



# 1 INTRODUCTION AND PLANNING PROCESS

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## 1.1 Purpose

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The Unified Government of Wyandotte County and Kansas City, Kansas and all other 18 jurisdictions listed below in Section 1.2 participated and contributed to its development. The purpose of this local hazard mitigation plan is to guide hazard mitigation planning to better protect the people and property of the entire County from the effects of natural, man-made, and technological hazard events. This plan demonstrates the participants' commitment to reducing risks from hazards and serves as a tool to help decision makers direct mitigation activities and resources. This plan was also developed to make Wyandotte County and participating jurisdictions eligible for certain federal disaster assistance, specifically, the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Flood Mitigation Assistance program, and Severe Repetitive Loss program.

## 1.2 Background and Scope

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Each year in the United States natural, man-made, and technological disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters, because additional expenditures by insurance companies and nongovernmental organizations are not reimbursed by tax dollars. Many natural, man-made, and technological disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated.

Hazard mitigation is defined by FEMA as "any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event." The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on mitigation saves society an average of \$4 in future losses in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2005).

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. This plan documents Wyandotte County's hazard mitigation planning process and identifies relevant hazards, vulnerabilities, and strategies the County and participating jurisdictions will use to decrease vulnerability and increase resiliency and sustainability in Wyandotte County.

The Wyandotte County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that geographically covers everything within the boundaries of participating jurisdictions (hereinafter referred to as the planning area).

The following 19 jurisdictions participated in the planning process:

- Unified Government of Wyandotte County and Kansas City, Kansas
- Board of Public Utilities
- City of Bonner Springs
- City of Edwardsville
- City of Lake Quivira
- Wyandotte Nation
- USD 202-Turner Schools
- USD 203-Piper Schools
- USD 204-Bonner/Edwardsville Schools
- USD 500-Kansas City Schools
- Kansas State School for the Blind
- Kansas City Kansas Community College
- Rainbow Mental Health
- University of Kansas Hospital
- University of Kansas Medical Center
- Fairfax Drainage District
- Kaw Valley Drainage District
- Leavenworth Rural Water District #7
- WaterOne (Johnson County Water District #1)

In addition to the local governments, several private non-profit entities participated in this effort providing support and contributing to the mitigation strategy:

- Armourdale Renewal Association
- Boy Scouts of America, Camp Naish
- Donnelly College
- Lake of the Forest
- Providence Medical Center
- Safety Net Clinics
- Archdiocese of Kansas City in Kansas

This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. (Hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act.) While the act emphasized the need for mitigation plans and more coordinated mitigation planning and implementation efforts, the regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be

eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288). Because the Wyandotte County planning area is subject to many kinds of hazards, access to these programs is vital.

Information in this plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions.

## 1.3 Plan Organization

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The Wyandotte County Multi-Hazard Mitigation Plan is organized as follows:

- Executive Summary
- Prerequisites
- Chapter 1: Introduction and Planning Process
- Chapter 2: Planning Area Profile and Capabilities
- Chapter 3: Risk Assessment
- Chapter 4: Mitigation Strategy
- Chapter 5: Plan Implementation and Maintenance
- Appendices

## 1.4 Planning Process

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**44 CFR Requirement 201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.**

In April 2009, Wyandotte County Emergency Management contracted with AMEC Earth and Environmental (AMEC) to assist Wyandotte County in the development of a multi-jurisdictional, multi-hazard mitigation plan. Wyandotte County Emergency Management took the lead in developing this plan with AMEC's assistance. AMEC's role was to:

- Assist in establishing the Hazard Mitigation Planning Committee (HMPC) as defined by the Disaster Mitigation Act (DMA),
- Meet the DMA requirements as established by federal regulations and following FEMA's planning guidance,
- Facilitate the entire planning process,
- Identify the data requirements that HMPC participants could provide and conduct the research and documentation necessary to augment that data,
- Assist in facilitating the public input process,
- Produce the draft and final plan documents, and
- Coordinate the Kansas Division of Emergency Management and FEMA Region VII plan reviews.

## 1.4.1 Multi-Jurisdictional Participation

**44 CFR Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.**

Wyandotte County invited incorporated cities, the public utility, school districts, medical entities, special districts, and private non-profit entities in the County to participate in the multi-jurisdictional Wyandotte County Multi-Hazard Mitigation Plan. The jurisdictions that elected to participate in this plan are listed above in section 1.2. The Disaster Mitigation Act requires that each jurisdiction participate in the planning process and officially adopt the multi-jurisdictional hazard mitigation plan. Each jurisdiction that chose to participate in the planning process and development of the plan was required to meet plan participation requirements defined at the beginning of the process, which included the following:

- Designate a representative to serve on the HMPC
- Participate in at least one of three HMPC meetings by either direct representation or authorized representation
- Provide information to support the plan development by completing and returning the AMEC Data Collection Guide
- Identify mitigation actions for the plan
- Review and comment on plan drafts
- Inform the public, local officials, and other interested parties about the planning process and provide opportunity for them to comment on the plan
- Formally adopt the mitigation plan

All of the jurisdictions listed as official participants in this plan met all of these participation requirements.

