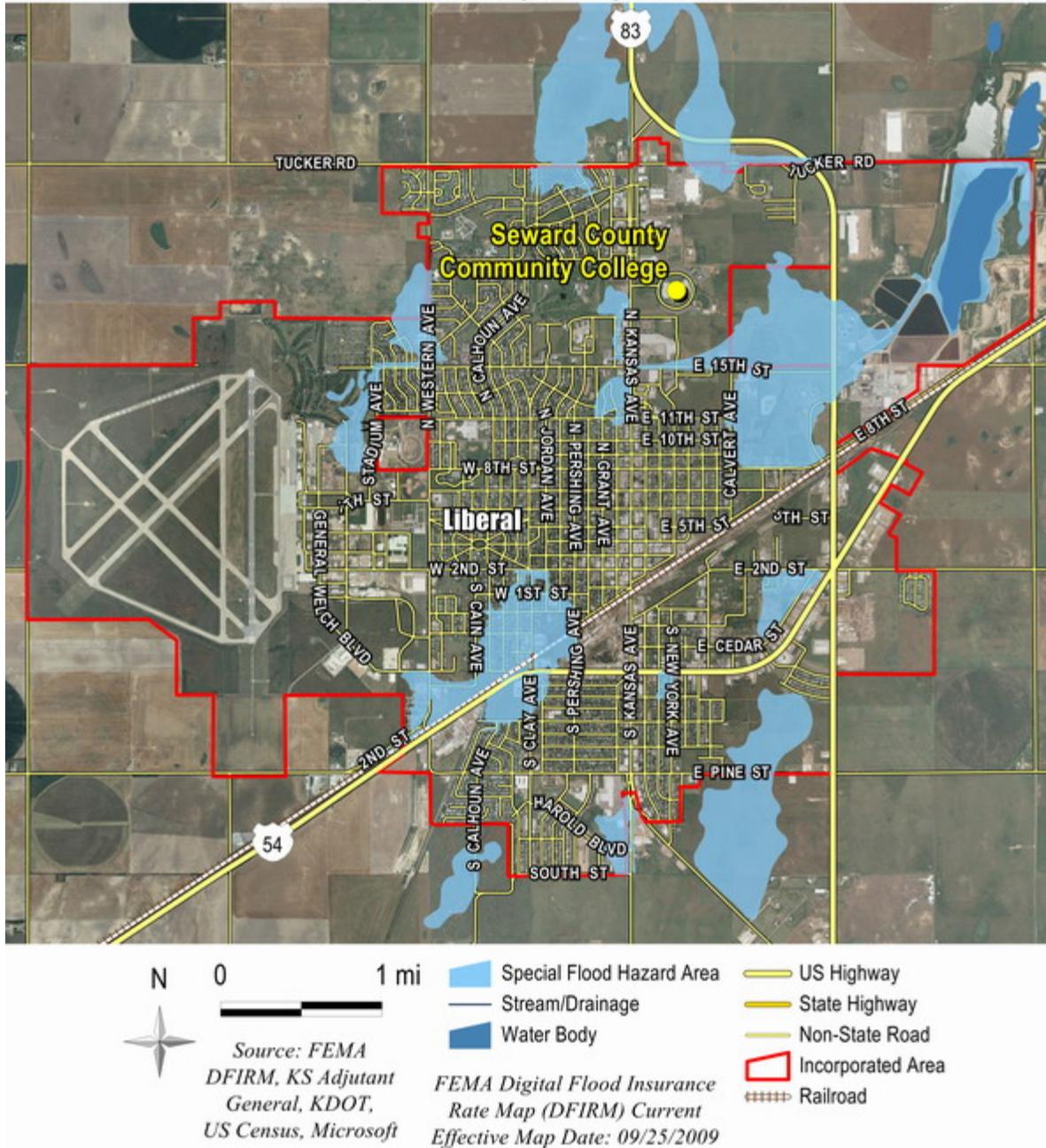


Source: FEMA DFIRM,  
KDOT, US Census,  
Microsoft

- Public School
- Special Flood Hazard Area
- Stream/Drainage
- Water Body
- US Highway
- State Highway
- Non-State Road
- ▭ Incorporated Area
- - - - - Railroad

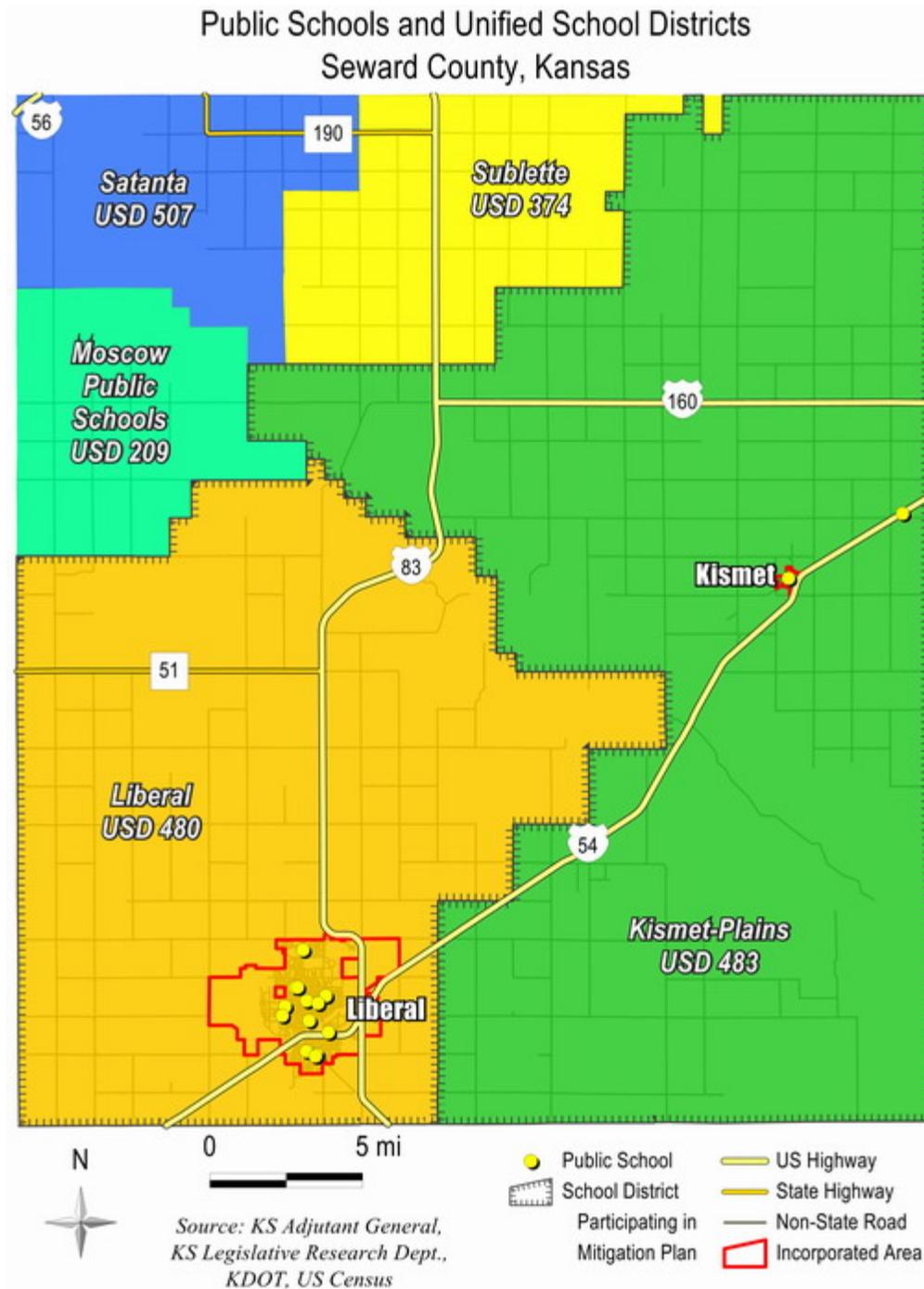
FEMA Digital Flood Insurance Rate Map (DFIRM)  
Current Effective Map Date: 09/25/2009

### FEMA Special Flood Hazard Areas Seward County Community College in Liberal, Kansas



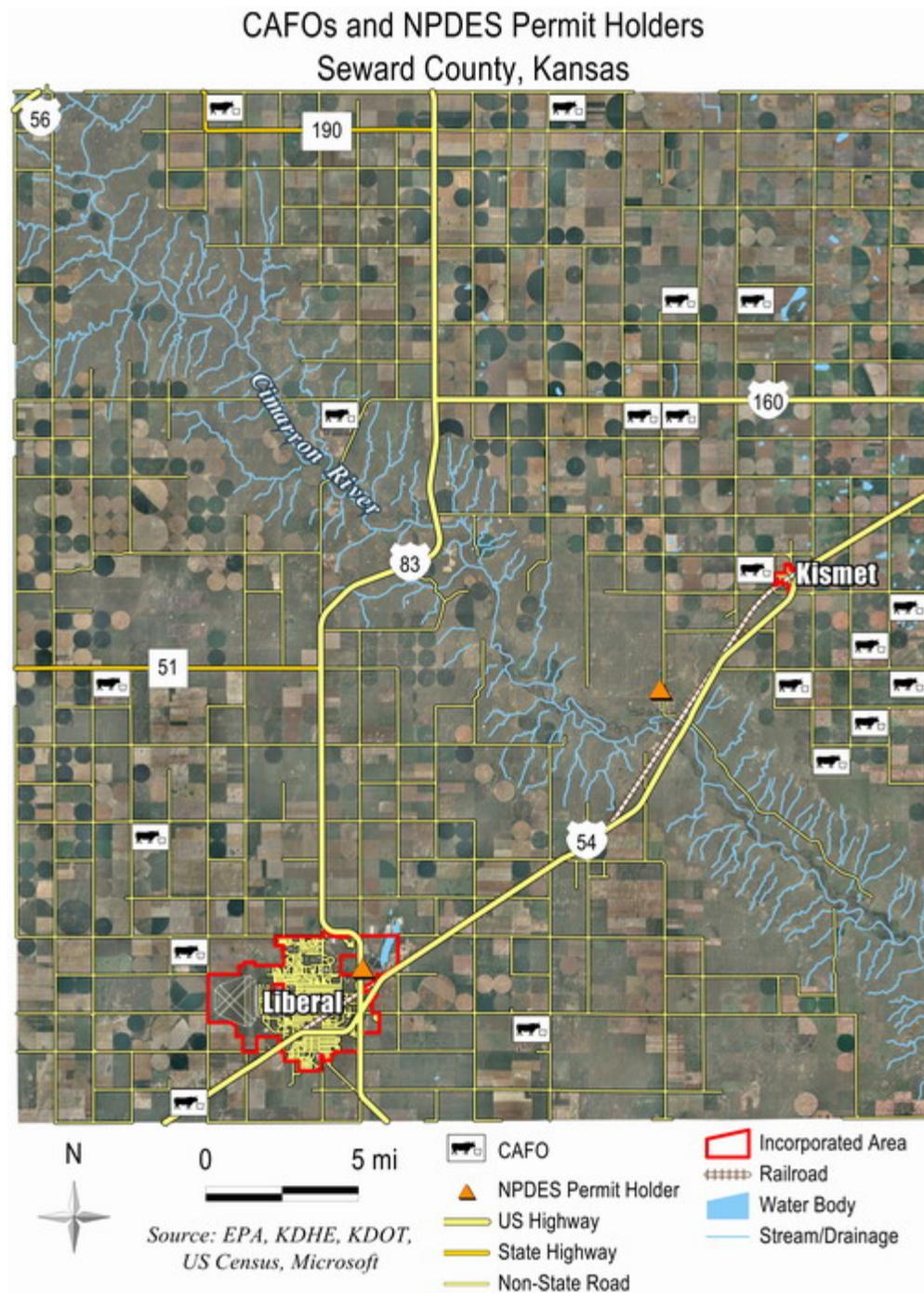
#### 4. Public Schools

The following map displays the public schools and unified school districts located in Seward County. It should be noted here that each of the public schools are designated to serve as tornado shelters.



### 5. Pollution Sources

The following map displays the locations of individual National Pollutant Discharge Elimination System (NPDES) sites permitted for wastewater discharges to surface waters in Seward County, as recorded by the Environmental Protection Agency. The map also displays the locations of Confined Animal Feeding Operations (CAFOs) currently registered with the Kansas Department of Health and Environment.



## 6. Dams & Levees

There were no notable levees or high-hazard dams listed for Seward County.

### 4.5.3 Vulnerability Estimation by Hazard

EFM utilized geographic distribution of natural hazards to develop vulnerability estimates, as recommended by FEMA, for hazards of planning significance. This generally involves assessment of the event location along with the extent and frequency of damage incurred over time. Natural hazards identified as multijurisdictional are those hazards that impact the entire geographical area of the county in a generally random and unpredictable manner. These hazards can include, but are not limited to, two major classes of events: thunderstorms (tornado, lightning, hail, high/straight-line wind, etc.), and winter storms (blizzard, ice, sleet, heavy snow, extreme windchill, etc).

Natural hazards identified by FEMA, that are considered local hazards for vulnerability assessment, include: flood, wildfire, and dam/levee failure. These hazards generally create localized damage exposure so vulnerability is treated as a separate geographical planning area for these hazards.

With limited objective flood related data on structures and populations in flood hazard areas and limited data on the appraised values of real property by land use, in the overall multijurisdictional areas of Seward County, estimates of damage inflicted by various types of natural hazards will be offered in a tabular format.

The principal resource in developing loss estimates for the county or municipality was provided by the National Climatic Data Center (NCDC), and best available information relating to populations and the value of real, commercial, and personal property, by jurisdiction, as obtained from various state and county sources. The purpose of this information is to show the overall population numbers and property values that would be subject to natural hazards in the jurisdictions of Seward County. Area wide natural hazards such as tornados or drought would cause extensive damage because of the number of buildings/parcels in the various jurisdictions of the region.

The qualitative approach used a two step process. The first step analyzed Severity Table 4.2 (2). NCDC provides five categories for severity of damage for deaths, personal injury, property damage, and crop damage. As an example, property damage reported in the database ranges from less than \$10,000 to greater than \$100,000,000 per event. The consultant recommended the following for consideration:

- A value of 5 in the Severity table be considered as complete destruction (> \$100,000,000);
- Values of 0.5, 1 and 2 be considered as 1% damage ( $1,000,000/100,000,000 = 1\%$  in a worst case scenario)
- Value of 3 be considered as greater than 1% and up to 10% damage ( $10,000,000/100,000,000 = 10\%$  in a worst case scenario)
- Value of 4 be considered as greater than 10% and up to 50% damage ( $50,000,000/100,000,000 = 50\%$  in a worst case scenario)

The MPC accepted this scale based on the fact that it is documented data provided by NCDC records.

Step 2 required each jurisdiction to agree on a final damage percentage considering local observations, total values in Table 4.5.1 (1), and specific jurisdiction values provided by the Appraisers office and listed in the vulnerability tables in Section 4. After this consideration, the damage percentage was assigned and used for calculations. If, by consensus, the jurisdiction chose a percentage outside the proposed ranges, then an explanation is provided, such as for flood and tornado.

Wildfire related data to structures, crops, and people were provided by the Kansas Fire Marshall's Office. Data for dam/levee was provided by the Kansas Department of Agriculture (KDA) - Division of Water Structures, and consists of dam/levee inventories and dam classifications developed by the KDA. The hazards identified as high and moderate were assessed utilizing available quantitative analysis and/or loss

estimation. Hazards that were researched but provided little data for evaluation were analyzed from a qualitative perspective.

## Flood

Floods are generally a result of slow-moving thunderstorms that deposit large volumes of water over an extended period of time. Heavy thunderstorm/rain may result in localized areas of flash flooding. This hazard is addressed separately by geographical area where data is provided by the jurisdiction.

### National Flood Insurance Program (NFIP)

The decision on whether to join the NFIP is very important for a jurisdiction (community). There is no Federal law that requires a jurisdiction to join the program, and participation is voluntary. A benefit of participation is that the citizens are provided the opportunity to purchase FEMA flood insurance to protect themselves against flood losses. Another consideration is that a jurisdiction that has been identified by FEMA as being flood-prone and has not joined the NFIP within one year of being notified of being mapped as flood-prone will be sanctioned.

Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). To participate in the NFIP the jurisdiction must adopt and enforce floodplain management regulations that meet or exceed the minimum requirements of the program.

The jurisdiction must submit an application package that includes the following:

- The jurisdiction must make an Application for Participation in the NFIP (FEMA Form 81-64);
- The jurisdiction must adopt a Resolution of Intent, which indicates an explicit desire to participate in the NFIP and a commitment to recognize flood hazards and carry out the objectives of the program;
- The jurisdiction must adopt and submit Floodplain Management Regulations that exceed the minimum flood plain management requirements of the NFIP (Title 44 of the Code of Federal Regulations (44 CFR) section 60.3);
- The jurisdiction's floodplain management regulations must be legally enforceable.

Seward County adopted floodplain management regulations on June 17, 1994. The resolution applies to all areas designated as Zone A on the existing FEMA Firm Maps dated September 13, 1977, (converted by letter effective May 5, 1990). No development shall be permitted, except through the issuance of a floodplain development permit through the County Commission.

The City of Liberal adopted a Floodplain management Ordinance in November 1990, and currently participates in the NFIP.

The City of Kismet passed floodplain regulations on August 16, 2009, and was admitted into the NFIP on October 7, 2009.

Seward County (unincorporated) and the cities of Liberal and Kismet are committed to continued participation and compliance with the National Flood Insurance Program (NFIP). Specific Actions that were identified in support of the NFIP are provided in Section 5.3 - Mitigation Actions.

### Community Rating System Activities (CRS)

Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally backed flood insurance policies available for properties in the jurisdiction. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging jurisdiction floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes. Class 1 requires the most credit points and earns the largest premium reduction, while Class 10 receives no premium reduction. It is a long process to become a participating CRS community, taking almost one year from application to acceptance. New CRS communities are admitted only on October 1 and May 1 of each year.

Seward County (unincorporated), and the cities of Liberal and Kismet do not currently participate in the

CRS program.

### Repetitive Loss Inventory

The Kansas Department of Emergency Management (KDEM), Mitigation Planning Division, was contacted regarding “repetitive loss properties” that may exist in Seward County. KDEM maintains records obtained from the Federal Emergency Management Agency (FEMA), Region VII, on repetitive loss properties in the State of Kansas.

Although there are separate definitions for what constitutes a repetitive loss property among various programs, FEMA generally considers it to be “any property, which the National Flood Insurance Program has paid two or more flood claims of \$1,000 or more in any, given 10-year period since 1978.”

#### FLOOD: REPETITIVE LOSS PROPERTIES

Address	City	Occupancy (type)	Building Value	# Loss Claims	Mitigated?
PANCAKE STREET	LIBERAL	NON RESIDENT	\$20,000	2	NO

There were no reported repetitive loss properties in the unincorporated areas of Seward County. One repetitive loss property was identified in the City of Liberal. The property was located within flood zone AE in the south-central part of the city. The State of Kansas reported that this property has not been mitigated.

Reference Section 3.10.2 Legal and Regulatory Capability - "Acquisition" for information on other properties mitigated in Seward County that were not classified as repetitive loss properties.

FLOOD: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	936	230	\$19,063,616	10.00%	\$1,906,362
Liberal	3,058	787	\$70,279,632	10.00%	\$7,027,963
Kismet	5	1	\$76,921	10.00%	\$7,692
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	37	33	\$8,829,339	10.00%	\$882,934
Liberal	1,296	125	\$22,023,112	10.00%	\$2,202,311
Kismet	2	1	\$5,957	10.00%	\$596
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	99	8	\$42,433,075	10.00%	\$4,243,308
Liberal	247	9	\$22,498,576	10.00%	\$2,249,858
Kismet	1	2	\$55,100	10.00%	\$5,510

FLOOD: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN SCHOOL JURISDICTIONS					
SCHOOL(S)					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	241	1	\$475,000	10.00%	\$47,500
SUPPORTING FACILITIES					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	17	1	\$5,000,000	10.00%	\$500,000

### Seward (UnInc.)

A review of the Kansas Department of Transportation map and Flood Hazard Boundary maps for Seward County show the principal stream to be the Cimarron River. Although the river bears no stream flow for much of its route through Seward County, it does begin to exhibit small amounts of flow near the Arkalon area and just west of the Mighty Sampson Railroad Bridge, which is primarily due to the pumping of storm water by the City of Liberal. The river enters the county from the northwest corner and exits the county to the southeast. Small tributaries exist along a narrow band of the stream that feed into the river bed. Flooding appears to be localized along a narrow area near the principal river bed. Maps that display the location and extent of flood hazard areas are provided in Section 4.5.2 Vulnerability Maps.

The vast majority of flooding and flash flooding in the unincorporated areas of Seward County are located along the numerous streams and low-lying areas that criss-cross the county, but present less impact due to the sparse population of the rural areas.

### Kismet

Kismet was recently accepted for participation in the NFIP on October 7, 2009. A review of the FEMA Flood Hazard Boundary Map (dated November 22, 1974) noted three flood zones, all identified as Zone A, for the City of Kismet. There are two Special Flood Hazard Areas (SFHA) on the southern limits of the city, both less than two-hundred fifty feet in diameter and in relatively undeveloped areas. The third SFHA is located in the northern portion of the city and appears to cover some developed area.

### Liberal

Liberal passed a Floodplain Management Ordinance in November 1990. The majority of the properties located within the city limits of Liberal are identified as Flood Zone A on the FEMA FIRM maps for the city. Currently, sixty-five residents have flood insurance with coverage of \$6,448,400. Liberal has had thirty-two insurance claims since 1978 totaling \$30,920. The town is committed to continued participation and compliance with the National Flood Insurance Program (NFIP). The City of Liberal is committed to continued compliance in NFIP.

A review of the FEMA Flood Hazard Boundary Map noted three main flood zones in the City of Liberal. The zone farthest north covers much of the northern edge of Liberal along Fifteenth Street, and consists of both A and AE flood zones. Most of this area appears to be undeveloped land.

Another flood zone is located near the center of the city and extends to east edge enveloping the railroad lines (Burlington Northern-Santa Fe and Union Pacific). This area contains both A0 and AE flood zones, and is partially developed, especially in the northern portion of the flood zone.

The other major flood area consists of isolated flood zones along the southern edge of the city. The zones furthest east and west are both Zone A and are out of the developed areas of the city. A smaller zone in between the two outlying zones is identified as Zone AE, and appears to have some development within its borders.

There are several smaller flood zones within the city limits that are not outlined in the three flood areas above, but these flood zones are small and appear to have little impact on populated areas. Maps that display the location and extent of flood hazard areas are provided in Section 4.5.2 Vulnerability Maps.

**USD 480**

Using Manifold.Net GIS software to produce aerial images overlaid with FEMA FIRM maps it was determined that the Garfield Elementary building and the majority of the property is located in an identified Special Flood Hazard Area (SFHA) Zone AE. USD 480 does not currently have flood insurance for its facilities, but will consider future measures to reduce vulnerability to flooding. See Section 5.2 Mitigation Actions.

## Tornado

Situated in the southwest portion of Kansas, Seward County is located in a region that is prone to the effects of sudden collision of cold/warm fronts creating thunderstorm high winds and tornadoes, and for the most part, faces an equal probability of risk for this hazard. This is due to the nature of the natural weather events that occur in the county. Thunderstorm high winds and tornadoes are unpredictable and random in nature. Since the majority of the county is rural, it does not present areas that are significantly more vulnerable to property loss than others. The majority of people who live and work in Seward County reside in the cities of Liberal and Kismet, but the probability that a jurisdiction would be affected more often than other areas in the county is considered statistically very low.

The damage from a tornado is a result of high wind velocity and wind-blown debris. The potential damage resulting from a tornado is directly correlated to the strength of the particular tornado and is qualified utilizing the Enhanced Fujita Scale. The EF Scale assigns numerical values based on wind speeds and categorizes tornadoes from EF0 through EF5.

The entire county is equally susceptible to damage from tornadoes. Although urbanized areas face the greatest vulnerability because of their concentration of buildings, population, and lifeline utilities, the economic impact from loss of crops, livestock, and storage facilities in the rural parts of the county can have permanent or long-lasting impact on the communities in Seward County.

Seward County has a significant risk of tornadoes due to the number of thunderstorms the county experiences each year. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect a tornado event every two years (0.54 expectancy of occurrence during a single year), with expected damages of \$274,684 per year.

Although we extract data and probability of occurrence from historical information, the risk of a tornado occurring and the location of damage appear to be a random event. Additionally, the range of damage is largely dependent upon numerous storm factors. The jurisdictions utilized qualitative data to estimate the probable percent damage based on the overall average severity magnitude rating for Tornado identified in this plan. In many cases, due to the small nature of the town in Seward County, a tornado could virtually wipe out the entire community (90% to 100%).

TORNADO: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	10.00%	\$47,659,041
Liberal	20,384	5,248	\$468,530,883	90.00%	\$421,677,795
Kismet	522	138	\$7,692,160	90.00%	\$6,922,944
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	10.00%	\$22,073,347
Liberal	8,639	830	\$146,820,748	90.00%	\$132,138,673
Kismet	166	14	\$595,720	90.00%	\$536,148
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	10.00%	\$106,082,688
Liberal	1,645	57	\$149,990,509	90.00%	\$134,991,458
Kismet	13	161	\$5,510,000	90.00%	\$4,959,000

The schools have identified a need for shelters for protection from tornadoes, high winds, and other consequences of these events. Based on a major tornado which would devastate the campus the estimated damage would be 90%. Estimates are provided in the following table.

TORNADO: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN SCHOOL JURISDICTIONS					
<b>SCHOOL(S)</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	5,230	12	\$110,000,000	90.00%	\$99,000,000
Seward Co. Community College/Area Technical School	3,800	10	\$83,000,000	90.00%	\$74,700,000
USD 483	890	8	\$27,600,000	90.00%	\$24,840,000
<b>SUPPORTING FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	85	5	\$25,000,000	90.00%	\$22,500,000
Seward Co. Community College/Area Technical School	3,800	3	\$2,000,000	90.00%	\$1,800,000
USD 483	12	2	\$200,000	90.00%	\$180,000

## Dam / Levee

### DAMS

A dam is a barrier across flowing water that obstructs, directs or slows down the flow, often creating a reservoir, lake or impoundments. Most dams have a section called a spillway or weir over which, or through which, water flows, either intermittently or continuously, and many have hydroelectric power generation systems installed.

National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for 34% of all dam failures. Foundation defects, including settlement and slope instability, account for 30% of all failures. Piping and seepage cause 20% of national dam failures. This includes internal erosion caused by seepage, seepage and erosion along hydraulic structures, leakage through animal burrows, and cracks in the dam. The remaining 16% of failures are caused by other means. Dam failure can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures can take much longer to occur, from days to weeks, as a result of debris jams or the accumulation of melting snow.

Dam inundation hazards are addressed separately by geographical area where data is available to the county.

### LEVEES

A levee is a man-made structure; usually earthen embankments designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding. A levee is generally built parallel to a body of water (most often a river) in order to protect lives and property behind it from some level of flooding.

FEMA is responsible for identifying flood risks in areas behind levees through flood analysis and flood hazard mapping projects, including updating the nation's hazard maps through an effort called Flood Map Modernization (Map Mod). In addition, FEMA also provides criteria to define which protect against the 1-percent-annual-chance flood. FEMA does not examine or analyze structures to determine their performance in a given flood event. The levee owner must provide documentation to show that a levee meets current design, operations, and maintenance criteria. FEMA will accredit levees based on a review of these criteria. Levee owners or communities have a responsibility to provide documentation that a levee meets the requirements of Title 44 of the Code of Federal Regulations, Section 65.10, as part of a study/mapping project. Procedure Memorandum 34 (PM 34) allows for the issuance of a deadline to the community for submitting the required documentation. (Source: FEMA)

FEMA – Region VII reported that their MAP Mod modernization program focuses on levees found on existing FEMA Flood Maps (FIRMS) prior to update. FEMA is initiating a process to notify owners, schedule meetings, and provide guidance to owners. The intent is to assist meeting Federal requirements and accredit identified levees.

Levee hazards are addressed separately by geographical area where data is available to the county.

### Seward (UnInc.)

The Department of Water Resources did not identify any high hazard dams or levees in or adjacent to Seward County that would create a risk to the population or assets in the county.

### Liberal

The Department of Water Resources did not identify any high hazard dams or levees in or adjacent to the City of Liberal that would create a risk to the population or assets in the county.

**Kismet**

The Department of Water Resources did not identify any high hazard dams or levees in or adjacent to the City of Kismet that would create a risk to the population or assets in the county.

## Drought

Kansas's climate is characterized by cold winters and warm to hot summers. The eastern part of the state generally receives moderate moisture in the winter and adequate moisture in the spring for the growing season for crops.

The western portion of the state usually receives low to moderate moisture in the winter and marginal moisture in the spring for the growing season for crops. The semi-arid conditions that prevail in the western portion of the state also experiences average wind speeds of 12 to 17.5 mph which causes dry conditions in a very short period of time.

This combination of hot summers and limited precipitation in a semi-arid geography places Kansas in a potential position of suffering a drought in any given year. The climatic conditions are such that a small departure in the normal precipitation during the hot peak growing period of July and August could produce a partial or total crop failure. The fact Kansas's economy is closely tied to agriculture only magnifies the potential loss which could be suffered during drought conditions.

There is no distinct geographic boundary to Drought, and it can occur in every area of the county equally. While Seward County buildings, critical facilities, infrastructure and lifelines, and hazardous materials facilities may be exposed to extreme weather related conditions brought on by a period of drought and could potentially be impacted, it is expected that the greatest exposure to this hazard is on the population, agriculture, and livestock of Seward County. Hazard workshops are considered a viable option to educate the local residents and will be considered in the future. See Section 5.2 Mitigation Actions.

DROUGHT: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	1.00%	\$4,765,904
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	1.00%	\$2,207,335
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	1.00%	\$10,608,269

## Hail

Hailstorms can cause extensive property damage affecting both urban and rural landscapes across large areas. Fortunately, most hailstorms produce marble-size or smaller hailstones. These can cause damage to crops, but they normally do not damage buildings or automobiles. Larger hailstones can destroy crops, livestock, and wildlife and can cause extensive damage to buildings, including roofs, windows, and outside walls. Vehicles can be total losses. When hail breaks windows, water damage from accompanying rains can also be significant. A major hailstorm can easily cause damage running into the millions of dollars.

Hail vulnerability is unpredictable and is a multijurisdictional hazard capable of producing extensive damage from the impact of falling objects. Most thunderstorms do not produce hail, and ones that do normally produce only small hailstones not more than one-half inch in diameter. However, hailstones can grow larger than the size of a golf ball before falling to the ground. On September 3, 1970, a thunderstorm in Coffeyville, Kansas produced a hailstone that measured more than 5 inches in diameter and 17 inches around, weighing 1.7 pounds.

Hail is associated with severe thunderstorms. Powerful updrafts produce cumulonimbus clouds that tower tens of thousands of feet above the ground. Air temperature in the upper levels of these clouds may be -50°F or below. Hailstones grow as ice pellets, are lifted by updrafts, and collect supercooled water droplets. As they grow, hailstones become heavier and begin to fall. Sometimes, they are caught by successively stronger updrafts and are circulated through the cloud again and again, growing larger each time the cycle is repeated. Eventually, the updrafts can no longer support the weight of the hailstones. As hailstones fall to the ground, they produce a hailstreak that may be more than a mile wide and a few miles long. A single thunderstorm can produce several hailstreaks (Changnon and Ivens, 1987).

Hailstorms occur every year in Kansas. Fortunately, most of these cause minimal damage. However, storms producing large hail and causing extensive damage are ingrained in the memories of many Kansas residents. While it is not possible to prevent damage, efforts to mitigate the potential effects of hail can help property owners to minimize their losses.

Severe weather watches and warnings often provide ample time to prepare for a hailstorm. When there is a threat of severe weather, property owners should move vehicles and other valuable, moveable objects to locations that provide shelter from falling hail. Farmers should move livestock and machinery to sheltered locations. If a hailstorm is approaching, take shelter inside. Close drapes, blinds, and window shades inside your house to reduce the likelihood of shattered glass being blown inside. Then, move to an interior room on the lowest level and stay there during the storm.

The best protection against financial loss from hail is to purchase insurance. Homeowners and auto insurance should include coverage for hail damage. Farmers should invest in crop insurance to protect against catastrophic loss.

HAIL: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	10.00%	\$47,659,041
Liberal	20,384	5,248	\$468,530,883	10.00%	\$46,853,088
Kismet	522	138	\$7,692,160	10.00%	\$769,216
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	10.00%	\$22,073,347
Liberal	8,639	830	\$146,820,748	10.00%	\$14,682,075
Kismet	166	14	\$595,720	10.00%	\$59,572
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	10.00%	\$106,082,688
Liberal	1,645	57	\$149,990,509	10.00%	\$14,999,051
Kismet	13	161	\$5,510,000	10.00%	\$551,000

HAIL: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN SCHOOL JURISDICTIONS					
<b>SCHOOL(S)</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	5,230	12	\$110,000,000	10.00%	\$11,000,000
Seward Co. Community College/Area Technical School	3,800	10	\$83,000,000	10.00%	\$8,300,000
USD 483	890	8	\$27,600,000	10.00%	\$2,760,000
<b>SUPPORTING FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	85	5	\$25,000,000	10.00%	\$2,500,000
Seward Co. Community College/Area Technical School	3,800	3	\$2,000,000	10.00%	\$200,000
USD 483	12	2	\$200,000	10.00%	\$20,000

## **Terrorism / AT / CD**

Planning for this category of hazard is similar to natural hazards in that these types of hazards can occur randomly, or as a result of a natural plant or animal disease, which could impact the entire county (and beyond) before the disease or bio-agent is discovered. For this reason, this hazard category will be assessed on a countywide planning basis instead of establishing a separate geographic planning area for this type of event.

Although initial detection of this type of event is considered uncontrollable, it is highly possible an act of terrorism (domestic or other) could occur at any time given the right circumstances. However, the probability of future occurrence is reduced due to proactive preventative action on the part of Federal, State and local authorities. This proactive approach to preparation and prevention will help reduce the potential for losses to property and life as a result of terrorist or disease outbreaks.

A review of this type of hazard revealed few sources for estimating risk associated with terrorism, agri-terrorism, and civil disorder, and appears to have a low risk probability. The State of Kansas required each county to develop a Foreign Animal Disease Plan (FAD) for agricultural exotic diseases, and is included in the plan as a state-mandated planning hazard.

For planning purposes this hazard category is considered to be a multijurisdictional hazard and the entire planning area is considered equally susceptible to Terrorism / Agri-terrorism / Civil Disorder. There is currently no existing data available that can be used to evaluate future vulnerability, and no reports of terrorism have been recorded for the county. The MPC noted that most vulnerability for Terrorism/AT/CD would be to the population of the county.

## TSTM Wind

A severe thunderstorm is a thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage or damaged crops may imply the occurrence of a severe thunderstorm. A thunderstorm is approaching severe levels when it contains winds of 35 to 49 knots (40 to 57 mph) or hail ½-inch or larger but less than ¾-inch in diameter. Although not considered “severe”, lightning and heavy rain can also accompany thunderstorms.

In the case of severe thunderstorms, hail, wind, and tornadoes, the location and frequency of previous events are probably the best determiners of future events. NCDC recorded events provided the basis for the natural hazards analysis for Seward County, and identified severity and likelihood to prioritize the hazard.

The entire county is equally susceptible to damage from thunderstorm high wind (TSTM Wind). Damage estimates were provided by the MPC based on severity ratings from the prioritized hazards identified in the county and local estimated damage.

TSTM WIND: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	10.00%	\$47,659,041
Liberal	20,384	5,248	\$468,530,883	10.00%	\$46,853,088
Kismet	522	138	\$7,692,160	10.00%	\$769,216
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	10.00%	\$22,073,347
Liberal	8,639	830	\$146,820,748	10.00%	\$14,682,075
Kismet	166	14	\$595,720	10.00%	\$59,572
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	10.00%	\$106,082,688
Liberal	1,645	57	\$149,990,509	10.00%	\$14,999,051
Kismet	13	161	\$5,510,000	10.00%	\$551,000

TSTM WIND: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN SCHOOL JURISDICTIONS					
<b>SCHOOL(S)</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	5,230	12	\$110,000,000	10.00%	\$11,000,000
Seward Co. Community College/Area Technical School	3,800	10	\$83,000,000	10.00%	\$8,300,000
USD 483	890	8	\$27,600,000	10.00%	\$2,760,000
<b>SUPPORTING FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	85	5	\$25,000,000	10.00%	\$2,500,000
Seward Co. Community College/Area Technical School	3,800	3	\$2,000,000	10.00%	\$200,000
USD 483	12	2	\$200,000	10.00%	\$20,000

**Utility Failure**

Failure of electrical utilities or other components of the power infrastructure in Seward County can seriously impact public safety and health, vital government services, and the economy of the county. Disruption of any of these functions could result from the majority of the natural, technological, and manmade hazards described in this plan. Reliable data at the local level was not available, so Seward County relied on vulnerability data provided in the State Mitigation Plan for analysis of this potential hazard.

The electric power infrastructure in Kansas has been significantly affected by disasters and weather events in the past, and is expected to continue into the future. Potential losses to the electric line infrastructure are difficult to quantify. This information could potentially be obtained or estimated with assistance from rural electric cooperatives in future updates to this plan.

For purposes of this hazard mitigation plan, Seward County will assess this hazard's vulnerability on a countywide planning basis instead of establishing separate geographic planning areas for this type of event. The most common causal hazard of utility failure is winter storms, and therefore will be the focus hazard for utility failure mitigation. The MPC noted that the greatest exposure to this hazard is in the population of Seward County rather than the county assets.

UTILITY FAILURE: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	0	\$0	0.00%	\$0
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	0	0	\$0	0.00%	\$0
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	0	0	\$0	0.00%	\$0

## Wildfire

Wildfires in the State of Kansas are better defined as rangeland fires. These fires generally originate as a surface fire and can spread quickly across large areas. Wild/rangeland fires initiated by lightning are also an issue in the plains states. When wildfires do occur in Seward County, it is very rare that a home or business is lost; most damage is limited to field crops. Wildfires are most common in the spring when brush is still brown and dry, as well as in the fall when fields have reached maturity.

Wildfires can cause considerable damage and loss of life especially in areas where there is an interface between wild or range land and urban development. Not only do the topography and wind velocity of Seward County lend themselves to the spread of wildfires, but the county has multiple fuel sources and is prone to drought and thunderstorms. Because of these factors, wildfires are a significant risk for Seward County.

Due to the nature of wildfire and the extremely rural setting of the county, exposure to wildfire appears to occur as isolated incidents. Planning for this hazard will be addressed on a jurisdictional basis.

Because a substantial amount of the wildfires that threaten Seward County are started by individuals, the best defense against wildfire is the education of preventative techniques to Seward County citizens.

WILDFIRE: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	1.00%	\$4,765,904
Kismet	522	138	\$7,692,160	1.00%	\$76,922
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	1.00%	\$2,207,335
Kismet	166	14	\$595,720	1.00%	\$5,957
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	1.00%	\$10,608,269
Kismet	13	161	\$5,510,000	1.00%	\$55,100

## Winter Storm

Winter storms can include blizzards, ice/sleet storms, extreme windchill and other cold related hazards that can impact a community, county or region. The probability of a severe winter storm event depends on winter weather patterns that pass through the state. With 15 years of recorded history, the likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect 2.8 winter storms every year. Average annual damages for the area from winter storms are estimated at \$175,400.

Although we can extract data and probability of occurrence from historical information, the risk of a severe event occurring and the location of damage appear to be a random event. Damage estimates are based on severity ratings from the prioritized hazards identified in the county and local estimated damage.

WINTER STORM: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN JURISDICTIONS					
<b>RESIDENTIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	23,404	5,757	\$476,590,407	10.00%	\$47,659,041
Liberal	20,384	5,248	\$468,530,883	10.00%	\$46,853,088
Kismet	522	138	\$7,692,160	10.00%	\$769,216
<b>COMMERCIAL</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	919	821	\$220,733,471	10.00%	\$22,073,347
Liberal	8,639	830	\$146,820,748	10.00%	\$14,682,075
Kismet	166	14	\$595,720	10.00%	\$59,572
<b>CRITICAL FACILITIES</b>					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
Seward (UnInc.)	2,472	89	\$1,060,826,875	10.00%	\$106,082,688
Liberal	1,645	57	\$149,990,509	10.00%	\$14,999,051
Kismet	13	161	\$5,510,000	10.00%	\$551,000

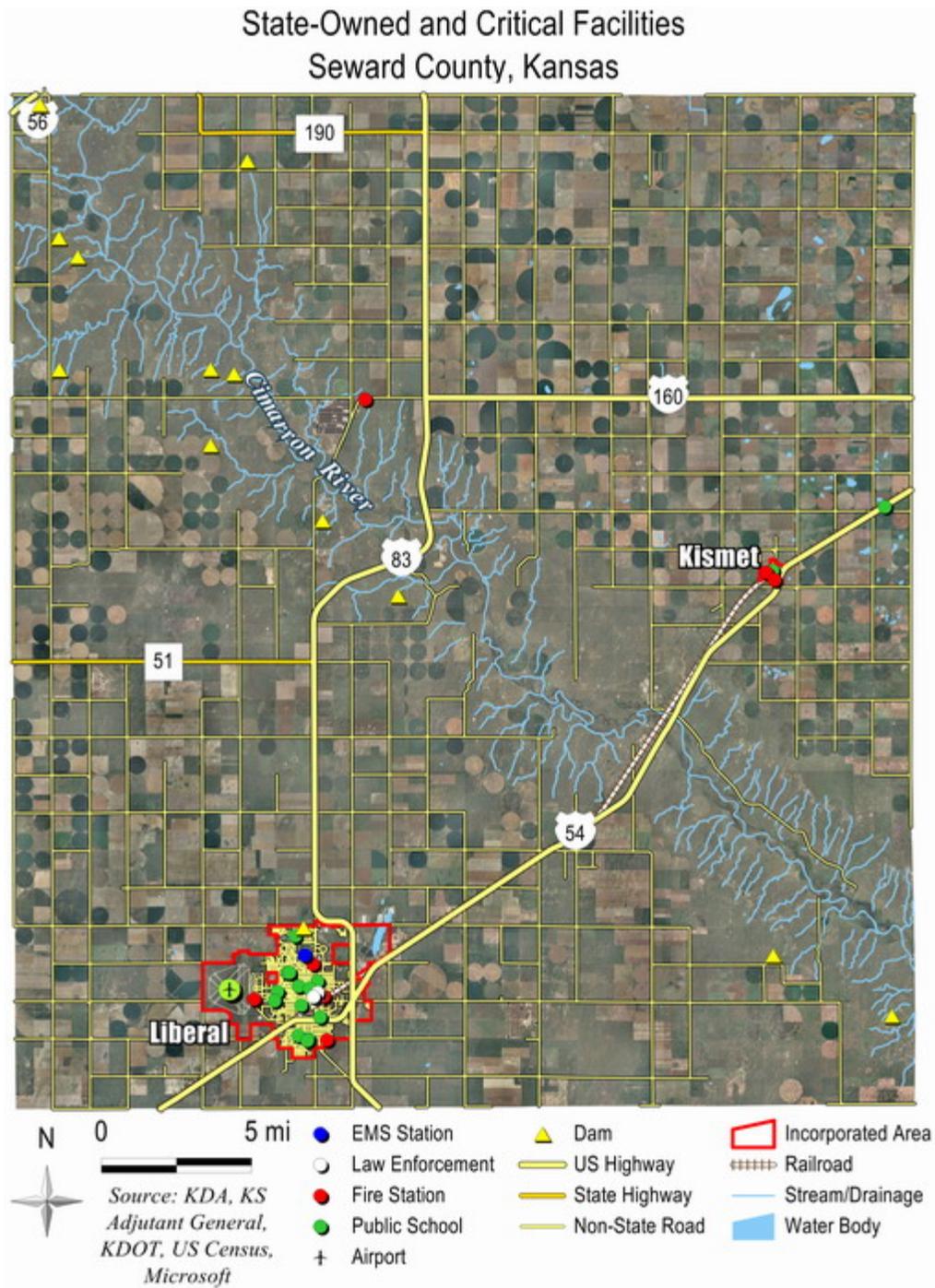
WINTER STORM: SUMMARY OF POTENTIAL HAZARD-RELATED EXPOSURE/LOSS IN SCHOOL JURISDICTIONS					
SCHOOL(S)					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	5,230	12	\$110,000,000	10.00%	\$11,000,000
Seward Co. Community College/Area Technical School	3,800	10	\$83,000,000	10.00%	\$8,300,000
USD 483	890	8	\$27,600,000	10.00%	\$2,760,000
SUPPORTING FACILITIES					
Jurisdiction	Exposed Population	# of Buildings	Current Values	Damage as %	Potential Dollar Exposure / Loss
USD 480	85	5	\$25,000,000	10.00%	\$2,500,000
Seward Co. Community College/Area Technical School	3,800	3	\$2,000,000	10.00%	\$200,000
USD 483	85	5	\$25,000,000	10.00%	\$2,500,000

#### 4.5.4 Critical Facilities

An essential component of this Mitigation Plan is the inventory and identification of Seward County's critical facilities. The objective of the critical facilities inventory is to maintain information on buildings and support infrastructure that are vital to the response and recovery of a community from a disaster. While it is important to reduce or eliminate risks to various sites throughout Seward County, there are several types of structures that should be prioritized because damage to these critical facilities can delay recovery, impact the delivery of vital services, cause greater damages to other sectors of the county, or can put special populations at risk. For this reason, emphasis on planning and protection of critical facilities is a priority for this mitigation plan.

There is no definitive list regarding what should be considered a "critical facility." However, for purposes of this Mitigation Plan, Seward County considers critical facilities to be those structures from which essential services and functions for the continuation of public safety actions and disaster recovery are performed or provided. These facilities include the supporting "life-line" infrastructure essential to the mission of critical facilities.

A "best available" inventory of Seward County's public and private assets, along with known critical facilities, has been compiled using best available data. Sources used included the Division of Property Valuation (Kansas Department of Revenue), HAZUS, and RS Means Estimated Construction data. RS Means is the world's largest provider of construction cost and replacement cost data. Its data is accepted and used by HAZUS and many other federal agencies. Since actual values associated with specific structures could not be produced, aggregate costs (assessed value or RS Means data), by class-type, were utilized along with the associated average unit cost. An objective was established to implement collection of this type of data / information for the county as they begin to develop and refine mitigation capability. It is anticipated that new information and data will continually be added to this plan as technical capabilities are enhanced and implemented.



**Critical Facility Vulnerability**

The following vulnerability assessment tables have been completed in order to best assess the current vulnerability of Seward County based upon the current number and value of structures of critical facilities.

Tables 4.5.4 (1) provides critical facilities ranked by required operational status during an emergency event as follows (also reference the Table heading for description of levels 1 through 3):

- Level 1 Facilities: Must not lose operational capability
- Level 2 Facilities: Must be operational within 24-hours following an event
- Level 3 Facilities: Must be operational within 72-hours following an event

TABLE 4.5.4 (1) SEWARD COUNTY CRITICAL FACILITIES DEFINITION

LEVEL 1 Facilities	LEVEL 2 Facilities	LEVEL 3 Facilities
(must not lose operational capability)	(must be operational within 24 hours following event)	(must be operational within 72 hours following event)
Communications (radio, TV, similar)	Emergency shelters (schools)	Fuel storage areas
County Emergency Operations	Response staging areas	Electric / Gas utilities
Fire / EMS stations	Major government buildings	Pumping stations
Hospital	Major roads (Mi)	*Transportation systems
Law Enforcement (Sheriff/Police Bldgs)	Major Hwy Bridges (No.)	Water treatment plants
		Wells and storage tanks

Table 4.5.4 (2) provides potential damage estimates of current (2006) and future (2040) damage inventory for identified critical facilities in Seward County. For planning purposes, the asset replacement value is assumed to remain at current replacement value when the county is experiencing a negative growth in population (KWO).

TABLE 4.5.4 (2) SEWARD COUNTY CRITICAL FACILITIES INVENTORY

Priority Level	Type of Facility	Current Conditions			Projection Yr: 2040 (CAGR: 0.79%)		
		Number of Existing Buildings/Facilities	Current Replacement Value	Current Number of People	Number of Future Buildings/Facilities	Future Replacement Value	Future Number of People
1	Communications (radio, TV, similar)	4	\$5,420,000	18	5	\$6,965,365	23
1	County Emergency Operations	1	\$130,000	1	1	\$167,066	1
1	Fire / EMS stations	6	\$3,790,000	11	8	\$4,870,615	14
1	Hospital	1	\$70,000,000	210	1	\$89,958,587	270
1	Law Enforcement (Sheriff/Police Bldgs)	2	\$12,660,000	210	3	\$16,269,653	270
2	Emergency shelters (schools)	14	\$6,700,000	1,800	18	\$8,610,322	2,313
2	Response staging areas	0	\$0	0	0	\$0	0
2	Major government buildings	7	\$15,500,000	130	9	\$19,919,401	167
2	Major roads (Mi)	136	\$620,483,454	0	175	\$797,397,354	0
2	Major Hwy Bridges (No.)	11	\$23,272,912	0	14	\$29,908,547	0
3	Fuel storage areas	5	\$850,000	7	6	\$1,092,354	9
3	Electric / Gas utilities	19	\$123,139,000	32	24	\$158,248,721	41
3	Pumping stations	4	\$300,000	2	5	\$385,537	3
3	*Transportation systems	4	\$102,961,509	38	5	\$132,318,170	49
3	Water treatment plants	0	\$0	0	0	\$0	0
3	Wells and storage tanks	24	\$11,850,000	5	31	\$15,228,704	6

## TABLE NOTES:

\*Transportation systems may include public and private airports, bus services, rail, etc.

\*\*Flammable and hazardous materials storage areas.

TABLE 4.5.4 (3) SEWARD COUNTY DESIGNATED SCHOOL TORNADO SHELTERS

Name	Building Name	Address	Population
USD 480	Central Administration Office	401 N. Kansas; P.O. Box 949, Liberal, Kansas	20
USD 480	Cottonwood Intermediate	1100 W. 11th, Liberal, Kansas	495
USD 480	Education Service Center	624 North Grant; P.O. Box 949, Liberal, Kansas	40
USD 480	Garfield Elementary	516 W. 1st, Liberal, Kansas 67901	241
USD 480	Liberal High School	1611 W. 2nd, Liberal, Kansas 67901	1227
USD 480	Liberal South Middle	950 S. Grant, Liberal, Kansas	327
USD 480	Liberal West Middle	500 N. Western, Liberal, Kansas	332
USD 480	Lincoln Elementary	1002 W. 11th, Liberal, Kansas 67901	233
USD 480	MacArthur Elementary	925 S. Holly Dr., Liberal, Kansas 67901	182
USD 480	McDermott Elementary	436 S. Pennsylvania, Liberal, Kansas 67901	306
USD 480	McKinley Elementary	615 W. 7th, Liberal, Kansas 67901	155
USD 480	Southlawn Elementary	836 S. Jordan, Liberal, Kansas 67901	298
USD 480	Sunflower Intermediate	310 W. Pine, Liberal, Kansas 67901	490
USD 480	Washington Elementary	840 N. Washington, Liberal, Kansas 67901	338
USD 483	Central Office	P.O. Box 760, Plains, Kansas 67869	20
USD 483	Kismet Elementary School	505 Kansas, Kismet, Kansas 67859	201
USD 483	Plains Elementary School	605 West B, Plains, Kansas	218
USD 483	Southwestern Heights High School	17222 Mustang Road, Kismet, Kansas	349

USD 483	Southwestern Heights Junior High School	17222 Mustang Road, Kismet, Kansas	349
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**4.5.5 Development Trends and Implications**

Land use patterns in Seward County have not changed much in past years. The 2005 Kansas Land Cover Patterns map produced by the Kansas Applied Remote Sensing (KARS) program provides a fairly accurate assessment of 11 land use/land cover classes. The bulk of the land cover in the county (approximately 98.14%) is comprised of cropland, grassland, and Conservation Reserve Program (CRP) land. Urban Industrial/Commercial and Urban Residential development comprises 1.11% of the land cover primarily in and around the towns of Liberal and Kismet. Generally, built up areas continue to be located in or around the major community in the county, with smaller concentrations located in rural areas. Commercial land use is primarily limited to these same communities. Overall, commercial, industrial, and residential development in Seward County has been largely regulated.

The State of Kansas has developed a unique method for utilizing water use data to determine not only future water use, but also to project population in the state. Additionally, this method will be used to verify the accuracy of the U.S. Census Bureau's sub-county population estimates for Kansas. This method was developed by the Kansas Water Office and approved by the Kansas Water Authority.

In November 1998, the Kansas Water Office completed population and water demand projections for every county, city, and rural water district in Kansas for the years 2000, 2010, 2020, 2030, and 2040. These data will be utilized for growth projections for the county. Information regarding methodology and projections can be found at: [www.kwo.org/index.htm](http://www.kwo.org/index.htm).

Seward County has experienced an overall increase in population since 1900. Population growth and/or private development have increased from 822 in 1900 to 22,510 in 2000. The county is rural, and is located within a region that, overall, ranks below the state average for population growth, employment growth, and business startup rate. (Kansas Department of Commerce, 2000)

***Seward (UnInc.): Residential, Commercial, and Population Growth - Present and Future***

Residential and commercial development is primarily concentrated around the largest incorporated city of Liberal. Based on limited data, the projected population increase for Seward County is centered on Liberal, with a lesser degree for the rural areas of the county. Seward County is projected to increase in overall residential and commercial development by 0.79% annually, as projected by the Kansas Water Office (KWO). Land use includes commercial, industrial, and residential development in Seward (UnInc), and has been largely regulated.

While difficult to forecast, Seward County's future development trend through 2040 is assumed to increase proportionate to the increase in population and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate, for the foreseeable future, is also expected to parallel the county population growth pattern, and is estimated at 0.79% annual growth until future data is made available.

***Kismet: Residential, Commercial, and Population Growth - Present and Future***

Kismet's residential and commercial development is projected to experience a gradual increase in population growth over the next 32 years of 0.88% annually. Projections are based on Kansas Water Office data using Compound Annual Growth Rate as the means to develop projected growth. Land use includes commercial, industrial, and residential development in Kismet, and has been largely unregulated.

While difficult to forecast, Kismet's future development trend through 2040 is assumed to increase

proportionate to the increase in population and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate, for the foreseeable future, is also expected to parallel the city population growth pattern, and is estimated at 0.88% annual growth until future data is available.

***Liberal: Residential, Commercial, and Population Growth - Present and Future***

Liberal's residential and commercial development is projected to experience a gradual increase in population growth over the next 32 years of 0.73% annually. Projections are based on Kansas Water Office data using Compound Annual Growth Rate as the means to develop projected growth. Land use includes commercial, industrial, and residential development in Liberal, and has been largely regulated.

While difficult to forecast, Liberal's future development trend through 2040 is assumed to increase proportionate to the increase in population and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate, for the foreseeable future, is also expected to parallel the city population growth pattern, and is estimated at 0.73% annual growth until future data is available.

***Seward Co. Community College/Area Technical School: Residential, Commercial, and Population Growth - Present and Future***

Seward Co. Community College/Area Technical School is part of a state system of community colleges designed to serve all residents of that State of Kansas. SCCC was established in Liberal in 1967. SCCC is accredited by the Kansas State Board of Regents; Higher Learning Commission of the North Central Association and Secondary Schools; Kansas State Board of Nursing; National League for Nursing Accrediting Commission; American Medical Association's Commission on Accreditation of Allied Health Education Programs; the Committee on Accreditation for Respiratory Care; the Accreditation Review Committee on Education in Surgical Technology; and the National Accrediting Agency for Clinical Laboratory Sciences.

SCCC offers Associate in Science and Associate in Arts degrees, which concludes the first two years of study toward a bachelor's or higher degree; an Associate in General Studies degree; an Associate in Applied Science degree; and a Certificate of Completion in various areas of study. Both credit and non-credit courses are offered through the Business and Industry program that contribute to the workforce development of the citizens in Southwest Kansas, the Oklahoma Panhandle, and the Texas Panhandle. Various community education courses are offered each semester to meet the educational, cultural, leisure and recreational needs of the community. Due to a potential state-wide attendance base for the technical college, the growth rate will be based on state averages.

While difficult to forecast, the college's future development trend through 2040 is assumed to increase proportionately to the increase in population of the State of Kansas and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate for the foreseeable future is also expected to parallel the increase in population growth of 0.69% annually through 2040 (KWO).

***USD 480: Residential, Commercial, and Population Growth - Present and Future***

USD 480 currently has twelve active schools located in Liberal. School enrollment is largely determined by overall growth patterns of the city in which the schools reside. While difficult to forecast future commercial and residential development, estimates of future community growth help predict school funding decisions and facility expansion needs for the immediate future. Commercial and residential growth projections are assumed to parallel the increase or decrease in local population projections, and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate, for the foreseeable future, is also expected to parallel the city population growth patterns.

It is likely that the town of Liberal will continue to see a slow and gradual population increase over the next 32 years of 0.73% annually. These figures are based on a compound annual growth rate (CAGR)

developed from the Kansas Water Office population projections through 2040.

***USD 483: Residential, Commercial, and Population Growth - Present and Future***

USD 483 currently has four active schools (one in Plains, in Meade County) located in the town of Kismet. School enrollment is largely determined by overall growth patterns of the city in which the schools reside. While difficult to forecast future commercial and residential development, estimates of future community growth help predict school funding decisions and facility expansion needs for the immediate future. Commercial and residential growth projections are assumed to parallel the increase or decrease in local population projections, and will need to monitor and update mitigation initiatives as the process unfolds. The property valuation rate, for the foreseeable future, is also expected to parallel the city population growth patterns.

It is likely that the town of Kismet will continue to see a slow and gradual population increase over the next 32 years of 0.88% annually. These figures are based on a compound annual growth rate (CAGR) developed from the Kansas Water Office population projections through 2040.

## 5.0 Mitigation Strategy

This section of the Plan outlines Seward County’s overall strategy and capabilities to reduce their jurisdiction’s vulnerability to the effects of natural hazards, and include a discussion of Mitigation Actions and Techniques. The Mitigation Actions are short-term, specific measures to be undertaken by Seward County in order to achieve the identified objectives. Most of these actions are also hazard-specific. Each action identifies the objective(s) it is intended to achieve, includes some general background information to justify the proposed action, and provides measures to assure successful and timely implementation. It should be noted that individual risk assessment maps were completed for the unincorporated county, and each of the planning jurisdictions. Profile maps were provided to each jurisdiction to identify land use information, critical facility information, infrastructure, and hazard areas. The local teams utilized these maps to help identify their jurisdictional goals, objectives, and mitigation actions.

### Mitigation Activities

In formulating this Mitigation Strategy, a wide range of activities were considered and discussed in order to help achieve county goals and lessen the vulnerability of Seward County to the effects of natural hazards. For each hazard ranked in the risk and vulnerability assessment as "High" or "Moderate" (see Table 5.0 (1)), the Mitigation Planning Committee considered the six categories of mitigation techniques when developing Actions for this plan. Those six categories are enumerated in Tables 5.0 (2) through 5.0 (7). A list of all actions considered for this plan is provided in the Appendix.

Table 5.0 (1) Prioritized Hazards (High and Moderate)

Hazard
Hail
Winter Storm
Wildfire
TSTM Wind
Flood
Tornado
Drought
Utility Failure
Dam/Levee
Terrorism / AT / CD

### Table 5.0 (2) Prevention

Prevention activities are intended to keep hazard problems from getting worse. They are particularly effective in reducing a jurisdiction's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Planning and Zoning	X
Open space preservation	
Floodplain regulations	X
Stormwater management	
Drainage system maintenance	X
Capital improvements programming	
Shoreline/riverine/fault zone setbacks	

Table 5.0 (3) Property Protection

Property protection measures protect existing structures by modifying buildings to withstand hazardous events, or removing structures from hazardous locations. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Acquisition	
Relocation	
Building elevation	
Critical facilities protection	X
Retrofitting (i.e., windproofing, floodproofing, seismic design standards, etc.)	
Insurance	X
Wind Shutters	

Table 5.0 (4) Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their mitigative functions. Such areas include floodplains, wetlands and dunes. Parks, recreation or conservation agencies and organizations often implement these measures. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Floodplain protection	
Riparian buffers	
Fire resistant landscaping	
Fuel Breaks	
Erosion and sediment control	
Wetland preservation and restoration	
Habitat preservation	
Slope stabilization	
Agriculture and Livestock protection	X

Table 5.0 (5) Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. They are usually designed by engineers and managed or maintained by public works staff. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Levees/dikes/floodwalls/seawalls	
Diversions/Detention/Retention	
Channel modification	
Storm sewers	
Utility protection/upgrades	X
Wind retrofitting/windproofing	
Safe rooms	X

Table 5.0 (6) Emergency Services

Although not typically considered a “mitigation technique,” emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Warning systems	
Public protection	X
Emergency facilities and equipment	X
Evacuation planning and management	
Sandbagging for flood protection	

**Table 5.0 (7) Public Information and Awareness**

Public Information and Awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. The following techniques were discussed and those checked were selected for use in the plan.

Mitigation Activities and Techniques

Technique	Selected for Objective/Action
Outreach projects	X
Speaker series/demonstration events	
Hazard map information	
Real estate disclosure	
Library materials	X
School children education	X
Hazard expositions	X

**Mitigation Techniques for Seward County**

When considering the most appropriate mitigation techniques for Seward County to undertake, the Mitigation Planning Committee reviewed the State Mitigation Plan and hazards list. More importantly, Seward County contracted to have a specific all-hazard analysis performed in 2007 to identify specific risk and vulnerability in the county. Hazard categories from the hazard analysis included natural, chemical, vector, and civil / societal risks.

Following the review and discussion, a matrix was developed to target the plan's priorities for proposed mitigation actions. Consideration was given to potential county funding, technical capability, and overall best approach to begin reducing exposure to hazards within the jurisdiction. Primary planning categories used are presented in Table 5.0 (8).

Table 5.0 (8) MITIGATION TECHNIQUES

HIGH RISK HAZARDS	Prevention	Property Protection	Natural Resource Protection	Structural Projects	Emergency Services	Public Information and Awareness
Hail	X	X			X	X
Winter Storm	X				X	X
Wildfire	X			X	X	X
TSTM Wind	X	X		X	X	X
MODERATE RISK HAZARDS	Prevention	Property Protection	Natural Resource Protection	Structural Projects	Emergency Services	Public Information and Awareness
Flood	X				X	X
Tornado	X	X		X	X	X
Drought						
Utility Failure	X	X			X	X
Dam/Levee						
Terrorism / AT / CD	X		X		X	X

### 5.1 MultiJurisdictional Goals and Objectives

This section of the Plan outlines Seward County’s overall strategy to reduce their jurisdiction’s vulnerability to the effects of natural hazards. The goals and objectives are provided in Table 5.1 (1).

Mitigation Goals - identifies the goal statements established by Seward County for this mitigation plan. Each goal is meant to be general and broad in nature, and can only be achieved through the long-term implementation of more specific objectives. It is intended that each goal listed below will be more specifically addressed and realized through the implementation of short-term mitigation objectives and actions.

Mitigation Objectives - The mitigation objectives are designed to support and correspond directly with the jurisdiction goals to provide Seward County with some measurable, mid-range targets (2-5 years). Each objective is numbered (i.e., “1.1”), with the first digit representing the corresponding jurisdictional goal.

TABLE 5.1 (1) SEWARD COUNTY GOALS AND OBJECTIVES

Goal #1:	Increase the jurisdiction’s internal capabilities to mitigate the effects of terrorism, natural, manmade, and technological hazards
Objective 1.1:	Maintain and increase current jurisdiction surveillance to assist in future reduction to any overall flood issues of the jurisdiction.
Objective 1.2:	Enhance the jurisdiction’s capability to conduct hazard risk assessments, demonstrate funding needs, and track mitigation activities throughout the

	jurisdiction.
Objective 1.3:	Continue enhancement of current emergency services to protect public health and safety.
Objective 1.4:	Protect life, property, and the economy by eliminating or minimizing the present and future vulnerability to wildfire hazards.

Goal #2:	Enhance existing or design and adopt new policies that will reduce the potential damaging effects of hazards without hindering other jurisdictional goals
Objective 2.1:	Discourage development in the floodplain to promote protection of life and property, and reduce risk exposure to future flood conditions.
Objective 2.2:	Research and develop means to provide high-risk populations with access to tornado-safe structures.

Goal #3:	Protect the jurisdiction's most vulnerable populations, buildings and critical facilities through the implementation of cost-effective and technically feasible mitigation projects
Objective 3.1:	Maximize the use of available hazard mitigation grant programs to protect the jurisdiction's most vulnerable populations and structures.
Objective 3.2:	Protect vital / critical facilities from the effects of natural hazards to the maximum extent possible.

Goal #4:	Protect public health, safety and welfare by increasing the public awareness of existing hazards and by fostering both individual and public responsibility in mitigating risks due to those hazards
Objective 4.1:	Educate residents to the dangers of wildfire and the protection measures that may be taken such as buffer zones, etc., including regulations regarding open burning and burn bans.
Objective 4.2:	Educate property owners on the affordable, individual mitigation and preparedness measures that can be taken before the next hazard event.
Objective 4.3:	Promote and educate the jurisdiction's public and private sectors on potential agricultural terrorism and bio-terrorism.

## 5.2 Mitigation Actions

The mitigation actions proposed for Seward County are listed on the pages that follow. Each has been designed to achieve the goals and objectives identified through this multi-jurisdictional hazard mitigation plan. Each proposed action includes the following:

- (1) the appropriate category for the mitigation technique;
- (2) the hazard it is designed to mitigate;
- (3) the objective(s) it is intended to help achieve;
- (4) some general background information;
- (5) the priority level for its implementation (high, moderate or low);
- (6) potential funding sources, if applicable;
- (7) the agency/person assigned responsibility for implementing each strategy;
- (8) a target completion date.

Again, it is important to note that these mitigation actions are short-term, specific measures to be undertaken by Seward County. It is expected this component of the plan will be the most dynamic; it will be used as the primary indicator to measure the plan's progress over time and will be routinely updated and/or revised through future planning efforts.

### Action Item Prioritization

The MPC qualitatively prioritized the four county goals based on protection of life and property, public awareness, emergency services, implementation, and state-required planning directives (i.e., Foreign Animal Disease, and Bio-terrorism plans).

The risk assessment served as the basis for prioritizing hazards in terms of county risk (Likelihood x Severity = Risk). The prioritization represents current and future risk based on objective criteria.

The final step was to prioritize the action items as high, moderate or low based on a qualitative analysis for actions deemed to be "readily achievable". Emphasis was placed on education and public awareness as a high priority, as knowledge helps reduce risk at the individual level. During annual review of the plan, new and completed action items will be identified and appropriate changes made to the action plan.

### Benefit - Cost Review

At the beginning of the planning process, each jurisdiction was asked to complete a questionnaire/survey which covered six factors including, but not limited to:

- Staff & Organizational Capability
- Administrative and Technical Capability
- Policy & Program Capability
- Fiscal Capability
- Legal Authority
- Political Willpower

These topics are in essence the "STAPLEE" categories recommended by the FEMA Guidance on Mitigation Planning. As a result of review, discussion, and the responses to the six factors listed above, the MPC choose to use Method 2A, Simple Listing, (FEMA 386-5) as a qualitative method to generate a benefit to cost review. The consultant reviewed the responses and, where needed, asked for clarification. These responses were used to develop an overall strategy for the multi-jurisdictional plan. (The detail of the responses can be reviewed at Section 3.10 and Section 4.5.5.)

A summary of the responses and the draft strategy was introduced at the first planning meeting. The factors which universally impacted the rank of all actions were limited staff capability, limited fiscal capability, and cautious political willpower. Subsequent to the first planning meeting, the jurisdictions were asked to consider its responses to the questionnaire/survey and choose actions associated with the

prioritized hazards. These choices were made in consideration of each jurisdiction's responses to the STAPLEE based answers. Once this initial prioritization was made, the jurisdictions were asked to rank the actions by adding consideration of cost. In other words, in their opinion, which actions provided the best benefit for the selected hazards and the associated cost.

Where budgetary or estimated costs for an action were available, that value is included. In many cases, specific detail of potential actions or projects was not available. The use of estimated cost categories, based on how funding is accomplished, was recommended as a starting point for evaluation. Those categories are generally defined as follows:

No-cost/low-cost (less than \$5,000);

Requires appropriation of funds (greater than \$5,000 and less than \$20,000); or

Requires significant funding (Greater than \$20,000).

In general, no cost/low cost can be funded as part of operating expenditures; appropriation of funding requires an action by the governing commission or council or prior budget requests; and significant funding would require action by the governing body and potential commitment of outside funding sources.

From a cost perspective, the jurisdictions chose to prioritize low-cost actions with specific benefit as high ranking actions. A moderate ranking was given to actions which required appropriation of funding and provided a specific benefit to an entire community, distinct population. All other actions were assigned a lower priority. Actions were then given a final ranking by each jurisdiction to match the cost with overall conditions, capability, and political climate. These rankings will be reviewed as part of the overall yearly plan review process.

### 5.2.1 MultiJurisdictional Actions

1. Collect educational materials on individual and family preparedness/mitigation measures for property owners, and display at both the library and routinely visited government offices.	
Category:	Public Information & Awareness
Jurisdiction:	MultiJurisdictional
Hazard:	All
Goal.Objective:	4.1, 4.2, 4.3,
Background / Benefit:	FEMA, the Kansas Division of Emergency Management, the National Weather Service and other agencies provide information brochures and pamphlets on property protection measures at no cost to local governments.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management/Local Officials
Target Completion Date:	Continuous
Cost of Action:	No Cost / Low Cost

2. Coordinate county and local government mitigation efforts with Rural Electric Cooperatives (REC's), encourage identification of hazards potentially affecting their infrastructure, assessment of the vulnerabilities of the infrastructure to these hazards, and identification of mitigation strategies.	
Category:	Property Protection
Jurisdiction:	MultiJurisdictional
Hazard:	Utility Failure
Goal.Objective:	3.2,
Background / Benefit:	Long-term planning goals that will reduce exposure to loss of electrical power are beneficial to all organizations and citizens within the jurisdiction. Power loss during extreme periods of cold or heat increase damage potential to people and property.
Priority:	High
Funding Sources:	N/A
Responsibility Assigned to:	City and County Officials
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

3. Annually host a public “hazards workshop” for the residents in combination with local festivals, fairs, or other appropriate events.	
Category:	Public Information and Awareness
Jurisdiction:	MultiJurisdictional
Hazard:	All
Goal.Objective:	4.1, 4.2, 4.3,
Background / Benefit:	A hazard workshop for residents should be added to an established event drawing large crowds. The workshop should be geared toward educating them on the hazards that threaten Seward County, and the mitigation and preparedness measures available to protect them. Guest speakers from the National Weather Service, the Kansas Division of Emergency Management, and other relevant agencies should be invited to attend, and educational displays/handouts should be provided such as Flood Insurance Rate Maps, FEMA publications, safety tips, etc.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management/Emergency Services
Target Completion Date:	Continuous
Cost of Action:	No Cost / Low Cost

4. Encourage the construction of safe rooms and storm shelters in public and private schools, day care centers, emergency response facilities, and senior care facilities.	
Category:	Property Protection
Jurisdiction:	MultiJurisdictional
Hazard:	Multi-hazard
Goal.Objective:	2.2,
Background / Benefit:	When severe weather threatens, individuals and families need advance warning and protection from the dangerous forces of extreme winds. Individuals and communities in high-risk tornado and hurricane areas need structurally sound shelters and early alert systems.
Priority:	High
Funding Sources:	FEMA/State/Local
Responsibility Assigned to:	County-City Planners/Emergency Management/Local Officials
Target Completion Date:	Continuous
Cost of Action:	No Cost / Low Cost

5. Educate residents about driving in winter storms and handling winter-related health effects.	
Category:	Public Information & Awareness
Jurisdiction:	MultiJurisdictional
Hazard:	Multi-hazard
Goal.Objective:	4.2,
Background / Benefit:	US Department of Transportation (USDOT), the Kansas Department of Transportation (KDOT) and other agencies provide information brochures and pamphlets on safe driving measures at no cost to local governments.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management / Emergency Services
Target Completion Date:	Continuous
Cost of Action:	No Cost / Low Cost

6. Promote and educate the jurisdiction's public and private sectors on potential agricultural terrorism and bio-terrorism issues that can severely impact the county and regional economies, and develop and implement plans to address these issues.	
Category:	Natural Resources Protection
Jurisdiction:	MultiJurisdictional
Hazard:	Terrorism/Agri-Terrorism/Civil Disorder
Goal.Objective:	3.1, 4.3,
Background / Benefit:	Seward County is basically an agricultural community. An intentional introduction of a foreign animal disease would be devastating to the local economy as well as the rest of the state and country. The County formed a FAD Committee to address these concerns. Specific education programs should be developed in coordination with the Kansas Animal Health Department (KAH) to inform ranchers, farmers, and veterinary professionals on the methods to identify, prevent, and treat animal disease outbreaks.
Priority:	Moderate
Funding Sources:	Local / State / Federal
Responsibility Assigned to:	County Health Department/ County Emergency Management/ County Extension/ Local Producers
Target Completion Date:	Continuous
Cost of Action:	Requires Funding

7. Seward County Unincorporated and the cities of Liberal and Kismet are committed to continued participation and compliance with the National Flood Insurance Program (NFIP).	
Category:	Prevention
Jurisdiction:	MultiJurisdictional
Hazard:	Flood
Goal.Objective:	1.1, 2.1,
Background / Benefit:	The decision on whether to join the NFIP is very important for a jurisdiction (community). There is no Federal law that requires a jurisdiction to join the program, and participation is voluntary. A benefit of participation is that the citizens are provided the opportunity to purchase flood insurance to protect themselves against flood losses. Another consideration is that a jurisdiction that has been identified by FEMA as being flood-prone and has not joined the NFIP within one year of being notified of being mapped as flood-prone will be sanctioned. Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). To participate in the NFIP the jurisdiction must adopt and enforce floodplain management regulations that meet or exceed the minimum requirements of the program.
Priority:	High
Funding Sources:	State/FEMA/Program Grants
Responsibility Assigned to:	County / City officials
Target Completion Date:	Continuous
Cost of Action:	No Cost / Low Cost

## 5.2.2 Jurisdictional Actions

Seward (UnInc.)	
1. Identify the county's most at-risk critical facilities, and evaluate potential mitigation techniques for protecting each facility to the maximum extent possible.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	All
Goal/Objective:	1.2, 1.3, 3.1, 3.2,
Background / Benefit:	A thorough evaluation of potential mitigation opportunities for Seward County's critical facilities must still be completed. Currently, there is very little available data on these facilities. An inventory/database on critical facilities should be created and maintained by the county and shared with the Kansas Division of Emergency Management. This inventory should include information on the location and risk to each facility, and should also document any cost-effective mitigation techniques to consider when funding becomes available.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management/Emergency Services
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

2. Conduct an inventory/survey for the county's emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment or required resources.	
Category:	Emergency Services
Jurisdiction:	Seward (UnInc.)
Hazard:	All
Goal.Objective:	1.2, 1.3,
Background / Benefit:	A survey should be completed in order to verify the county's current emergency services are adequate to protect public health and safety from most probable hazard events. Any identified needs or shortfalls should become documented and result in specific recommendations to the County Commission for emergency service enhancements.
Priority:	High
Funding Sources:	Local/State
Responsibility Assigned to:	Emergency Management/Emergency Services
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

3. Encourage the repositioning of as many utility lines as possible underground. Consider local regulations to require the placement of all new utility lines underground.	
Category:	Structural Projects
Jurisdiction:	Seward (UnInc.)
Hazard:	Multi-hazard
Goal.Objective:	1.3, 3.2,
Background / Benefit:	Encourage utility providers and municipalities within the county to require that utility lines and mains be installed underground. Buried power lines offer the security of uninterrupted power during and after storms. However, consideration needs to be made for maintenance and repair, particularly in cold climates where soil freezes more readily.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Road and Bridge Department/Utility Providers
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

4. Research, develop, and recommend an ordinance/resolution to require installation of safe rooms for major manufactured and/or mobile home parks with more than 30 mobile home spaces.	
Category:	Property Protection
Jurisdiction:	Seward (UnInc.)
Hazard:	Multi-hazard
Goal.Objective:	2.2, 3.1,
Background / Benefit:	Mobile homes are particularly vulnerable to damage from high winds. Residents, even those who live in mobile homes with tie-downs, should seek safe shelter when a tornado threatens. Tornado shelters should be constructed in major mobile home parks to ensure a safe place for residents to go during a tornado event. The shelter structure, which should be designed to withstand a minimum of 120 mph winds, could easily serve an alternate purpose such as a community center, laundry facility, etc. Tornado shelters should be for last minute protection for high wind events.
Priority:	High
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Planning Department
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

5. Develop cross-departmental information collection capabilities, and incorporate cadastral (building/parcel) data utilizing a GIS for purposes of conducting more detailed hazard risk assessments and for tracking permitting / land use patterns, buildings and infrastructure replacement costs, and overall structural accounting for the county.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	All
Goal.Objective:	1.2,
Background / Benefit:	A comprehensive catalog of data can greatly enhance the county's technical capability to manage, analyze and display spatially referenced data. Seward County has basic GIS capabilities available through the Seward County GIS Department. Further development of this capability for functional use across all departments will enhance the county's overall capabilities to document building/structure cost data, and further hazard mitigation goals in developing cadastral data for the county.
Priority:	Moderate
Funding Sources:	Kansas Division of Emergency Management, Local resources, and grants
Responsibility Assigned to:	Emergency Management/Appraiser/City Officials
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

6. Develop and implement a wildfire prevention/education program. In addition to providing education to the general public, the program should also target children, fire and equipment users, builders and developers, and homeowners.	
Category:	Public Information and Awareness
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal/Objective:	1.3, 1.4, 4.1,
Background / Benefit:	Seward County has burn-ban resolutions which require special permission to conduct open burning operations. In periods of drought or extreme weather conditions a burn ban may be declared. When a ban is declared all radio stations, TV stations, and regional newspapers in the area are notified as well as mayors, fire chiefs, etc. To better educate the public at large, Seward County should expand their existing fire protection program to include wildfire workshops to all age groups and commercial operations.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

7. Examine the current agreements within the county and assess the need to expand or update cooperative agreements for firefighting resources. Include agreements with local, state and federal agencies.	
Category:	Emergency Services
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal.Objective:	1.3, 1.4, 3.2,
Background / Benefit:	Cooperative agreements provide the support needed in times of emergency, and are an important element of planning, with the long-range goal of reducing damage to structures and systems within the jurisdiction.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	December 31, 2014
Cost of Action:	No Cost / Low Cost

8. Create a working group to evaluate the firefighting water supply resources within the county. This should include both fixed and mobile supply issues.	
Category:	Emergency Services
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal.Objective:	1.3, 1.4, 3.2,
Background / Benefit:	Lack of sufficient water supply makes it difficult for firefighters to suppress fires. Whenever possible, increasing access to water along water service delivery lines (wet and dry hydrants) would provide additional resources for emergency responders.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

9. Appoint a committee to research and recommend an amendment to current building codes to include wind-resistant design techniques for new construction.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	Multi-hazard
Goal/Objective:	3.1, 3.2,
Background / Benefit:	Unincorporated areas of the county should amend current construction codes to include certain minimum building practices and contractor licensing for wind loss reduction. Experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent windstorms. Additional techniques include adding protection for windows (i.e., shutters), anchoring door frames with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the county for all new residential construction, to the maximum extent possible during the building permit process.
Priority:	Moderate
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Planning Department
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

10. Prepare and adopt an Outdoor Warning Sirens Plan for the county, including consideration of the unique geographical locations, technical requirements, system types and operational procedures of each local jurisdiction. The plans should include a review of existing outdoor warning siren coverage and recommend new locations if and where there are coverage gaps. Seek funding to install new warning sirens in accordance with the plan recommendations.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	Emergency Services
Goal/Objective:	1.3, 3.1,
Background / Benefit:	Some communities and rural areas of the county have older warning systems or none at all. To better serve the citizens of Seward County a study should be conducted to evaluate measures to be taken to improve overall emergency warning services.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management
Target Completion Date:	June 30, 2014
Cost of Action:	Requires Funding

11. Distribute assessment report examples provided by the Kansas Forest Service to applicable parties to develop an understanding of the Community Wildfire Protection Plan (CWPP). Recommend joining the program and completing an assessment report for approval.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal/Objective:	1.4,
Background / Benefit:	The probability of grass/cropland fire in Seward County is relatively high. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect an average of 5.811 significant wildfires per year that damage or destroy an average of 1,094 acres annually. The Kansas Forest Service staff would provide assistance to interested communities in the form of a Community Wildfire Hazard Assessment Report and some mitigation action items.
Priority:	Moderate
Funding Sources:	Local/State/Federal grant programs
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013
Cost of Action:	Requires Funding

12. Appoint a rural fire committee to schedule meetings with the Kansas Forest Service to map suspected hazardous wildfire areas in the county for potential participation in the Community Wildfire Protection Program (CWPP).	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal.Objective:	1.4,
Background / Benefit:	In order for a community to take advantage of the Community based Healthy forests Restoration Act (HFRA), 2003, a community must develop a Community Wildfire Protection Plan (CWPP). To develop qualifications the community must identify and map potential hazard areas as an initial step towards participation in the program.
Priority:	Moderate
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013
Cost of Action:	Requires Funding

13. Incorporate wildfire maps, develop actions and projects for wildfire prevention, and complete an assessment report to meet CWPP requirements for submittal to the Kansas Forest Service.	
Category:	Prevention
Jurisdiction:	Seward (UnInc.)
Hazard:	Wildfire
Goal.Objective:	1.4,
Background / Benefit:	The minimum requirements participation in the CWPP as described in the HFRA are: (1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties. (2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure. (3) Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.
Priority:	Moderate
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013
Cost of Action:	Requires Funding

14. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County Courthouse.	
Category:	Structural Projects
Jurisdiction:	Seward (UnInc.)
Hazard:	Tornado
Goal.Objective:	1.3, 3.1,
Background / Benefit:	Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Emergency Manager
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

15. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County New Administration Building.	
Category:	Structural Projects
Jurisdiction:	Seward (UnInc.)
Hazard:	Tornado
Goal.Objective:	1.3, 3.1,
Background / Benefit:	Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Emergency Manager
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

16. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County Historical Society building.	
Category:	Structural Projects
Jurisdiction:	Seward (UnInc.)
Hazard:	Tornado
Goal/Objective:	1.3, 3.1,
Background / Benefit:	Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Emergency Manager
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

Kismet
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1. Assess identified flood prone areas and recommend flood reduction measures to city planners.	
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Category:	Prevention
Jurisdiction:	Kismet
Hazard:	Flood
Goal/Objective:	1.1, 1.2, 1.3, 2.1, 3.1, 3.2,
Background / Benefit:	Flood zone mapping has provided initial identification of potential hazard areas that can be reviewed with other data sources, such as the watershed districts goals and objectives, in developing long range planning activities for flood prevention, or other planning steps to reduce exposure to this hazard.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Floodplain Manager
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

2. Expand the storm resistance capabilities of the sewage lagoons by increasing capacity/freeboard.	
Category:	Structural Projects
Jurisdiction:	Kismet
Hazard:	Multi-Hazard
Goal/Objective:	3.1, 3.2,
Background / Benefit:	Flooding, heavy rain, high wind, tornado, or a combination thereof at the Kismet lagoons could produce overflow of the lagoons. Human waste flowing out of the lagoons represents a hazard to life and the environment.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	City of Liberal
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

3. Seek funding to engineer and reconstruct the Road T bridge to handle all traffic; present load limits prevent use by fire apparatus.	
Category:	Structural Projects
Jurisdiction:	Kismet
Hazard:	Wildfire
Goal/Objective:	1.4, 3.1,
Background / Benefit:	When trains block the tracks- numerous times per day- there is an 8 mile section centered on Kismet that has no north/south access. This also restricts access/response to the river helium plants. The inability to access a large area of the county with industrial and residential development constitutes a hazard from wildfire, especially in this case as the area is mainly grass. This obstruction is also hazardous to general emergency response. One of the plants is a BZPP location, and as such represents a high value critical infrastructure. The City of Kismet should consult with Seward County to determine how much, if any, cooperation is required by Seward County for the completion of this project.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	City of Kismet
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

Liberal
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1. Develop and fund a mitigation project for the construction of a tornado safe room in the Fire Station on 15th and N. Grant in Liberal.
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Category:	Structural Projects
Jurisdiction:	Liberal
Hazard:	Tornado
Goal/Objective:	1.3, 3.1,
Background / Benefit:	Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	Liberal Fire Department
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

2. Upgrade waste treatment plant to UV technology to avoid the use of chlorine gas as a disinfectant.	
Category:	Structural Projects
Jurisdiction:	Liberal
Hazard:	Multi-Hazard
Goal.Objective:	1.4, 3.1,
Background / Benefit:	The 14,000 lbs of chlorine, stored in 7 ton containers, which is used at this plant as a disinfectant, produces a hazard to the citizens in the case that they are damaged. Damage to the containers is possible during a tornado, flood, or even a wildfire. The State of Kansas reported that this site is one of the top 20 sites in listed Kansas hazard sites. There is also the possibility that these could be used as a weapon should someone choose to target them.
Priority:	Low
Funding Sources:	Local/State/FEMA
Responsibility Assigned to:	City of Liberal
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

3. Assess identified flood prone areas and recommend flood reduction measures to city planners.	
Category:	Prevention
Jurisdiction:	Liberal
Hazard:	Flood
Goal.Objective:	1.1, 2.1,
Background / Benefit:	Flood zone mapping has provided initial identification of potential hazard areas that can be reviewed with other data sources, such as the watershed districts goals and objectives, in developing long range planning activities for flood prevention, or other planning steps to reduce exposure to this hazard.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Floodplain Manager
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

Seward Co. Community College/Area Technical School
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1. Develop and fund mitigation projects for the construction of tornado safe rooms on the Seward County Community College / Area Technical School campus.
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Category:	Structural Projects
Jurisdiction:	Seward Co. Community College/Area Technical School
Hazard:	Tornado
Goal.Objective:	2.2, 3.1,
Background / Benefit:	Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded during new school construction, as part of school additions, or as retrofits.
Priority:	Low
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	SCCC/ATS
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

USD 480
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1. Develop and fund mitigation projects for the construction of tornado safe rooms in Unified School District 480 schools.
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Category:	Structural Project
Jurisdiction:	USD 480
Hazard:	Tornado
Goal/Objective:	2.2, 3.1,
Background / Benefit:	Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded by FEMA during new school construction, as part of school additions, or as retrofits.
Priority:	Low
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	School District
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

2. Conduct an engineering study to determine PM 361 wind design requirements for the gym roofs, and seek funding to upgrade facility roof systems where necessary.	
Category:	Structural Projects
Jurisdiction:	USD 480
Hazard:	Tornado
Goal.Objective:	3.1,
Background / Benefit:	School gyms are large structures that house crowds of people and therefore need to be structurally capable of enduring severe weather and wind events, such as tornadoes. Also, since school gyms can occasionally serve as temporary emergency shelters, the need for structural integrity is critical. USD 480 prioritized the gyms starting with Liberal High School's gymnasium, then followed by both the Liberal South Middle School and Liberal West Middle School gymnasiums, and, finally, by both Cottonwood Intermediate and Sunflower Intermediate gymnasiums.
Priority:	Moderate
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	School District
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

3. Assess elevations and water flow in the district to qualify the benefit of flood control projects in the district.	
Category:	Prevention, Property Protection
Jurisdiction:	USD 480
Hazard:	Flood
Goal.Objective:	1.1, 1.2, 2.1,
Background / Benefit:	Unified School District 480, Liberal, would like to consider analyzing the potential benefits of constructing flood control projects, such as soil-based berms, etc., around Garfield Elementary and any other facility with potential flood issues in the district to mitigate the effects from flooding.
Priority:	Moderate
Funding Sources:	Local / State / FEMA
Responsibility Assigned to:	School District
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Funding

4. Evaluate the benefits of purchasing flood insurance for the school district.	
Category:	Property Protection
Jurisdiction:	USD 480
Hazard:	Flood
Goal.Objective:	1.1,
Background / Benefit:	Using Manifold.Net GIS software to produce aerial images overlaid with FEMA FIRM maps it was determined that the Garfield Elementary building and the majority of the property are located in an identified Special Flood Hazard Area (SFHA) Zone AE. USD 480 would like to assess the potential benefits that purchasing flood insurance would provide the district following a flood event.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	School District
Target Completion Date:	December 31, 2012
Cost of Action:	No Cost / Low Cost

USD 483

1. Develop and fund mitigation projects for the construction of tornado safe rooms in Unified School District 483 schools.

Category:	Structural Project
Jurisdiction:	USD 483
Hazard:	Tornado
Goal/Objective:	2.2, 3.1,
Background / Benefit:	Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded by FEMA during new school construction, as part of school additions, or as retrofits.
Priority:	Low
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	School District
Target Completion Date:	December 31, 2014
Cost of Action:	Requires Appropriation of Significant Funding

## 5.3 Implementation

The Seward County Multi-Jurisdictional Mitigation Plan will be implemented through the delegation of assignments by the County Emergency Coordinator, and as specified within this Plan. Mitigation Actions for each jurisdiction are listed and assigned specific implementation measures which include the assignment of responsibilities to governmental departments and/or specific staff, along with the establishment of a target completion date for each proposed mitigation action. When applicable, potential funding sources were also listed.

It will be the responsibility of the Seward County Commission, and the designee(s) for each jurisdiction, to confirm the target completion dates, assess progress, provide policy revisions, and give final approval of the Plan and its objectives.

### **Planning and Incorporation of Mitigation Plan**

The Seward County Emergency Management Department will support mitigation activities through continued participation in the NFIP and flood plain development, in conjunction with the county commission oversight of land planning, and other departments within the county to guide and control development.

It is intended to utilize the Mitigation Plan as a reference guide for future growth and expansion efforts in the county, and incorporate the goals, objectives and actions into other planning documents as revisions and updates are made. Where feasible, mitigation actions will be incorporated into development and planning ordinances to reduce potential risk to the county and residents.

It will be the responsibility of the Seward County Commission, or designee, to confirm that these actions are ultimately carried out no later than the target completion dates unless reasonable circumstances prevent their implementation (i.e., lack of funding availability). Otherwise, the completion of each proposed mitigation action has been determined to be feasible within the timeframe allowed.

Specific procedures for regular monitoring and reporting of progress on the proposed mitigation actions are provided in Section 6.0 - Plan Maintenance.

### **Funding Sources**

Although mitigation techniques will likely save money in the long run by avoiding losses, many projects are costly to implement. Seward County will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. This portion of the plan identifies the primary federal and state grant programs for Seward County to consider, and also briefly discusses local and non-governmental funding sources.

#### **Federal**

The following federal grant programs have been identified as funding sources which specifically target hazard mitigation projects:

#### **Pre-Disaster Mitigation Program**

##### **Agency: Federal Emergency Management Agency**

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential disaster declaration. The Pre-Disaster Mitigation (PDM) Program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program, and reduce injuries, loss of life, and damage to and destruction of property.

The funding is based upon a 75 percent federal share, 25 percent non-federal share. The non-federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for “small and

impoverished communities”, who will be eligible for 90% federal share, 10% non-federal.

The Pre-Disaster Mitigation (PDM) Program was authorized by §203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act (Stafford Act), 42 USC, as amended by §102 of the Disaster Mitigation Act of 2000. Funding for the program is provided through the National Pre-Disaster Mitigation Fund to assist States and local governments (to include Indian Tribal governments) in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program. All applicants must be participating in the National Flood Insurance Program (NFIP) if they have been identified through the NFIP as having a Special Flood Hazard Area (a Flood Hazard Boundary Map (FHBM) or Flood Insurance Rate Map (FIRM) has been issued). In addition, the community must not be suspended or on probation from the NFIP.

44 CFR Part 201, Hazard Mitigation Planning, establishes criteria for State and local hazard mitigation planning authorized by §322 of the Stafford Act, as amended by §104 of the DMA. After November 1, 2003, local governments and Indian Tribal governments applying for PDM funds through the States will have to have an approved local mitigation plan prior to the approval of local mitigation project grants. States will also be required to have an approved Standard State mitigation plan in order to receive PDM funds for state or local mitigation projects after November 1, 2004. Therefore, the development of State and local multi-hazard mitigation plans is key to maintaining eligibility for future PDM funding.

FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities:

- State and local hazard mitigation planning,
- Technical assistance [e.g. risk assessments, project development],
- Mitigation Projects,
- Acquisition or relocation of vulnerable properties,
- Hazard retrofits,
- Minor structural hazard control or protection projects, community outreach and education up to 10% of State allocation

### **Flood Mitigation Assistance Program**

#### **Agency: Federal Emergency Management Agency**

FEMA's Flood Mitigation Assistance program (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 U.S.C. 4101) with the goal of reducing or eliminating claims under the NFIP.

There are three types of grants available under FMA: Planning, Project, and Technical Assistance Grants. FMA Planning Grants are available to States and jurisdictions to prepare Flood Mitigation Plans. NFIP-participating jurisdictions with approved Flood Mitigation Plans can apply for FMA Project Grants. FMA Project Grants are available to States and NFIP participating jurisdictions to implement measures to reduce flood losses. Ten percent of the Project Grant is made available to States as a Technical Assistance Grant. These funds may be used by the State to help administer the program. Jurisdictions receiving FMA Planning and Project Grants must be participating in the NFIP. Three examples of eligible FMA projects include: the elevation, acquisition, and relocation of NFIP-insured structures.

FMA is a pre-disaster grant program, and is made available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only, and is based upon a 75 percent federal share, 25 percent non-federal share. States administer the FMA program and are

responsible for selecting projects for funding from the applications submitted by all jurisdictions within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.

### **Hazard Mitigation Grant Program**

#### **Agency: Federal Emergency Management Agency**

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The HMGP assists states and local jurisdictions in implementing long-term mitigation measures following a Presidential disaster declaration.

To meet these objectives, FEMA can fund up to 75 percent of the eligible costs of each project. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15 percent of the federal funds being spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, as long as the projects in question fit within the state and local government's overall mitigation strategy for the disaster area, and comply with program guidelines. Examples of projects that may be funded include: the acquisition or relocation of structures from hazard-prone areas; the retrofitting of existing structures to protect them from future damages; the development of state or local standards designed to protect buildings from future damages.

Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. These organizations must apply for HMGP project funding on behalf of their citizens. In turn, applicants must work through their state, since the state is responsible for setting priorities for funding and administering the program.

### **Public Assistance (Infrastructure) Program, Section 406**

#### **Agency: Federal Emergency Management Agency**

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funding to local governments following a Presidential disaster declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster-related damages and must directly reduce the potential of future, similar disaster damages to the eligible facility. These opportunities usually present themselves during repair/replacement efforts.

Proposed projects must be approved by FEMA prior to funding. They will be evaluated for cost effectiveness, technical feasibility, and compliance with statutory, regulatory and executive order requirements. In addition, the evaluation must ensure that the mitigation measures do not negatively impact a facility's operation or increase risk from another hazard.

The Public Assistance Program provides supplemental Federal disaster grant assistance for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The Federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The State determines how the non-Federal share (up to 25%) is split with the applicants.

Public facilities are operated by state and local governments, Indian tribes or authorized tribal

organizations and include:

- Roads, bridges and culverts
- Draining and irrigation channels
- Schools, city halls and other buildings
- Water, power and sanitary systems
- Airports and parks

Private nonprofit organizations are groups that own or operate facilities that provide services otherwise performed by a government agency and include, but are not limited to the following:

- Universities and other schools
- Hospitals and clinics
- Volunteer fire and ambulance
- Power cooperatives and other utilities
- Custodial care and retirement facilities
- Museums and community centers

### **SBA Disaster Assistance Program**

**Agency: U.S. Small Business Administration**

The SBA Disaster Assistance Program provides low-interest loans to businesses following a Presidential Disaster Declaration (PDA). The loans target businesses that need to repair or replace uninsured disaster damages to property they own, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible, as well as non-profit organizations.

SBA loans can be utilized by their recipients to incorporate mitigation techniques into the repair and restoration of their business.

### **Community Development Block Grants**

**Agency: U.S. Department of Housing and Urban Development**

The Community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants for post-disaster hazard mitigation and recovery following a PDA. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

### **Individual and Households Program/Other Needs Assistance**

**Agencies: FEMA and KDEM**

The Individual & Households, Other Needs Assistance Program (ONA) provides financial assistance to individuals or households who sustain damage or develop serious needs because of a natural or man-made disaster. The funding share is 75% federal funds and 25% state funds. The ONA program provides grants for necessary expenses and serious needs that cannot be provided for by insurance, another federal program, or other source of assistance.

The current maximum allowable amount for any one disaster to individuals or families is \$25,000. The program gives funds for disaster-related necessary expenses and serious needs, including the following categories:

- Personal property
- Transportation
- Medical and dental
- Funeral
- Essential tools
- Flood insurance
- Moving and storage

In accordance with the Stafford Act, the program is initiated by inclusion in the Governor's request for a presidential declaration.

The ONA Program is not intended to indemnify a victim against disaster losses or to purchase or replace items or provide services that could be characterized as non-essential, luxury, recreational, or decorative. The program provides individuals or households with assistance to recover from a disaster and establish a habitable and sanitary living environment.

Kansas Emergency Management administers the ONA Program in cooperation with the federal government.

### **Hazardous Materials Public Sector Training and Planning Grants**

**Agency: U.S. Department of Transportation-Title 49, Volume 2, Parts 100 to 185**

This part sets forth procedures for reimbursable grants for public sector planning and training in support of the emergency planning and training efforts of States, Indian tribes, and local jurisdictions to deal with hazardous materials emergencies, particularly those involving transportation. These grants will enhance the implementation of the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001).

The Hazardous Materials Emergency Preparedness (HMEP) grant program is intended to provide financial and technical assistance as well as national direction and guidance to enhance State, Territorial, Tribal, and local hazardous materials emergency planning and training. The HMEP Grant Program distributes fees collected from shippers and carriers of hazardous materials to emergency responders for hazmat training and to Local Emergency Planning Committees (LEPC's) for hazmat planning.

#### **State**

A wide array of assistance programs are available to local jurisdictions through the state governmental agencies to assist in the event of a disaster, including small business loans, recovery programs, and mitigation programs, depending on needs and type of declared disaster in the jurisdiction. It is the intent of Seward County to research and identify specific program funding that may be available for specific goals and objectives identified in this plan.

#### **Local**

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds may be used for other purposes in the general public interest. Many times these funds are used to match federal or state grant programs when required for large-scale projects.

#### **Non-Governmental**

Another potential source of revenue for implementing local mitigation projects is monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, land trusts and other non-profit organizations.

## 6.0 Plan Maintenance

### 6.1 Monitoring Schedule

During each year, periodic monitoring and reporting on the progress of the plan is required to evaluate the goals and objectives for each jurisdiction in this multijurisdictional plan. This will allow the overall plan to stay current and will measure the effectiveness of the plan. The plan has therefore been designed to be user-friendly in terms of monitoring implementation and preparing regular progress reports.

The plan is a public document, and will remain available at the Emergency Coordinator Operations Office, and at appropriate locations within each jurisdiction, for review and comment during normal business operations. Public comment will be documented and included in annual reporting to the county commission.

### 6.2 Evaluating Method

Each jurisdiction is responsible for a formal review of the mitigation plan on an annual basis with emphasis on its unique hazards, goals, and actions. Each jurisdiction is responsible to maintain a designated contact for its part of the plan and inform the EM. This review will include the following as a minimum scope:

- The EM, as Plan Administrator is responsible for scheduling an annual meeting of the Mitigation Planning Committee, or other group that may be designated such as the Local Emergency Planning Committee (LEPC), for the purpose of the overall formal review of the plan components.
- The EM will provide an annual report and/or presentation to the Board of County Commissioners (BOCC) on the implementation status of the plan during a public forum meeting. This forum can either be a scheduled county commissioners meeting or special meeting called to review mitigation planning. This report will include, at a minimum, a completed, printed version of the Mitigation Action Plan (MAP - provided as a link in the Appendix).
- The report will include an evaluation of the progress, effectiveness, and appropriateness of the mitigation actions proposed in the plan. The report will recommend, as appropriate, any required changes or amendments to the plan.

If the BOCC, on behalf of any or all of the jurisdictions, determines that the recommendations warrant modification to the plan, the BOCC may initiate a plan amendment as described in the Revisions and Updates Section.

The MAP lists the mitigation actions recommended in this plan. It has been designed to provide Seward County with a user-friendly tool for monitoring the implementation of the mitigation actions recommended in the plan, and for reporting progress to the BOCC or their appointed representative.

Mitigation actions may be sorted using the MAP according to the following:

1. By action number;
2. By category;
3. By hazard;
4. By priority;
5. By responsibility assigned to;
6. By target completion date.

The spreadsheet file is provided as a link and will be maintained and updated along with the Seward County Hazard Mitigation Plan.

### 6.3 Revisions and Updates - Schedule

Periodic revisions and updates of the plan are required to ensure that the goals and objectives for Seward

County are kept current. More importantly, revisions may be necessary to ensure the plan is in full compliance with federal regulations and state statutes. This portion of the plan outlines the procedures for completing such revisions and updates.

#### Five-Year Plan Review

The hazard identification and assessment, jurisdiction vulnerability assessment, and mitigation capabilities assessment should be reviewed, at a minimum, every 5-years to determine if there have been any significant changes in Seward County that should be addressed and considered in the mitigation plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to federal or state legislation are examples of changes that may affect the condition of the plan.

Further, following a disaster declaration, the plan will need to be reviewed and/or revised to incorporate lessons learned and to address specific circumstances arising out of the disaster.

The results of any review, periodic or following a disaster, should be summarized in the plan update report prepared for the mitigation plan under the direction of the EM. The annual report will include an evaluation of the effectiveness and appropriateness of the plan, and will recommend, as appropriate, any required changes or amendments to the plan.

If the BOCC determines that the recommendations warrant modification to the plan, the BOCC may either initiate a plan amendment as described below or, if conditions justify, may direct the EM to undertake a complete update of the plan.

#### Plan Amendments

An amendment to the plan should be initiated only by the BOCC, either at its own initiative or upon the recommendation of the EM, or some other person or agency.

Upon initiation of an amendment to the plan, Seward County will forward information on the proposed amendment to interested parties including, but not limited to, affected county departments, residents and businesses. Information will also be forwarded to the Kansas Division of Emergency Management. This information will be sent out in order to seek input on the proposed plan amendment for not less than a forty-five (45) day review and comment period.

At the end of the comment period, the proposed amendment and review comments will be forwarded to the EM (or designee) for consideration. If no comments are received from the reviewing parties within the specified review period, such will be noted accordingly. The EM or designee will review the proposed amendment along with the comments received from other parties, and submit a recommendation to the county commissioners within sixty (60) days.

In determining whether to recommend approval or denial of a plan amendment request, the following factors will be considered:

- There are errors or omissions made in the identification of issues or needs during the preparation of the plan;
- New issues or needs have been identified which were not adequately addressed in the plan;
- There has been a change in information, data, or assumptions from those on which the plan was based.

Upon receiving the recommendation of the EM or designee, the BOCC will then proceed with its established procedures for changing a document of this type. The BOCC will review the recommendation (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the BOCC will take one of the following actions:

1. Adopt the proposed amendment as presented.
2. Adopt the proposed amendment with modifications.
3. Refer the amendments request back to the EM for further consideration.
4. Defer the amendment request for further consideration and/or hearing.

## 6.4 Incorporation into Existing Planning

The Seward County Emergency Management Department will continue to incorporate mitigation planning activities into county planning functions by actively communicating the plan and its content to other departments within the county. In conjunction with BOCC oversight and continued participation in the NFIP, requirements of the mitigation plan can be incorporated into future comprehensive land planning and zoning which will guide and control development. The intent will be to utilize the mitigation plan as a reference guide for future growth and expansion efforts in the county, and to incorporate the goals, objectives and actions of the plan into other planning documents as revisions and updates are made. Where feasible, mitigation actions will be incorporated into development and planning ordinances to reduce potential risk to the county and residents.

The jurisdictions participating in this multi-jurisdictional plan believe it has the capacity to stand alone and will, for most situations, execute it as such. In the cases where the jurisdiction indicates a comprehensive plan, or related planning function, this plan will be used or incorporated in to that process as a reference or guiding document. As part of plan maintenance, the yearly review will examine and document the integration of the mitigation plan with other plans and planning functions. This process will also review new opportunities to incorporate and integrate the plan.

It will be the responsibility of the BOCC, or designee, to confirm that these actions are ultimately carried out no later than the target completion dates unless reasonable circumstances prevent their implementation (e.g., lack of funding availability). Otherwise, the completion of each proposed mitigation action has been determined to be feasible within the timeframe allowed.

## 6.5 Continued Public Involvement

The plan is a public document, and will remain available at the Emergency Management Operations Office for review and comment during normal business operations. Public comment will be documented and included in annual reporting to the BOCC.

# Appendices

# References and Resources

The following were reviewed for potential plans, studies, reports, and technical information.

- National Climatic Data Center (<http://lwf.nodc.noaa.gov/oa/climate/severeweather/extremes.html>)
- FEMA (FIRM and DFIRM Hazard Maps, Community Status Book, NFIP Insurance Report, Community Rating System Eligible Communities)
- HAZUS infrastructure data
- U.S. Census Bureau (Demographics - DP-1, DP-2, DP-3, DP-4)
- U.S. Department of Labor (<http://stats.bls.gov/>)
- National Register of Historic Places (<http://nationalregisterofhistoricplaces.com/KS/state.html>)
- Kansas University - Institute for Policy Research (<http://www.ipsr.ku.edu/>)
- USDA - Census of Agriculture (<http://www.agcensus.usda.gov/index.asp>)
- U.S. EPA Watershed data ([http://cfpub.epa.gov/surf/county\\_list.cfm](http://cfpub.epa.gov/surf/county_list.cfm))
- U.S. Army Corps of Engineers (<http://www.nwk.usace.army.mil/index.cfm>)
- U.S. Hometown Locator (<http://www.hometownlocator.com/>)
- Wikipedia (<http://wikipedia.org/>)
- Global Air - Kansas Airports (<http://www.globalair.com/airport/results.aspx?state=KS>)
- Air Navigation (<http://www.airnav.com/airports/>)
- Kansas Department of Transportation (County, Highway, and Railroad Maps and data)
- Kansas State Historical Society (<http://www.kshs.org/>)
- United States Geological Society (<http://pubs.usgs.gov/ha/ha730/index.html>)
- Kansas Geological Society (<http://www.kgs.ku.edu/>)
- High Plains Regional Climate Center (<http://www.hproc.unl.edu/data/historical/index.php>)
- Kansas Corporation Commission (<http://www.kcc.state.ks.us/index.htm>)
- History of the State of Kansas (<http://www.kanocoll.org/books/outler/>)
- Kansas Department of Agriculture - Water Resources Division, and Water Structures Division (dam and levee data)
- County Appraiser - appraisal data
- Local Fiscal Capability (county/city Budget and Finance Data)
- Local Mitigation Capabilities (Section 3.10)

Reference Section 3.10 - Table 3.10 (1) for specific county and incorporated city regulatory documentation reviewed for this Mitigation Plan.

# Meeting Sign-in Forms

SEWARD COUNTY MITIGATION PLAN - INITIAL MAILING LIST

Ember

Agency	FName	LName	Title	Address1	Address2	City	State	Zip	Phone	email
Seward County Em Mgt	Greg	Standard	Emergency Coordinator	515 N Washington	Suite 105	Liberal	KS	67901	620-626-3270	gts@swko.net
Seward County Road & Bridge	Tony	Herrman	Supervisor	515 N Washington		Liberal	KS	67901	620-626-3347	therrman@sewardcountys.org
Seward County Sheriff	Bill	McByde	Sheriff	501 N Washington		Liberal	KS	67901	620-309-2015	bm100@swko.net
Seward County EMS	John	Ralston	Director	320 W 18th		Liberal	KS	67901	620-626-3275	ralston@sewardcountys.org
Seward County Fire Dept	Michael	Rice	Chief	515 N Washington	Suite 105	Liberal	KS	67901	620-626-3267	mrice@sewardcountys.org
Seward County Health Dept	Martha	Brown	Director	103 W 2nd		Liberal	KS	67901	620-626-3369	mbrown@sewardcountys.org
Seward County Commission	Shannon	Francis	Commissioner	515 N Washington		Liberal	KS	67901	620-629-3212	sfrancis3384@aol.com
Seward County Commission	C.J.	Wettstein	Commissioner	515 N Washington		Liberal	KS	67901	620-629-3212	cjwettstein@hotmail.com
Seward County Commission	Joyce	Hibler	Commissioner	515 N Washington		Liberal	KS	67901	620-629-3212	hibler@att.net
Seward County Commission	Ike	Eisenhauer	Commissioner	515 N Washington		Liberal	KS	67901	620-629-3212	ike@swko.net
Seward County Commission	Toby	Hale	Commissioner	515 N Washington		Liberal	KS	67901	620-629-3212	toyhale@att.net
Liberal Police Dept	Al	Sill	Chief	PO Box 2199		Liberal	KS	67905	620-626-0141	asill@cityofliberal.com
Liberal Fire Dept	Kirk	Kirk	Chief	PO Box 2199		Liberal	KS	67905	620-626-0561	firechief200@adelphia.net
City of Liberal Public Works	Joe	Sealey	Mayor	PO Box 2199		Liberal	KS	67905	620-626-0158	liberalcityworks@swko.net
Liberal City Commission	Joe	Denoyer	Mayor	PO Box 2199		Liberal	KS	67905	620-626-0102	
Liberal City Commission	Doug	LaFrenere	Vice-Mayor	PO Box 2199		Liberal	KS	67905	620-626-0102	
Liberal City Commission	Larry	Koochel	Commissioner	PO Box 2199		Liberal	KS	67905	620-626-0102	
Liberal City Commission	Don	Rash	Commissioner	PO Box 2199		Liberal	KS	67905	620-626-0102	
Liberal City Commission	Dave	Harrison	Commissioner	PO Box 2199		Liberal	KS	67905	620-626-0102	
Liberal Mid-America Regional Airport	Debbie	Giskie	Airport Manager	PO Box 2199		Liberal	KS	67905	620-626-0103	debbiegiskie@cityofliberal.com
Kismet City Council	Darold	Ungerer	Mayor	PO Box 44		Kismet	KS	67859	620-563-9503	daroldungerer@yahoo.com
Southwest Medical Center	Bobby	Carpenter	Carpenter	PO Box 1340		Liberal	KS	67905	620-624-1651	bcarpenter@swmedcenter.com
Southwest Kansas Technical School	Ed	Poley	Director Area Technical School	Box 1599		Liberal	KS	67905	620-417-1651	ed.poley@skcc.edu
Seward County Community College	Duane	Dunn	President	Box 1137		Liberal	KS	67905	620-417-1010	duane.dunn@skcc.edu
Seward County Community College	Tommy	Williams	Dean of Administration	Box 1137		Liberal	KS	67905	620-624-1951	tom.williams@skcc.edu
Seward County Community College	Dale	Reed	Assoc. Dean of Educational S	Box 1137		Liberal	KS	67905	620-417-1014	dale.reed@skcc.edu
Seward County Community College	Roger	Scheib	Director-Buildings, Grounds &	Box 1137		Liberal	KS	67905	620-417-1240	roger.scheib@skcc.edu
USD 480	Vernon	Wech	Superintendent	PO Box 949		Liberal	KS	67905	620-604-1010	vernon.weich@usd480.net
USD 483	Elton	Argo	Superintendent	PO Box 760		Plains	KS	67869	620-563-7103	
USD 483	Dan	Frisby	Principal (High School)	PO Box 760		Plains	KS	67869	620-563-7103	
USD 483	Mark	Webb	Principal (Middle School)	PO Box 760		Plains	KS	67869	620-563-7103	
Red Cross	Sherry	Helmlke	Director	301 W 5th		Liberal	KS	67901	620-624-8411	clmarc@redcross.com
United Way	Kay	Burtzloff	Director	PO Box 273		Liberal	KS	67905	620-624-5400	scunitedway@sbccolbal.net
CMS Electric Cooperative	Kirk	Thompson	General Manager	509 E Carthage		Meade	KS	67864	620-873-2184	
Kansas Division of Em Mgt	Brad	Moeller	Hazard Mitigation Planner	State Defense Building	2800 SW Topoka Blvd.	Topoka	KS	66611-1287	785-274-1840	brad.moeller@tag.ks.gov
Kansas Division of Em Mgt	Charlie	McGonigle	Mitigation Projects Manager	State Defense Building	2800 SW Topoka Blvd.	Topoka	KS	66611-1287	785-274-1421	charlie.mcgonigle@tag.ks.gov
Kansas Division of Em Mgt	Jacob	Gray	State Mitigation Officer	State Defense Building	2801 SW Topoka Blvd.	Topoka	KS	66611-1288	785-274-1973	jacob.gray@tag.ks.gov
USPHS-FEMA R-VII	Joe	Chandler	Hiz Mts Coordinator	9221 Ward Parkway	Suite 200	Kansas City	KS	641174	816-283-7071	Joe.Chandler@dhs.gov
Stevens County Em Mgt	Mike	Schechter	Emergency Coordinator	109 Northwest Avenue		Hugoton	KS	67951-2144	620-544-2562	firesco@pld.com
Meade County Em Mgt	Marvin	Stice	Emergency Coordinator	200 N Fowler		Meade	KS	67864-0604	620-873-8726	mstice@meadeco.org
Haskell County Em Mgt	Gwen	Wearis	Emergency Coordinator	PO Box 518		Sublette	KS	67877	620-675-2485	emichs@pld.com
Grant County Em Mgt	Donald	Burton	Emergency Coordinator	108 South Glenn Street		Ulysses	KS	67880-2551	620-356-4430	atocem@pld.com
Gray County Em Mgt	Tommy	Hogan	Emergency Coordinator	PO Box 688	101 W Avenue	Cimarron	KS	67835-0688	620-855-7701	thogan@grayco.org
Mid-America Air Museum	JoAnne	Mansell	Executive Director	PO Box 2199		Liberal	KS	67905	620-624-5263	liberalcityvamd@swko.net
Seward County Historical Museum	Stacia	Long	Executive Director	567 E Cedar		Liberal	KS	67901	620-624-7624	schs@swko.net
Seward County Clerk	Sherry	Wilton	Executive Director	515 N Washington	Suite 100	Liberal	KS	67901		slong@sewardcountys.org
Seward County Treasurer	Cynthia	Sallaska	Executive Director	515 N Washington	Suite 102	Liberal	KS	67901		swilson@sewardcountys.org
Seward County Register of Deeds	Don	Scott	Executive Director	515 N Washington	Suite 103	Liberal	KS	67901		csallaska@sewardcountys.org
Seward County Attorney	Stacy	Johnson	Executive Director	415 N Washington	Suite 105	Liberal	KS	67901		stjohnson@sewardcountys.org
Seward County Zoning Administrator	Steve	Guerrero	Executive Director	515 N Kansas		Liberal	KS	67901		liberalcityvmd@swko.net
City of Liberal Zoning Administrator	Ray Dee	Rinehart	Executive Director	325 N Kansas		Liberal	KS	67901		liberalcityvmd@swko.net
National Beef	Jayson	Fitts	Team Leader	PO Box 978		Liberal	KS	67905	620-626-0289	RD@rlinehart@nationalbeef.com
Halliburton	Frank	Velasquez	Team Leader	PO Box 1598		Liberal	KS	67905	620-629-4611	jayson.fitts@halliburton.com
Northern Natural Gas	Frank	Velasquez	Team Leader	17931 Hwy 83		Kismet	KS	67859	402-530-6236	frank.velasquez@nngco.com

# MEETING SIGN-IN SHEET

**Project:** Seward County Mitigation Plan

**Meeting Date:** January 20, 2009  
9:30am (CST)

**Facilitator:** E-Fm Consulting, LLC

**Place/Room:** Seward Community College  
1801 N Kansas  
Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
Pamela Johnson	Director of Communications Pampa District HALLIBURTON - OE LEAD	Liberal / Seward County Emergency Communications	620-626-0198	911-pjohnson@swo.ko.net
GREG HUNTLEY	HALLIBURTON	HALLIBURTON	806-662-1853	gregory.huntley@halliburton.com
Jay Fitts	Facility Supervisor	Halliburton	620-629-4611	Jayson.fitts@halliburton.com
ELIZABETH IRBY	Animal Director	SCHD	620-626-339	elrby@sewardcountys.org
Suzanne Inkwago	Director, Wilvin Center	SCCC/ATS Panhahle Eastern	620-417-1311	susan.inkwago@secc.edu
Mike Riedel	Environmental Specialist	Pipe Line Co.	620-626-1660	mike.riedel@sug.com
Celeste Donovan	Dean of Student Services	Seward County Community College	620-624-6487	celeste.donovan@secc.edu
Toby Hake	Commissioner	Seward County	620-674-6544	Toby.Hake@kts.com
John Ralston	EMS	Seward County EMS	620-629-5037	jralston@sewardcountyks.com
CJ Wettstem	County Commission	Seward Co.	620-629-1742	cjw@seasant@hotmail.com
ALAN HASKELL	AUXILIARY SERVICES DIRECTOR	USD 480 LIBERAL SCHOOL DISTRICT	620-604-1010	alan.haskell@usd480.net
MARK ROHN	UP SECURITY OFFICE	FIRST NATIONAL BANK	620-624-2700	mark@fnliberal.com
Jana Jantzen	SWP First NB - Crisis Mgmt Coordination	First National Bank	620-624-1971	janaj@fnliberal.com

# MEETING SIGN-IN SHEET

**Project:** Seward County Mitigation Plan

**Meeting Date:** January 20, 2009  
9:30am (CST)

**Facilitator:** E-Fm Consulting, LLC

**Place/Room:** Seward Community College  
1801 N Kansas  
Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
Richard Everett	Regional Public Health Coord.	SWK#H1	620-492-1930	were@pht.com
Bobby Carpenter	Swmc Safety Security Manager	Swmc	620.629.6345	bcarpenter@swmedcenter.com
Don Parsons		SCHS	620 482 4237	
Glenn Manceel	Executive Director	SCHS	624-7624	schs@swko.net
Barbara Correll	KARHT Coordinator	SWGC	620-624-0280 x23	barbarcorrell@yghoo.com barcorrell@suguidance.org
Sherry Helmle	Manager	Red Cross	624-8411	Cinarc@roadrunner.com
Michael Pond	Sr. Field Analyst	ANADARKO PETRO.	629-5411	mike.pond@anadarko.com
SKEETY Poulton	DEPUTY CHIEF OF OPERATIONS	LIBERAL FIRE DEPT	620-626-0187	skeety.poulton@cityofliberal.com
Al Sill	Chief of Police	Liberal Police Dept.	620-626-0191	alsill@cityofliberal.com
Patrick McClung	Captain	Liberal Police Dept.	620-626-0149	patrickm@cityofliberal.com
Kelly Kirk	Fire Chief	Liberal Fire Dept.	620-626-0126	kelly.kirk@cityofliberal.com
JOHN STECKEL	DEPUTY DIR/LT.	EMERGENCY MGMTS. C.F.D.	620-626-3270	jsteckel@SEWARDCOUNTYS.ORG
Greg Freelove	EHAS/LT	SCF/SCFD	620-624-6296	freelove@wbsnet.org

# MEETING SIGN-IN SHEET

**Project:** Seward County Mitigation Plan

**Meeting Date:** January 20, 2009  
9:30am (CST)

**Facilitator:** E-Fm Consulting, LLC

**Place/Room:** Seward Community College  
1801 N Kansas  
Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
Michael Rice	Fire Chief	Seward County Fire	620-626-3267	m.rice@sewardcountyks.org
Roger Scheib	Director for Buildings & Grounds	SCCC	620-624-1951	Roger.Scheib@secc.edu
Greg Standard	Director Emerg Mgmt	SCEM	620-626-3270	gts@swko.net
Roy Petty	Security/Safety Supv.	SCCC/ATS	620-417-1181	roy.petty@secc.edu
Marcie Weatherly		SCEM	620-626-3394	mweatherly@sewardcountyks.org

# MEETING SIGN-IN SHEET

<b>Project:</b> Seward County Mitigation Plan – 1 <sup>st</sup> Public Meeting	<b>Meeting Date:</b> December 15, 2009 9:30am (CST)
<b>Facilitator:</b> E-Fm Consulting, LLC	<b>Place/Room:</b> Seward Community College 1801 N Kansas Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
Mike King	TRANSFORMATION MGR	RBP	620-629-5753	MK.KING@transformation.com
Margie Weatherly	Admin Assistant	Sew Co. EM	620-626-3394	mweatherly@sewardcountys.org
JOHN STECKEL	DEPUTY DIRECTOR	S.C. EM	620-626-3270	JSTECKEL@sewardcountys.org
John Rauston	Director EMS	SEEMS	620-626-3275	JRauston@sewardcountys.org
Bobby Carpenter	Safety Officer	Sumc	620-628-6345	bcarpenter@sumc.com
Richard S Berent	Coordinator	SUKHFI	620-492-1930	werere@pld.com
Toby Hale	Commissioner	County	620-628-6474	
RyDee Rinckhart	ASST. SAFETY MANAGER	NATIONAL BEEF	620-626-0289	RDRinckhart@NATIONALBEEF.COM
ALAN HASKELL	DIR. OF AUXILIARY SER.	USD #480	620-604-1010	alan.haskell@usd480.net
Steve Guerezo	Building Inspector	City of Liberal	620-626-2262	steve.guerezo@cityofliberal.com
Joe Sealey	City Manager	City of Liberal	620-626-2220	
Michael Povel		AWADAREKO	620-629-5411	mike.povel@awadareko.com
Kory Krause	FIRE MARSHAL	City of Liberal	620-626-0129	kory.krause@cityofliberal.com

**MEETING SIGN-IN SHEET**

**Project:** Seward County Mitigation Plan – 1<sup>st</sup> Public Meeting  
**Meeting Date:** December 15, 2009  
 9:30am (CST)  
 Seward Community College  
 1801 N Kansas  
 Liberal, Kansas

**Facilitator:** E-Fm Consulting, LLC  
**Place/Room:**

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
A/ S/11	Chief of Police	Liberal Police Department	620-624-0140	A/S/11@cityofliberal.com
Patrick McClug	Captain	Liberal Police Dept.	620-626-0444	patrickm@cityofliberal.com
Gauri Austin	Underwriter	Seward So. Shovitch Farmhandle Eastern Pipe Line Co.	620-309-2000	gauri@scshov.com
Mike Riedel	Environmental Specialist		620-626-1160	mike.riedel@sug.com
Kathy Henderson	KDEW Coordinator	KDEW	785-801-3099	kathy.henderson@ky15.gov
Mike Hanson	K-State Research Extension	KSRE	620-624-5604 W 620-544-5358 C	mhanson20ksu.edu
Sherry Helmke	Comairon America Red Cross	Manager	620-624-8411	sherry@windfarmers.com
Kelly Kirk	Fire Chief	Liberal Fire Department	620-626-0126	kelly.kirk@cityofliberal.com
Lisa Olson	GIS Coordinator	SEWARD COUNTY	620, 626, 3332	lolsone@sewardcountyks.org

# MEETING SIGN-IN SHEET

**Project:** Seward County Mitigation Plan  
Second Public Meeting

**Meeting Date:** January 12, 2010  
7:00pm (CST)

**Facilitator:** E-Fm Consulting, LLC / Seward County Emergency Management

**Place/Room:** Seward Community College  
1801 N Kansas  
Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
John Marshall	Executive Director	Seward County	620-624-7634	
Don Parsons	Board	" " "	" "	
Bobby Halp	BOCC	Seward Co	624-6504	
Richard Everett	Coordinator	SUKK#1	492-1930	were@pd.com
Bobby Carpenter	Safety Officer	Sumc	629-6345	bcarpenter@summedcenter.com
RUSTY BLEHM	Operations Manager	CMS Electric	620-873-2394	rblehm@cmselectric.com
Steve Guereca	Building Inspector	City of Liberal	620-426-2262	
RADDE Rinehart	Asst. Safety Manager	National Roof	620-626-0289	RRinehart@nationalroof.com
JOHN STECKEL	DeDir EM	Seward Co	620-626-3270	steckel@sewardcountyks.org
Michael Rice	SCFD - Fire Chief	SCFD	620-626-3267	mrice@sewardcountyks.org
Gavin Austin	SWSP - Underknecht	Star A OH	620-309-2000	gavina@stara.com
Patrick McClurg	Captain	Liberal P.D.	620-626-0144	patrick@cityofliberal.com
Greg Standard	Director	Seward Co EM	620-626-3270	gstandard@sewardcountyks.org

# MEETING SIGN-IN SHEET

**Project:** Seward County Mitigation Plan  
Second Public Meeting

**Meeting Date:** January 12, 2010  
7:00pm (CST)

**Facilitator:** E-Fm Consulting, LLC / Seward County Emergency Management

**Place/Room:** Seward Community College  
1801 N Kansas  
Liberal, Kansas

(PLEASE PRINT)

Name	Title	Organization	Phone	E-Mail
LISA OLSON	GIS Coordinator	SEWARD COUNTY	620.626.3332	lolson@sewardcountys.org
Narcie Weatherly	Admin Assistant	Saw Co E.M. American Red Cross	620-626-3394	nweatherly@sewardcountys.org
Sherry Helmske	Manager	Seward County EMS	620-624-8411	sherry@sewardcountys.org
John A. Raston	Director		620-626-3275	jraston@sewardcountys.org
Roger Scheib	Director Building Grounds	SCCC/ATS	620-417-1240	rogerscheib@secc.edu
Tommy Williams	DEAN-ADMIN SERVICES	SCCC/ATS	620 417 1018	tom.williams@secc.edu
Mike King	TRANS. MGR. - NR P at	NATIONAL BEEF	620-629-5753	mkking@nationalbeef.com
Mike Lawrence	Spitz Mueller MET	National Career	620-629-5073	mlawrence@nationalcareers.com
MICHAEL FOND	SR. Field Analyst	AUADARCO	620-629-5411	mike.fond@auadarco.com
Kay Burtzloff	Executive Director	Seward County United Way	620 624 5400	kburtzloff@scunitedway.org
Al Sill	Chief of Police	Liberal Police Dept.	620-626-0140	alsill@cityofliberal.com

# Letters of Authorization



The  
**CITY of LIBERAL**

P.O. BOX 2199 • LIBERAL, KANSAS 67905-2199 • 620-626-0102

February 18, 2009

Mr. Greg Standard  
Seward County Emergency Preparedness  
110 West Fifteenth Street  
Liberal, KS 67901

**Re: Hazard Mitigation Planning  
Seward County, Kansas**

Dear Mr. Standard:

The City of Liberal agrees to participate in the Mitigation Planning Program for Seward County. It is our understanding that City staff will be a part of the planning team to complete a County multi-jurisdictional mitigation plan through the assistance of EFM Consultants.

We are pleased to be a part of the planning process and will forward the answers and other information you have requested from members of the City staff, including Fire Chief Kelly Kirk, Police Chief Al Sill and City Clerk Debbie Giskie.

Please contact my office if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark D. Hall". The signature is written in a cursive style with some loops and flourishes.

Mark D. Hall  
City Manager

cc: City Commission

# CITY OF KISMET

503 Main Street  
P.O. Box 44  
Kismet, Kansas  
67859  
620-563-9503

February 11, 2009

Seward County EM  
515 N. Washington  
Suite 105  
Liberal, Kansas 67901

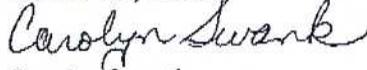
Seward County LEPC:

City of Kismet agrees to Participate in the Mitigation Plan written for Seward County by E-FM Consulting, as adopted by Seward County.

Signed by authority for the City of Kismet, Kansas. February 11, 2009.

Sincerely,

Kismet City Clerk,



Carolyn Swank



*Superintendent of Schools*  
**Vernon E. Welch**

---

***"QUALITY LEARNING THROUGH QUALITY EDUCATION"***

February 10, 2009

Seward County EM  
 515 N. Washington, Suite 105  
 Liberal, KS 67901

Seward County LEPC:

Unified School District 480 agrees to Participate in the Mitigation Plan written for Seward County by E-FM Consulting, as adopted by Seward County.

Sincerely,

A handwritten signature in black ink, appearing to read "Daniel H. Diepenbrock".

Daniel H. Diepenbrock, President  
 USD 480 Board of Education

DHD/ma

---

**LIBERAL UNIFIED SCHOOL DISTRICT NO. 480**

P.O. Box 949  
 Liberal, KS 67905-0949  
 MAIN: (620) 604-1010  
 FAX: (620) 604-1011

RESOLUTION #020110

Seward County Community College/Area Technical School (SCCC/ATS)

Governing Board: Board of Trustees - Ms. Jo Ann Sharp, Chair  
Mr. Ron Oliver, Vice Chair  
Mr. Marvin Chance, Jr., Member  
Ms. Sharon Hobble, Member  
Dr. Steve Cauble, Member  
Mr. Dustin Ormiston, CPA, Member

1801 N Kansas Avenue, POB 1137, Liberal, KS 67905-1137

WHEREAS, Seward County Community College/Area Technical School has limited capability to undertake extensive participation in the preparation of a hazard mitigation plan; and

WHEREAS, EFM Consulting, LLC is able to act on behalf of Seward County Community College/Area Technical School in the analysis and development of a hazard mitigation plan as part of the grant funding provided to the County of Seward; and

WHEREAS, EFM Consulting, LLC shall prepare a hazard mitigation plan in accordance with 44 FEMA requirements at 44 CFR 201.6 and the County Plan; and

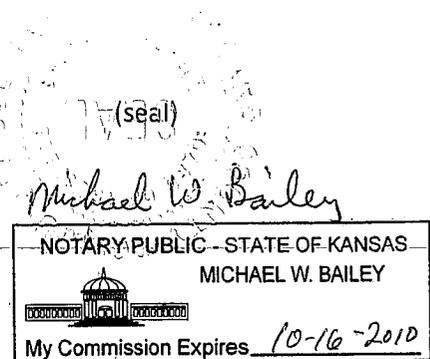
WHEREAS, EFM Consulting, LLC shall deliver a draft copy of the Plan for public comment as well as the governing body's comment during the planning process and prior to adoption.

NOW THEREFORE, The Board of Trustees authorizes EFM Consulting, LLC on behalf of Seward County Community College/Area Technical School to prepare the County Multi-Jurisdictional Mitigation Plan, which shall be reviewed and considered for adoption by the Board of Trustees of Seward County Community College/Area Technical School upon completion.

ADOPTED this First day of February, 2010 at the regular meeting of the Seward County Community College/Area Technical School Board of Trustees.

  
\_\_\_\_\_  
Ms. Jo Ann Sharp, Chair

  
\_\_\_\_\_  
Mr. Ron Oliver, Vice Chair



# Unified School District No. 483

BOARD MEMBERS  
 RANDALL ABLA  
 RON EAKES  
 ROGER HOLMES  
 STAN REISS  
 KIM RINEHART  
 ANDREA JOHNSRUD  
 DUSTY TURNER

(620) 563-7102 / (620) 563-7103 / PO BOX 760 / PLAINS, KANSAS 67869 - 0760

*Plains . . . . . Kismet*

ELTON ARGO  
SUPERINTENDENT

SOUTHWESTERN HEIGHTS  
 DAN FRISBY, Principal  
 SOUTHWESTERN HEIGHTS JR. HIGH  
 MARK WEBB, Principal  
 PLAINS ELEM. SCHOOL  
 KYLE GRIFFITTS, Principal  
 KISMET ELEM. SCHOOL  
 JOHN JONES, Principal

February 13, 2009

Seward County LEPC:

Unified School District #483, Kismet/Plains, Kansas, agrees to participate in the Mitigation Plan written for Seward County by E-FM Consulting, as adopted by Seward County. Please contact me as additional information is needed.

Sincerely,



Elton Argo  
 Superintendent of Schools  
 USD #483  
 23456 Hwy. 54  
 Kismet, Ks 67859  
 Phone: 620-563-7102 Fax: 620-563-7348

# Meetings

# Seward County, Kansas Multi-Jurisdictional Mitigation Plan

## Planning Meeting

January 5, 2009

This letter has been sent to inform you of a very important initiative that is about to take place in Seward County. The county has started the process of developing a Multi-Jurisdictional Hazard Mitigation Plan (HMP). This mitigation plan will be the blueprint for reducing property damage and saving lives from the effects of future natural disasters in Seward County. This plan is funded by a "Pre-disaster Mitigation Grant" approved by the Federal Emergency Management Agency (FEMA) at 75% of the cost, and the Kansas Division of Emergency Management (KDEM) is paying the remaining 25% matching funds for the county.

The planning process will include public meetings among community leaders, businesses, and other interested parties. These meetings will help identify potential mitigation measures and deficiencies in existing municipal codes and ordinances that could impact local infrastructure and critical facilities in the instance of a hazardous event. The HMP will also prioritize mitigation measures throughout the county, and proposes strategies to implement them.

There will be a planning meeting held in conjunction with the regular LEPC meeting on **January 20, 2009 at 9:30 a.m.** at **Seward County Community College** to kick-off the planning process. You are encouraged to attend this meeting and participate in this initial planning process in order to gain insight into the overall strategy and plan development.

If you have questions before the meeting, please contact Greg Standard at (620) 626-3270, email: [gts@swko.net](mailto:gts@swko.net) .

Sincerely,

Greg Standard, Emergency Coordinator  
Seward County, Kansas

E-Fm Staff

**PUBLIC NOTICE  
TO ALL RESIDENTS OF  
  
SEWARD COUNTY**

The Office of Seward County Emergency Management along with E-Fm Consulting, LLC will be conducting the first public meeting for discussion and input on the Seward County Hazard Mitigation Plan. The County and incorporated areas are developing Local Hazard Mitigation Plans per the requirements of the Disaster Mitigation Act of 2000 and guidance of the Kansas Division of Emergency Management.

The Natural Hazard Mitigation Plan will guide local activity to reduce risk and prevent loss from natural hazards such as tornadoes, wildfires, floods, hail and severe weather. The intent of the plan is to:

- Identify natural hazards impacting the community;
- Describe risk and vulnerability to the community;
- Describe mitigation actions and goals associated with the prioritized vulnerabilities;
- Describe how the community will maintain its plan in the future

**YOU ARE INVITED** to learn more, participate, and comment at this public meeting concerning the development of a Natural Hazard Mitigation Plan. Members of the Planning Committee and our consultant will be present to answer questions, receive public input and information, and address public commentary.

When complete, the new plan will meet the requirements of the Disaster Mitigation Act of 2000. Under this Act and related legislation, states, communities, and tribal governments must complete FEMA-approved plans to be eligible for certain federal assistance programs. These assistance programs provide communities with pre- and post-disaster funds to implement mitigation projects.

The current draft plan can be viewed at the Seward County Emergency Management Office in Liberal, KS. Written public comment will be accepted from December 16, 2009 through January 4, 2010 at 5pm.

**TIME: 9:30am**  
**WHEN: December 15, 2009**  
**WHERE: Seward County Community College**  
**1801 North Kansas Avenue**  
**Liberal, KS 67901**

For more information contact Greg Standard at 620.626.3270  
Or E-Fm Consulting at 785-312-9150

# PROOF OF PUBLICATION

STATE OF KANSAS, SEWARD COUNTY, ss:

Betty J. Dubois being first duly sworn, deposes and says: That he is the publisher - principal clerk - of

## LIBERAL HIGH PLAINS DAILY LEADER

a newspaper printed in the State of Kansas, and published in and of general circulation in Seward County, Kansas, with a general paid circulation on a daily basis in Seward County, Kansas, and that said newspaper is not a trade, religious or fraternal publication.

Said newspaper is published at least weekly 50 times a year; has been so published continuously and uninterruptedly in said county and state for a period of more than one year prior to the first publication of said notice; and has been admitted at the post office of Liberal in said County as periodical matter.

That the attached notice is a true copy thereof and was published in the regular and entire issue of said newspaper for one time, the publication thereof being made as aforesaid on the 29<sup>th</sup> day of November, 2009

SUBSCRIBED AND SWORN to before me this first day of December, 2009

Shelli Garrison  
Notary Public

My Commission Expires, 9-5, 2010

Printer's Fee ... \$ 73.13



(Published in the *High Plains Daily Leader*, Liberal, Kansas, on November 29, 2009)

### PUBLIC NOTICE TO ALL RESIDENTS OF SEWARD COUNTY

The Office of Seward County Emergency Management along with E-Fm Consulting, LLC will be conducting the first public meeting for discussion and input on the Seward County Hazard Mitigation Plan. The County and incorporated areas are developing Local Hazard Mitigation Plans per the requirements of the Disaster Mitigation Act of 2000 and guidance of the Kansas Division of Emergency Management.

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- Describe risk and vulnerability to the community;
- Describe mitigation actions and goals associated with the prioritized vulnerabilities;
- Describe how the community will maintain its plan in the future

**YOU ARE INVITED** to learn more, participate, and comment at this public meeting concerning the development of a Natural Hazard Mitigation Plan. Members of the Planning Committee and our consultant will be present to answer questions, receive public input and information, and address public commentary.

When complete, the new plan will meet the requirements of the Disaster Mitigation Act of 2000. Under this Act and related legislation, states, communities, and tribal governments must complete FEMA-approved plans to be eligible for certain federal assistance programs. These assistance programs provide communities with pre- and post-disaster funds to implement mitigation projects.

The current draft plan can be viewed at the Seward County Emergency Management Office in Liberal, KS. Written public comment will be accepted from December 16, 2009 through January 4, 2010 at 5pm.

**TIME:** 9:30am  
**WHEN:** December 15, 2009  
**WHERE:** SCCC  
Conference room SS214E/W  
Liberal, KS 67901

For more information contact Greg Standard at 620-626-3270  
Or E-Fm Consulting at 785-312-9150

**PUBLIC NOTICE  
TO ALL RESIDENTS OF  
  
SEWARD COUNTY**

The Office of Seward County Emergency Management along with E-Fm Consulting, LLC will be conducting the final public meeting for discussion and input on the Seward County Hazard Mitigation Plan. The County and incorporated areas are developing Local Hazard Mitigation Plans per the requirements of the Disaster Mitigation Act of 2000 and guidance of the Kansas Division of Emergency Management.

**The final public meeting will be held on:**

**TIME: January 12, 2010, 7:00pm**  
**WHEN: Seward County Community College, Conference Center**  
**WHERE: 1801 N Kansas Avenue**  
**Liberal, Kansas**

**Liberal, Kansas 67905**

This meeting will be conducted as a public forum for presentation of the final draft plan. Public comments and suggestions are encouraged. The final draft plan is available for review from January 12th through January 26, 2010 at 5pm. The planning committee will then review public comment (if any), and finalize the Mitigation Plan for submittal.

The final steps to the planning process include the following:

1. The local draft mitigation plan will be submitted to the State for review.
2. The State Mitigation Officer will approve and forward the plan to the Regional FEMA office.
3. The Regional FEMA Agency will review the plan and approve (or return with comments for revision and re-submittal).
  - A. When the plan is approved each community shall adopt the plan by resolution.

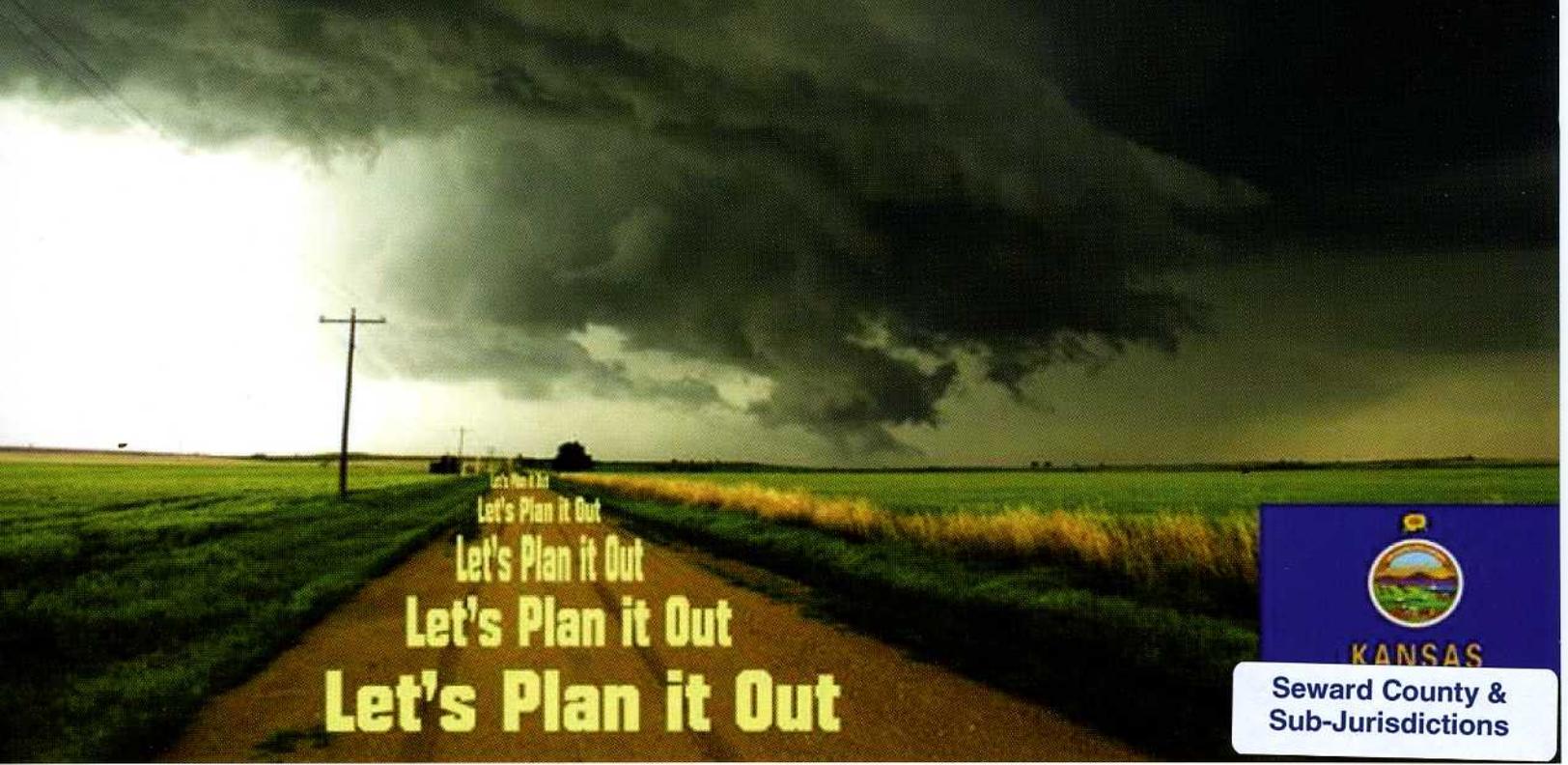
For additional information, or if you have any questions please call Greg Standard of the Seward County Emergency Management Office at 620.626.3270 or E-Fm Consulting, LLC, at 785.312.9150.

Sincerely,

Greg Standard, Seward County Emergency Coordinator

# Mitigation Planning Meeting

## Save the Date



Let's Plan it Out  
Let's Plan it Out  
Let's Plan it Out  
Let's Plan it Out



Dear Planning Partner,

We would like to invite you, or a representative from your municipality or agency, to attend the county-wide multi-jurisdiction planning committee meeting for the FEMA Mitigation Planning process. This public meeting will include a presentation and discussion of plan development (hazards, risk, and vulnerability), and a review of mitigation strategies for the county and participating jurisdictions.

The plan development meeting will be held at:

**9:30AM – January 12, 2010**

*(Second Public Meeting)*

Seward County Community College  
1801 N Kansas Avenue  
Liberal, KS

We look forward to seeing you there,

Your County Mitigation Committee and



E-Fm Consulting  
100 Riverfront Rd  
Suite A  
Lawrence, KS 66044



John Ralston  
Seward County EMS  
320 W 18th  
Liberal, KS 67901

# PROOF OF PUBLICATION

STATE OF KANSAS, SEWARD COUNTY, ss:

Betty J. Dubois being first duly sworn, deposes and says: That he is the publisher - principal clerk - of

## LIBERAL HIGH PLAINS DAILY LEADER

a newspaper printed in the State of Kansas, and published in and of general circulation in Seward County, Kansas, with a general paid circulation on a daily basis in Seward County, Kansas, and that said newspaper is not a trade, religious or fraternal publication.

Said newspaper is published at least weekly 50 times a year; has been so published continuously and uninterruptedly in said county and state for a period of more than one year prior to the first publication of said notice; and has been admitted at the post office of Liberal in said County as periodical matter.

That the attached notice is a true copy thereof and was published in the regular and entire issue of said newspaper for one time, the publication thereof being made as

aforsaid on the 27<sup>th</sup> day of December, 2009  
Betty J. Dubois

SUBSCRIBED AND SWORN to before me this twenty-ninth day of December, 2009.

Shelli Garrison  
Notary Public  
My Commission Expires, September 5, 2010

Printer's Fee ... \$ 67.28



*(Published in the High Plains Daily Leader, Liberal, Kansas on December 27, 2009) 11*

### PUBLIC NOTICE TO ALL RESIDENTS OF SEWARD COUNTY

The Office of Seward County Emergency Management along with E-Fm Consulting, LLC will be conducting the final public meeting for discussion and input on the Seward County Hazard Mitigation Plan. The County and incorporated areas are developing Local Hazard Mitigation Plans per the requirements of the Disaster Mitigation Act of 2000 and guidance of the Kansas Division of Emergency Management. The current draft of the plan is available for public review at Memorial Library, Kismet Public Library, Seward County Emergency Management office and Seward County Planning & Zoning office during normal business hours.

The final public meeting will be held on:

TIME: 9:30 a.m.  
WHEN: January 12, 2010  
WHERE: SCCC room 5 SW225D  
Liberal, Kansas 67301

This meeting will be conducted as a public forum for presentation of the final draft plan. Public comments and suggestions are encouraged. The final draft plan is available for review from January 12th through January 26, 2010 at 5pm. The planning committee will then review public comment (if any), and finalize the Mitigation Plan for submittal.

The final steps to the planning process include the following:

1. The local draft mitigation plan will be submitted to the State for review.
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3. The Regional FEMA Agency will review the plan and approve (or return with comments for revision and re-submittal).
  - A. When the plan is approved each community shall adopt the plan by resolution.

For additional information, or if you have any questions please call Greg Standard of the Seward County Emergency Management Office at 620-628-3270 or E-Fm Consulting, LLC, at 785-312-9150.

Sincerely,  
Greg Standard  
Greg Standard, Seward County Emergency Coordinator

# Alternative Mitigation Actions

**1. Collect educational materials on individual and family preparedness/mitigation measures for property owners, and display at both the library and routinely visited county offices.**

Category:	Public Information & Awareness
Hazard:	All
Objective(s) Addressed:	
Background:	FEMA, the Kansas Division of Emergency Management, the National Weather Service and other agencies provide information brochures and pamphlets on property protection measures at no cost to local governments.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Chamber of Commerce/Emergency Management
Target Completion Date:	Continuous

**2. Identify the county’s most at-risk critical facilities, and evaluate potential mitigation techniques for protecting each facility to the maximum extent possible.**

Category:	Prevention
Hazard:	All
Objective(s) Addressed:	1.2, 1.3, 3.1, 3.2
Background:	A thorough evaluation of potential mitigation opportunities for Seward County’s critical facilities must still be completed. Currently, there is very little available data on these facilities. An inventory/database on critical facilities should be created and maintained by the county and shared with the Kansas Division of Emergency Management. This inventory should include information on the location and risk to each facility, and should also document any cost-effective mitigation techniques to consider when funding becomes available.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management
Target Completion Date:	Continuous

**3. Coordinate county mitigation efforts with Rural Electric Cooperatives (REC's), encourage identification of hazards potentially affecting their infrastructure, assessment of the vulnerabilities of the infrastructure to these hazards, and identification of mitigation strategies.**

Category:	Property Protection
Hazard:	Blackout-Power Failure
Objective(s) Addressed:	3.2
Background:	Long-term planning goals that will reduce exposure to loss of electrical power are beneficial to all organizations and citizens within the jurisdiction. Power loss during extreme periods of cold or heat increase damage potential to people and property.
Priority:	High
Funding Sources:	N/A
Responsibility Assigned to:	Public Works
Target Completion Date:	Continuous

**4. Conduct an inventory/survey for the county’s emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment or required resources.**

Category:	Emergency Services
Hazard:	All
Objective(s) Addressed:	1.2, 1.3
Background:	A survey should be completed in order to verify the county’s current emergency services are adequate to protect public health and safety from most probable hazard events. Any identified needs or shortfalls should become documented and result in specific recommendations to the County Commission for emergency service enhancements.
Priority:	Moderate
Funding Sources:	Local/State
Responsibility Assigned to:	Emergency Management Department
Target Completion Date:	Continuous

**5. Incorporate the inspection and management of trees that may pose a threat to the county’s routine drainage system maintenance process.**

Category:	Prevention
Hazard:	Tornados, High Wind, Ice Storm
Objective(s) Addressed:	
Background:	A significant amount of property damage during high wind events results from tree failure. Trees that fall into utility lines have additional serious consequences such as causing power outages, surges, fires and other damage. The jurisdiction’s ability to recognize and prevent hazardous tree conditions (through inspection, pruning or removal) is the best defense against problems and costly damages resulting from tree failure. Specifically, trees located on jurisdictional property, which pose immediate threats to property, utility lines and other critical facilities should be addressed.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	City/County Public Works
Target Completion Date:	Continuous

**6. Encourage the repositioning of as many utility lines as possible underground. Consider local regulations to require the placement of all new utility lines underground.**

Category:	Prevention
Hazard:	Tornado, TSTM Wind, Winter Storm
Objective(s) Addressed:	
Background:	Encourage utility providers and municipalities within the county to require that utility lines and mains be installed underground. Buried power lines offer the security of uninterrupted power during and after storms. However, consideration needs to be made for maintenance and repair, particularly in cold climates where soil freezes more readily.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Public Works/Utility Providers
Target Completion Date:	December 31, 2013

**7. Research, develop, and recommend an ordinance/resolution to require installation of tornado shelters for major manufactured and/or mobile home parks with more than 30 mobile home spaces.**

Category:	Property Protection
Hazard:	Tornadoes and High Thunderstorm Winds
Objective(s) Addressed:	2.4, 2.5
Background:	Mobile homes are particularly vulnerable to damage from high winds. Residents, even those who live in mobile homes with tie-downs, should seek safe shelter when a tornado threatens. Tornado shelters should be constructed in major mobile home parks to ensure a safe place for residents to go during a tornado event. The shelter structure, which should be designed to withstand a minimum of 120mph winds, could easily serve an alternate purpose such as a community center, laundry facility, etc. Tornado shelters should be for last minute protection for high wind events.
Priority:	Moderate
Funding Sources:	N/A
Responsibility Assigned to:	Planning Department
Target Completion Date:	Month, Day, Year

**8. Develop cross-departmental information collection capabilities, and incorporate cadastral (building/parcel) data utilizing a GIS for purposes of conducting more detailed hazard risk assessments and for tracking permitting / land use patterns, buildings and infrastructure replacement costs, and overall structural accounting for the county.**

Category:	Prevention
Hazard:	All
Objective(s) Addressed:	1.2
Background:	A comprehensive catalog of data can greatly enhance the county's technical capability to manage, analyze and display spatially referenced data. Seward County has basic GIS capabilities available through the Seward County GIS Department. Further development of this capability for functional use across all departments will enhance the county's overall capabilities to document building/structure cost data, and further hazard mitigation goals in developing cadastral data for the county.
Priority:	High
Funding Sources:	Kansas Division of Emergency Management, Local resources, and grants
Responsibility Assigned to:	Emergency Management and County Appraiser
Target Completion Date:	Continuous

**9. Annually host a public “hazards workshop” for the residents of the jurisdiction, in combination with local festivals, county fair, or other appropriate County events.**

Category:	Public Information and Awareness
Hazard:	All
Objective(s) Addressed:	4.1, 4.2
Background:	A hazard workshop for county residents should be added to an established County event drawing large crowds. The workshop should be geared toward educating them on the hazards that threaten Seward County, and the mitigation and preparedness measures available to protect them. Guest speakers from the National Weather Service, the Kansas Division of Emergency Management, and other relevant agencies should be invited to attend, and educational displays/handouts should be provided such as Flood Insurance Rate Maps, FEMA publications, safety tips, etc.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Chamber of Commerce/Emergency Management
Target Completion Date:	Continuous

**10. Encourage the construction of safe rooms and storm shelters in public and private schools, day care centers and senior care facilities.**

Category:	Property Protection
Hazard:	Tornado, TSTM Wind
Objective(s) Addressed:	2.3, 2.5, 3.1, 3.2
Background:	When severe weather threatens, individuals and families need advance warning and protection from the dangerous forces of extreme winds. Individuals and communities in high-risk tornado and hurricane areas need structurally sound shelters and early alert systems.
Priority:	High
Funding Sources:	FEMA/State/Local
Responsibility Assigned to:	Emergency Management/State of Kansas/FEMA
Target Completion Date:	Continuous

**11. Develop and fund mitigation projects for the construction and / or installation of tornado safe rooms in public and emergency response facilities.**

Category:	Structural Project
Hazard:	Tornadoes, TSTM Winds
Objective(s) Addressed:	2.5
Background:	Seward County residents and emergency responders are vulnerable to potential damage from tornadoes and high winds. Response capabilities are critical during post-disaster events. Tornado safe rooms should be constructed in emergency response and major public facilities to ensure response capabilities following a tornado event. Safe rooms may be funded during new construction, or, as part of building additions, or as retrofits.
Priority:	Moderate
Funding Sources:	FEMA
Responsibility Assigned to:	Emergency Management/State/FEMA
Target Completion Date:	December 2013

**12. Educate residents about driving in winter storms and handling winter-related health effects.**

Category:	Public Information & Awareness
Hazard:	Winter Storm, Blizzard
Objective(s) Addressed:	4.1, 4.2
Background:	US Department of Transportation (USDOT), the Kansas Department of Transportation (KDOT) and other agencies provide information brochures and pamphlets on safe driving measures at no cost to local governments.
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management
Target Completion Date:	Continuous

**13. Promote and educate the jurisdiction’s public and private sectors on potential agricultural terrorism and bio-terrorism issues that can severely impact the county and regional economies, and develop and implement plans to address these issues.**

Category:	Natural Resources Protection
Hazard:	FAD / Bio-terrorism
Objective(s) Addressed:	3.1, 4.3
Background:	Seward County is basically an agricultural community. An intentional introduction of a foreign animal disease would be devastating to the local economy as well as the rest of the state and country. The County formed a FAD Committee to address these concerns. Specific education programs should be developed in coordination with the Kansas Animal Health Department (KAH) to inform ranchers, farmers, and veterinary professionals on the methods to identify, prevent, and treat animal disease outbreaks.
Priority:	Moderate
Funding Sources:	Local / State / Federal
Responsibility Assigned to:	County Health Department/ County Emergency Management/ County Extension/ Local Producers
Target Completion Date:	Continuous

**14. Develop and implement a wildfire prevention/education program. In addition to providing education to the general public, the program should also target children, fire and equipment users, builders and developers, and homeowners.**

Category:	Public Information and Awareness
Hazard:	Wildfire
Objective(s) Addressed:	1.3, 1.4, 4.3
Background:	Seward County has (does not have) burn-ban resolutions which require special permission to conduct open burning operations. In periods of drought or extreme weather conditions a burn ban may be declared. When a ban is declared all radio stations, TV stations, and regional newspapers in the area are notified as well as mayors, fire chiefs, etc. To better educate the public at large, Seward County should expand their existing fire protection program to include wildfire workshops to all age groups and commercial operations.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	Continuous

**15. Examine the current agreements within the county and assess the need to expand or update cooperative agreements for firefighting resources. Include agreements with local, state and federal agencies.**

Category:	Emergency Services
Hazard:	Wildfire
Objective(s) Addressed:	1.3, 1.4, 3.2
Background:	Cooperative agreements provide the support needed in times of emergency, and are an important element of planning, with the long-range goal of reducing damage to structures and systems within the jurisdiction.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	Continuous

**16. Create a working group to evaluate the firefighting water supply resources within the County. This should include both fixed and mobile supply issues.**

Category:	Emergency Services
Hazard:	Wildfire
Objective(s) Addressed:	1.3, 1.4, 3.2
Background:	Lack of sufficient water supply makes it difficult for firefighters to suppress fires. Whenever possible, increasing access to water along water service delivery lines (wet and dry hydrants) would provide additional resources for emergency responders.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Fire Officials/Emergency Management
Target Completion Date:	June 2010

**17. Appoint a committee to research and recommend appropriate building codes for the Jurisdiction that includes wind-resistant design techniques for new construction.**

Category:	Prevention
Hazard:	Tornadoes, TSTM Winds
Objective(s) Addressed:	2.3
Background:	Seward County does not have any building code requirements. Incorporated and unincorporated areas of the county should adopt and enforce codes that require certain minimum building practices and contractor licensing for wind loss reduction. Experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent windstorms. Additional techniques include adding protection for windows (i.e., shutters), anchoring door frames with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the county for all new residential construction, to the maximum extent possible during the building permit process.
Priority:	High
Funding Sources:	N/A
Responsibility Assigned to:	Planning Department
Target Completion Date:	Continuous

**18. Appoint a committee to research and develop a floodplain management ordinance for admittance to the National Flood Insurance Program (NFIP) to make flood insurance available to residents in the county.**

Category:	Prevention
Hazard:	Flood
Objective(s) Addressed:	
Background:	<p>When the jurisdiction chooses to join the NFIP, it must adopt and enforce minimum floodplain management standards for participation.</p> <p>A non-participating community can join the flood insurance program by taking three steps. First, local officials must complete an application for participation in the NFIP. Second, the local government must adopt a resolution indicating intent to participate in the flood insurance program. Finally, the governing body must adopt local flood plain management and permitting regulations, which place standards on new development and substantially improved existing buildings.</p> <p>In return, the Federal Government makes flood insurance available for almost every building and its contents within the community.</p> <p>Communities must ensure that their adopted floodplain management ordinance and enforcement procedures meet program requirements. Local regulations must be updated when additional data are provided by FEMA or when Federal or State standards are revised. (FEMA)</p>
Priority:	High
Funding Sources:	Local
Responsibility Assigned to:	Planning Department
Target Completion Date:	December 31, 2012

**19. Prepare and adopt an Outdoor Warning Sirens Plan for the county, including consideration of the unique geographical locations, technical requirements, system types and operational procedures of each local jurisdiction. The plans should include a review of existing outdoor warning siren coverage and recommend new locations if and where there are coverage gaps. Seek funding to install new warning sirens in accordance with the plan recommendations.**

Category:	Prevention
Hazard:	Emergency Services
Objective(s) Addressed:	
Background:	Some communities and rural areas of the county have older warning systems or none at all. To better serve the citizens of Seward County a study should be conducted to evaluate measures to be taken to improve overall emergency warring services.
Priority:	Moderate
Funding Sources:	Local
Responsibility Assigned to:	Emergency Management
Target Completion Date:	June 30, 2012

**21. Distribute assessment report examples provided by the Kansas Forest Service to applicable parties to develop an understanding of the Community Wildfire Protection Plan (CWPP). Recommend joining the program and completing an assessment report for approval.**

Category:	Prevention
Hazard:	Wildfire
Objective(s) Addressed:	
Background:	<p>The probability of grass/cropland fire in Seward County is relatively high. With over 50-years of history, the likelihood of future events is estimated to remain the same as currently calculated. Mitchell County can expect an average of x.xx significant wildfires per year that damage or destroy an average of xxx.x acres annually.</p> <p>The Kansas Forest Service staff would provide assistance to interested communities in the form of a Community Wildfire Hazard Assessment Report and some mitigation action items.</p>
Priority:	High
Funding Sources:	Local/State/Federal grant programs
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013

**22. Appoint a rural fire committee to schedule meetings with the Kansas Forest Service to map suspected hazardous wildfire areas in the county for potential participation in the Community Wildfire Protection Program (CWPP).**

Category:	Prevention
Hazard:	Wildfire
Objective(s) Addressed:	
Background:	In order for a community to take advantage of the Community based Healthy forests Restoration Act (HFRA), 2003, a community must develop a Community Wildfire Protection Plan (CWPP). To develop qualifications the community must identify and map potential hazard areas as an initial step towards participation in the program.
Priority:	High
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013

**23. Incorporate wildfire maps, develop actions and projects for wildfire prevention, and complete an assessment report to meet CWPP requirements for submittal to the Kansas Forest Service.**

Category:	Prevention
Hazard:	Wildfire
Objective(s) Addressed:	
Background:	<p>The minimum requirements participation in the CWPP as described in the HFRA are:</p> <p><b>(1) Collaboration:</b> A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.</p> <p><b>(2) Prioritized Fuel Reduction:</b> A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.</p> <p><b>(3) Treatment of Structural Ignitability:</b> A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.</p>
Priority:	High
Funding Sources:	Local/State/Federal
Responsibility Assigned to:	Rural Fire/Emergency Management
Target Completion Date:	December 31, 2013

# Adoption Resolutions

# Supporting Documents

COPY



FEMA

OCT 29 2009

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The Honorable Rod Lewis  
Mayor, City of Kismet  
Post Office Box 44  
Kismet, Kansas 67859-0044

Dear Mayor Lewis:

I am happy to announce that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) has approved the City of Kismet's application to participate in the National Flood Insurance Program (NFIP). In accordance with Section 1336 of the National Flood Insurance Act of 1968, the City of Kismet is eligible to participate in the Regular Phase of the NFIP effective on October 7, 2009. Flood insurance is now available to local property owners and may be purchased from any insurance agent or broker licensed to do business in the State where the insurable property is located.

I am enclosing a copy of the news release announcing the City of Kismet's eligibility to participate in the NFIP. I hope it assists you in your efforts to publicize the availability of this important coverage. The City of Kismet's property owners will want to know about this opportunity to obtain insurance protection against losses from future flooding. The buildings and contents coverage is now available to building owners and tenants.

There is a 30-day waiting period before a newly purchased flood insurance policy takes effect or for any additional coverage or endorsement that may increase policy limits. The waiting period ends and the policy takes effect at 12:01 a.m. on the 30th calendar day after the insurance policy application date and payment of premium.

There are 10 exceptions to the 30-day waiting period. However, I am only explaining the two most frequently used exceptions in this letter. The two most frequently used exceptions are: (1) when the initial purchase of flood insurance is in connection with the making, increasing, extension, or renewal of a loan, there is no waiting period and coverage is effective immediately; and (2) when the purchase of flood insurance is related to a revision or update of a Flood Hazard Boundary Map or Flood Insurance Rate Map (FIRM), there is a one-day waiting period. Flood insurance coverage takes effect at 12:01 a.m. on the day after the coverage is purchased for a structure located in a Special Flood Hazard Area (SFHA), an area subject to inundation by the base (1-percent-annual-chance) flood, on the revised flood map, which was not previously located in an SFHA prior to the revision. This exception is limited to a 13-month period and begins on the date the revised map is issued. The information on the remaining eight exceptions is contained in the enclosed NFIP "Policy Issuance 5-98" dated October 1, 1998.

The FIRM, which shows the Base Flood Elevations (BFEs) established for the City of Kismet, became effective on September 25, 2009. This FIRM date indicates the effective date for the authorization of the sale of first and second layer flood insurance coverage at actuarial rates for all new construction and substantial improvements to existing structures within the City of Kismet. The first layer coverage on

OCT 29 2009

The Honorable Rod Lewis

Page 2

structures built prior to September 25, 2009, will be available at subsidized rates unless improvements are made to the structure.

Please be aware that the increase or decrease of flood insurance costs for a structure is based on the location of the structure's first floor and its relationship to the BFEs for the City of Kismet. In addition, on the effective FIRM date, the FIRM supersedes all previous maps for the purpose of determining whether individual properties are located inside or outside the SFHA. After the effective FIRM date, new construction will be charged actuarial rates, which may be higher, if the structure is not built in compliance with the NFIP floodplain management requirements.

Under the Flood Disaster Protection Act of 1973, as amended, flood insurance must be purchased by property owners seeking any Federal financial assistance for construction or acquisition of buildings in SFHAs. This financial assistance includes certain federally guaranteed mortgages and direct loans, federal disaster relief loans and grants, as well as other similarly described assistance from FEMA and other agencies.

In addition, all loans individuals obtain from Federally regulated, supervised, or insured lending institutions that are secured by improved real estate located in SFHAs are also contingent upon the borrower obtaining flood insurance coverage on the building. However, purchasing and maintaining flood insurance coverage on a voluntary basis is frequently recommended for properties located outside SFHAs.

If you need additional assistance or information, I recommend you contact Tom Morey, the NFIP State Coordinator, by telephone at 785-296-5440, in writing at the Kansas Department of Agriculture, 109 Southwest Ninth Street, Second Floor, Topeka, Kansas 66612-1283, or by electronic mail at [tom.morey@kda.ks.gov](mailto:tom.morey@kda.ks.gov). The FEMA Regional staff in Kansas City, Missouri, is also available to assist you. You may contact the Regional staff by telephone at (816) 283-7002 or in writing. Please send your written inquiries to the Director, Federal Insurance and Mitigation Division, FEMA Region VII, at 9221 Ward Parkway, Suite 300, Kansas City, Missouri 64114 3372.

Sincerely,



Deborah S. Ingram  
Acting Deputy Assistant Administrator  
for Mitigation  
Mitigation Directorate

Enclosures

cc: Art Freeman, Regional Administrator, FEMA Region VII  
Tom Morey, NFIP State Coordinator, Kansas Dept. of Agriculture  
Marcie Weatherly, CFM, Floodplain Administrator, City of Kismet, Seward County  
Department of Planning & Zoning



# Mitigation Action Plan (MAP)

Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Seward (UnInc.)	All	High	Emergency Management/Emergency Services		December 31, 2014		0
Initiative (Action)								
1. Identify the county's most at-risk critical facilities, and evaluate potential mitigation techniques for protecting each facility to the maximum extent possible.								
Background / Benefits								
A thorough evaluation of potential mitigation opportunities for Seward County's critical facilities must still be completed. Currently, there is very little available data on these facilities. An inventory/database on critical facilities should be created and maintained by the county and shared with the Kansas Division of Emergency Management. This inventory should include information on the location and risk to each facility, and should also document any cost-effective mitigation techniques to consider when funding becomes available.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.2, 1.3, 3.1, 3.2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Public Information & Awareness	MultiJurisdictional	All	High	Emergency Management/Local Officials		Continuous		0
Initiative (Action)								
1. Collect educational materials on individual and family preparedness/mitigation measures for property owners, and display at both the library and routinely visited government offices.								
Background / Benefits								
FEMA, the Kansas Division of Emergency Management, the National Weather Service and other agencies provide information brochures and pamphlets on property protection measures at no cost to local governments.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
4.1, 4.2, 4.3,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Seward Co. Community College/Area Technical School	Tornado	Low	SCCC/ATS		December 31, 2014		0
Initiative (Action)								
1. Develop and fund mitigation projects for the construction of tornado safe rooms on the Seward County Community College / Area Technical School campus.								
Background / Benefits								
Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded during new school construction, as part of school additions, or as retrofits.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
2.2, 3.1,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Project	USD 480	Tornado	Low	School District		December 31, 2014		0
Initiative (Action)								
1. Develop and fund mitigation projects for the construction of tornado safe rooms in Unified School District 480 schools.								
Background / Benefits								
Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded by FEMA during new school construction, as part of school additions, or as retrofits.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
2.2, 3.1,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Project	USD 483	Tornado	Low	School District		December 31, 2014		0
Initiative (Action)								
1. Develop and fund mitigation projects for the construction of tornado safe rooms in Unified School District 483 schools.								
Background / Benefits								
Schools are particularly vulnerable to potential damage from tornadoes and high winds. Students, faculty, and staff should seek safe shelter when a tornado threatens. Tornado safe rooms should be constructed in schools to ensure a safe place for students to go during a tornado event. Safe rooms may be funded by FEMA during new school construction, as part of school additions, or as retrofits.								

Goal/Objective	Funding Sources	Actual Complete Date	Notes					
2.2, 3.1,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Liberal	Tornado	Low	Liberal Fire Department		December 31, 2014		0
Initiative (Action)								
1. Develop and fund a mitigation project for the construction of a tornado safe room in the Fire Station on 15th and N. Grant in Liberal.								
Background / Benefits								
Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.1,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Kismet	Flood	Moderate	Floodplain Manager		December 31, 2014		0
Initiative (Action)								
1. Assess identified flood prone areas and recommend flood reduction measures to city planners.								
Background / Benefits								
Flood zone mapping has provided initial identification of potential hazard areas that can be reviewed with other data sources, such as the watershed districts goals and objectives, in developing long range planning activities for flood prevention, or other planning steps to reduce exposure to this hazard.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.1, 1.2, 1.3, 2.1, 3.1, 3.2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Liberal	Multi-Hazard	Low	City of Liberal		December 31, 2014		0
Initiative (Action)								
2. Upgrade waste treatment plant to UV technology to avoid the use of chlorine gas as a disinfectant.								
Background / Benefits								
The 14,000 lbs of chlorine, stored in 7 ton containers, which is used at this plant as a disinfectant, produces a hazard to the citizens in the case that they are damaged. Damage to the containers is possible during a tornado, flood, or even a wildfire. The State of Kansas reported that this site is one of the top 20 sites in listed Kansas hazard sites. There is also the possibility that these could be used as a weapon should someone choose to target them.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.4, 3.1,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Kismet	Multi-Hazard	Low	City of Liberal		December 31, 2014		0
Initiative (Action)								
2. Expand the storm resistance capabilities of the sewage lagoons by increasing capacity/freeboard.								
Background / Benefits								
Flooding, heavy rain, high wind, tornado, or a combination thereof at the Kismet lagoons could produce overflow of the lagoons. Human waste flowing out of the lagoons represents a hazard to life and the environment.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
3.1, 3.2,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	USD 480	Tornado	Moderate	School District		December 31, 2014		0
Initiative (Action)								
2. Conduct an engineering study to determine PM 361 wind design requirements for the gym roofs, and seek funding to upgrade facility roof systems where necessary.								
Background / Benefits								
School gyms are large structures that house crowds of people and therefore need to be structurally capable of enduring severe weather and wind events, such as tornadoes. Also, since school gyms can occasionally serve as temporary emergency shelters, the need for structural integrity is critical. USD 480 prioritized the gyms starting with Liberal High School's gymnasium, then followed by both the Liberal South Middle School and Liberal West Middle School gymnasiums, and, finally, by both Cottonwood Intermediate and Sunflower Intermediate gymnasiums.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
3.1,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Property Protection	MultiJurisdictional	Utility Failure	High	City and County Officials		December 31, 2014		0

Initiative (Action)								
2. Coordinate county and local government mitigation efforts with Rural Electric Cooperatives (REC's), encourage identification of hazards potentially affecting their infrastructure, assessment of the vulnerabilities of the infrastructure to these hazards, and identification of mitigation strategies.								
Background / Benefits								
Long-term planning goals that will reduce exposure to loss of electrical power are beneficial to all organizations and citizens within the jurisdiction. Power loss during extreme periods of cold or heat increase damage potential to people and property.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
3.2,	N/A							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Emergency Services	Seward (UnInc.)	All	High	Emergency Management/Emergency Services		December 31, 2014		0
Initiative (Action)								
2. Conduct an inventory/survey for the county's emergency response services to identify any existing needs or shortfalls in terms of personnel, equipment or required resources.								
Background / Benefits								
A survey should be completed in order to verify the county's current emergency services are adequate to protect public health and safety from most probable hazard events. Any identified needs or shortfalls should become documented and result in specific recommendations to the County Commission for emergency service enhancements.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.2, 1.3,	Local/State							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Seward (UnInc.)	Multi-hazard	High	Road and Bridge Department/Utility Providers		December 31, 2014		0
Initiative (Action)								
3. Encourage the repositioning of as many utility lines as possible underground. Consider local regulations to require the placement of all new utility lines underground.								
Background / Benefits								
Encourage utility providers and municipalities within the county to require that utility lines and mains be installed underground. Buried power lines offer the security of uninterrupted power during and after storms. However, consideration needs to be made for maintenance and repair, particularly in cold climates where soil freezes more readily.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Public Information and Awareness	MultiJurisdictional	All	High	Emergency Management/Emergency Services		Continuous		0
Initiative (Action)								
3. Annually host a public "hazards workshop" for the residents in combination with local festivals, fairs, or other appropriate events.								
Background / Benefits								
A hazard workshop for residents should be added to an established event drawing large crowds. The workshop should be geared toward educating them on the hazards that threaten Seward County, and the mitigation and preparedness measures available to protect them. Guest speakers from the National Weather Service, the Kansas Division of Emergency Management, and other relevant agencies should be invited to attend, and educational displays/handouts should be provided such as Flood Insurance Rate Maps, FEMA publications, safety tips, etc.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
4.1, 4.2, 4.3,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Kismet	Wildfire	Low	City of Kismet		December 31, 2014		0
Initiative (Action)								
3. Seek funding to engineer and reconstruct the Road T bridge to handle all traffic; present load limits prevent use by fire apparatus.								
Background / Benefits								
When trains block the tracks- numerous times per day- there is an 8 mile section centered on Kismet that has no north/south access. This also restricts access/response to the river helium plants. The inability to access a large area of the county with industrial and residential development constitutes a hazard from wildfire, especially in this case as the area is mainly grass. This obstruction is also hazardous to general emergency response. One of the plants is a BZPP location, and as such represents a high value critical infrastructure. The City of Kismet should consult with Seward County to determine how much, if any, cooperation is required by Seward County for the completion of this project.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.4, 3.1,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention, Property	USD 480	Flood	Moderate	School District		December 31, 2014		0

Protection									
Initiative (Action)									
3. Assess elevations and water flow in the district to qualify the benefit of flood control projects in the district.									
Background / Benefits									
Unified School District 480, Liberal, would like to consider analyzing the potential benefits of constructing flood control projects, such as soil-based berms, etc., around Garfield Elementary and any other facility with potential flood issues in the district to mitigate the effects from flooding.									
Goal/Objective	Funding Sources	Actual Complete Date	Notes						
1.1, 1.2, 2.1,	Local / State / FEMA								
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete	
Prevention	Liberal	Flood	Moderate	Floodplain Manager		December 31, 2014		0	
Initiative (Action)									
3. Assess identified flood prone areas and recommend flood reduction measures to city planners.									
Background / Benefits									
Flood zone mapping has provided initial identification of potential hazard areas that can be reviewed with other data sources, such as the watershed districts goals and objectives, in developing long range planning activities for flood prevention, or other planning steps to reduce exposure to this hazard.									
Goal/Objective	Funding Sources	Actual Complete Date	Notes						
1.1, 2.1,	Local								
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete	
Property Protection	USD 480	Flood	High	School District		December 31, 2012		0	
Initiative (Action)									
4. Evaluate the benefits of purchasing flood insurance for the school district.									
Background / Benefits									
Using Manifold.Net GIS software to produce aerial images overlaid with FEMA FIRM maps it was determined that the Garfield Elementary building and the majority of the property are located in an identified Special Flood Hazard Area (SFHA) Zone AE. USD 480 would like to assess the potential benefits that purchasing flood insurance would provide the district following a flood event.									
Goal/Objective	Funding Sources	Actual Complete Date	Notes						
1.1,	Local								
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete	
Property Protection	MultiJurisdictional	Multi-hazard	High	County-City Planners/Emergency Management/Local Officials		Continuous		0	
Initiative (Action)									
4. Encourage the construction of safe rooms and storm shelters in public and private schools, day care centers, emergency response facilities, and senior care facilities.									
Background / Benefits									
When severe weather threatens, individuals and families need advance warning and protection from the dangerous forces of extreme winds. Individuals and communities in high-risk tornado and hurricane areas need structurally sound shelters and early alert systems.									
Goal/Objective	Funding Sources	Actual Complete Date	Notes						
2.2,	FEMA/State/Local								
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete	
Property Protection	Seward (UnInc.)	Multi-hazard	High	Planning Department		December 31, 2014		0	
Initiative (Action)									
4. Research, develop, and recommend an ordinance/resolution to require installation of safe rooms for major manufactured and/or mobile home parks with more than 30 mobile home spaces.									
Background / Benefits									
Mobile homes are particularly vulnerable to damage from high winds. Residents, even those who live in mobile homes with tie-downs, should seek safe shelter when a tornado threatens. Tornado shelters should be constructed in major mobile home parks to ensure a safe place for residents to go during a tornado event. The shelter structure, which should be designed to withstand a minimum of 120 mph winds, could easily serve an alternate purpose such as a community center, laundry facility, etc. Tornado shelters should be for last minute protection for high wind events.									
Goal/Objective	Funding Sources	Actual Complete Date	Notes						
2.2, 3.1,	Local/State/FEMA								
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete	
Prevention	Seward (UnInc.)	All	Moderate	Emergency Management/Appraiser/City Officials		December 31, 2014		0	
Initiative (Action)									
5. Develop cross-departmental information collection capabilities, and incorporate cadastral (building/parcel) data utilizing a GIS for purposes of conducting more detailed hazard risk assessments and for tracking permitting / land use patterns, buildings and infrastructure replacement costs, and overall structural accounting for the county.									

Background / Benefits								
A comprehensive catalog of data can greatly enhance the county's technical capability to manage, analyze and display spatially referenced data. Seward County has basic GIS capabilities available through the Seward County GIS Department. Further development of this capability for functional use across all departments will enhance the county's overall capabilities to document building/structure cost data, and further hazard mitigation goals in developing cadastral data for the county.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1,2,	Kansas Division of Emergency Management, Local resources, and grants							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Public Information & Awareness	MultiJurisdictional	Multi-hazard	High	Emergency Management / Emergency Services		Continuous		0
Initiative (Action)								
5. Educate residents about driving in winter storms and handling winter-related health effects.								
Background / Benefits								
US Department of Transportation (USDOT), the Kansas Department of Transportation (KDOT) and other agencies provide information brochures and pamphlets on safe driving measures at no cost to local governments.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
4,2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Natural Resources Protection	MultiJurisdictional	Terrorism/Agri-Terrorism/Civil Disorder	Moderate	County Health Department/ County Emergency Management/ County Extension/ Local Producers		Continuous		0
Initiative (Action)								
6. Promote and educate the jurisdiction's public and private sectors on potential agricultural terrorism and bio-terrorism issues that can severely impact the county and regional economies, and develop and implement plans to address these issues.								
Background / Benefits								
Seward County is basically an agricultural community. An intentional introduction of a foreign animal disease would be devastating to the local economy as well as the rest of the state and country. The County formed a FAD Committee to address these concerns. Specific education programs should be developed in coordination with the Kansas Animal Health Department (KAH) to inform ranchers, farmers, and veterinary professionals on the methods to identify, prevent, and treat animal disease outbreaks.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
3,1, 4,3,	Local / State / Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Public Information and Awareness	Seward (UnInc.)	Wildfire	Moderate	Fire Officials/Emergency Management		December 31, 2014		0
Initiative (Action)								
6. Develop and implement a wildfire prevention/education program. In addition to providing education to the general public, the program should also target children, fire and equipment users, builders and developers, and homeowners.								
Background / Benefits								
Seward County has burn-ban resolutions which require special permission to conduct open burning operations. In periods of drought or extreme weather conditions a burn ban may be declared. When a ban is declared all radio stations, TV stations, and regional newspapers in the area are notified as well as mayors, fire chiefs, etc. To better educate the public at large, Seward County should expand their existing fire protection program to include wildfire workshops to all age groups and commercial operations.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1,3, 1,4, 4,1,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Emergency Services	Seward (UnInc.)	Wildfire	High	Fire Officials/Emergency Management		December 31, 2014		0
Initiative (Action)								
7. Examine the current agreements within the county and assess the need to expand or update cooperative agreements for firefighting resources. Include agreements with local, state and federal agencies.								
Background / Benefits								
Cooperative agreements provide the support needed in times of emergency, and are an important element of planning, with the long-range goal of reducing damage to structures and systems within the jurisdiction.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1,3, 1,4, 3,2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	MultiJurisdictional	Flood	High	County / City officials		Continuous		0

Initiative (Action)								
7. Seward County Unincorporated and the cities of Liberal and Kismet are committed to continued participation and compliance with the National Flood Insurance Program (NFIP).								
Background / Benefits								
The decision on whether to join the NFIP is very important for a jurisdiction (community). There is no Federal law that requires a jurisdiction to join the program, and participation is voluntary. A benefit of participation is that the citizens are provided the opportunity to purchase flood insurance to protect themselves against flood losses. Another consideration is that a jurisdiction that has been identified by FEMA as being flood-prone and has not joined the NFIP within one year of being notified of being mapped as flood-prone will be sanctioned. Jurisdictions that regulate development in floodplains are able to participate in the National Flood Insurance Program (NFIP). To participate in the NFIP the jurisdiction must adopt and enforce floodplain management regulations that meet or exceed the minimum requirements of the program.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.1, 2.1,	State/FEMA/Program Grants							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Emergency Services	Seward (UnInc.)	Wildfire	Moderate	Fire Officials/Emergency Management		December 31, 2014		0
Initiative (Action)								
8. Create a working group to evaluate the firefighting water supply resources within the county. This should include both fixed and mobile supply issues.								
Background / Benefits								
Lack of sufficient water supply makes it difficult for firefighters to suppress fires. Whenever possible, increasing access to water along water service delivery lines (wet and dry hydrants) would provide additional resources for emergency responders.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 1.4, 3.2,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Seward (UnInc.)	Multi-hazard	Moderate	Planning Department		December 31, 2014		0
Initiative (Action)								
9. Appoint a committee to research and recommend an amendment to current building codes to include wind-resistant design techniques for new construction.								
Background / Benefits								
Unincorporated areas of the county should amend current construction codes to include certain minimum building practices and contractor licensing for wind loss reduction. Experts agree that structures built to exceed high wind provisions have a much greater chance of surviving violent windstorms. Additional techniques include adding protection for windows (i.e., shutters), anchoring door frames with multiple hinges, stiffening garage doors with additional bracing, reinforcing masonry chimneys with vertical steel, and strengthening connections between walls and the roof with hurricane straps and ties. These techniques should be promoted to building contractors and homebuyers by the county for all new residential construction, to the maximum extent possible during the building permit process.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
3.1, 3.2,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Seward (UnInc.)	Emergency Services	Moderate	Emergency Management		June 30, 2014		0
Initiative (Action)								
10. Prepare and adopt an Outdoor Warning Sirens Plan for the county, including consideration of the unique geographical locations, technical requirements, system types and operational procedures of each local jurisdiction. The plans should include a review of existing outdoor warning siren coverage and recommend new locations if and where there are coverage gaps. Seek funding to install new warning sirens in accordance with the plan recommendations.								
Background / Benefits								
Some communities and rural areas of the county have older warning systems or none at all. To better serve the citizens of Seward County a study should be conducted to evaluate measures to be taken to improve overall emergency warning services.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.1,	Local							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Seward (UnInc.)	Wildfire	Moderate	Rural Fire/Emergency Management		December 31, 2013		0
Initiative (Action)								
11. Distribute assessment report examples provided by the Kansas Forest Service to applicable parties to develop an understanding of the Community Wildfire Protection Plan (CWPP). Recommend joining the program and completing an assessment report for approval.								
Background / Benefits								
The probability of grass/cropland fire in Seward County is relatively high. The likelihood of future events is estimated to remain the same as currently calculated. Seward County can expect an average of 5.811 significant wildfires per year that damage or destroy an average of 1,094 acres annually. The Kansas Forest Service staff would provide assistance to interested communities in the form of a Community Wildfire Hazard Assessment Report and some mitigation action items.								
Goal/Objective	Funding Sources	Actual Complete Date	Notes					
1.4,	Local/State/Federal grant programs							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete

Prevention	Seward (UnInc.)	Wildfire	Moderate	Rural Fire/Emergency Management		December 31, 2013		0
Initiative (Action)								
12. Appoint a rural fire committee to schedule meetings with the Kansas Forest Service to map suspected hazardous wildfire areas in the county for potential participation in the Community Wildfire Protection Program (CWPP).								
Background / Benefits								
In order for a community to take advantage of the Community based Healthy forests Restoration Act (HFRA), 2003, a community must develop a Community Wildfire Protection Plan (CWPP). To develop qualifications the community must identify and map potential hazard areas as an initial step towards participation in the program.								
Goal.Objective	Funding Sources	Actual Complete Date	Notes					
1.4,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Prevention	Seward (UnInc.)	Wildfire	Moderate	Rural Fire/Emergency Management		December 31, 2013		0
Initiative (Action)								
13. Incorporate wildfire maps, develop actions and projects for wildfire prevention, and complete an assessment report to meet CWPP requirements for submittal to the Kansas Forest Service.								
Background / Benefits								
The minimum requirements participation in the CWPP as described in the HFRA are: (1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties. (2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure. (3) Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.								
Goal.Objective	Funding Sources	Actual Complete Date	Notes					
1.4,	Local/State/Federal							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Seward (UnInc.)	Tornado	Low	Emergency Manager		December 31, 2014		0
Initiative (Action)								
14. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County Courthouse.								
Background / Benefits								
Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.								
Goal.Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.1,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Seward (UnInc.)	Tornado	Low	Emergency Manager		December 31, 2014		0
Initiative (Action)								
15. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County New Administration Building.								
Background / Benefits								
Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.								
Goal.Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.1,	Local/State/FEMA							
Category	Jurisdiction	Hazard	Priority	Assigned To	Commence Date	Target Complete Date	Anticip. Duration	% Complete
Structural Projects	Seward (UnInc.)	Tornado	Low	Emergency Manager		December 31, 2014		0
Initiative (Action)								
16. Develop and fund a mitigation project for the construction of a tornado safe room in the Seward County Historical Society building.								
Background / Benefits								
Tornadoes are a serious risk to people who live in Kansas. A lack of sufficient community tornado shelters creates a hardship for Seward County residents, including public building employees, citizens in county buildings, and without access to basements.								
Goal.Objective	Funding Sources	Actual Complete Date	Notes					
1.3, 3.1,	Local/State/FEMA							