FEMA does not require “official participation” for private non-profit organizations. FEMA guidance stipulates that these organizations are not required to formally adopt the mitigation plan. However, for future mitigation grant applications to be considered, they must be consistent with the mitigation strategy. As such, various private non-profit organizations in the planning area were invited to participate in and supported this planning effort and were encouraged to provide data to support the risk assessment as well as mitigation actions for incorporation in the mitigation strategy.

Table 1.1 provides details of participation including meeting participation, provision of data for the risk assessment, and identification of mitigation actions. All participating jurisdictions also assisted in providing information to local officials, the public, and other interested parties. Sign-in sheets and other supporting documentation is included in Appendix B: Planning Process Documentation. Official adoption Resolutions are provided in Appendix E.

**Table 1.1. Jurisdictional Participation**

Organization	Meeting 1	Meeting 2	Meeting 3	Data Collection Guide	Mitigation Action (s)
<b>Participating Jurisdictions (taxing entities)</b>					
Unified Government of Wyandotte County and Kansas City, Kansas	X	X	X	X	X
Board of Public Utilities	X	X	X	X	X
City of Bonner Springs	X	X	X	X	X
City of Edwardsville	X	X	X	X	X
City of Lake Quivira	X			X	X
Wyandotte Nation	X	X		X	X
USD 202-Turner Schools		X	X	X	X
USD 203-Piper Schools	X*	X*	X*	X*	X
USD 204-Bonner/Edwardsville Schools	X			X	X
USD 500-Kansas City Schools	X	X		X	X
Kansas State School for the Blind	X	X	X	X	X
Kansas City Kansas Community College	X	X	X	X	X
University of Kansas Hospital	X	X	X	X	X
University of Kansas Medical Center	X	X	X	X	X
Rainbow Mental Health			X	X	X
Fairfax Drainage District	X	X		X	X
Kaw Valley Drainage District	X	X		X	X
Leavenworth Rural Water District #7	X	X	X	X	X
WaterOne	X	X	X	X	X
<b>Private Non-Profit Organizations</b>					
Armourdale Renewal Association		X			
Boy Scouts of America	X	X	X	X	X
Donnelly College	X	X		X	
Lake of the Forest	X	X	X	X	X
Providence Medical Center	X		X	X	X
Safety Net Clinics	X	X	X	X	
Archdiocese of Kansas City in Kansas	X	X	X	X	

\*Meeting Participation by Authorized Representative—Resolution is included in Appendix B

### 1.4.2 The 12-Step Planning Process

AMEC and Wyandotte County Emergency Management worked together to establish the framework and process for this planning effort using FEMA’s *Local Multi-Hazard Mitigation Planning Guidance* (2008) and the State and Local Mitigation Planning How-To Guides (2001), which include *Multi-Jurisdictional Mitigation Planning* (2006). The plan is structured around a four-phase process:

- 1) Organize resources
- 2) Assess risks
- 3) Develop the mitigation plan
- 4) Implement the plan and monitor progress

Into this process, AMEC integrated a modified detailed 12-step planning process used for FEMA’s Community Rating System (CRS) and Flood Mitigation Assistance programs. Thus, the modified 12-step process used for this plan meets the funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation program, Community Rating System, and Flood Mitigation Assistance program. Table 1.2 shows how the modified 12-step process fits into FEMA’s four-phase process.

**Table 1.2. Mitigation Planning Process Used to Develop the Wyandotte County Multi-Hazard Mitigation Plan**

<b>DMA Process</b>	<b>Modified CRS Process</b>
<b>1) Organize Resources</b>	
201.6(c)(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments and Agencies
<b>2) Assess Risks</b>	
201.6(c)(2)(i), (iii)	4) Identify the Hazards
201.6(c)(2)(i), (iii)	5) Profile the Hazards
201.6(c)(2)(ii), (iii)	6) Identify Assets
201.6(c)(2)(ii), (iii)	7) Estimate Losses
<b>3) Develop the Mitigation Plan</b>	
201.6(c)(3)(i)	8) Set Goals
201.6(c)(3)(ii)	9) Review Possible Activities
201.6(c)(3)(iii)	10) Draft an Action Plan
<b>4) Implement the Plan and Monitor Progress</b>	
201.6(c)(5)	11) Adopt the Plan
201.6(c)(4)	12) Implement, Evaluate, and Revise the Plan

## **Phase I Organize Resources**

### ***Step 1: Organize the Planning Effort***

The planning process officially began with a Steering Committee meeting May 5, 2009 at the Emergency Management office in Kansas City, Kansas. Wyandotte County Emergency Management mailed and e-mailed letters of invitation. The participants listed below were invited to participate on the Steering Committee represent those key organizations that the Emergency Management Office selected to help begin the planning process.

- Patrick J. Cassidy, Board of Public Utilities
- John Helin, City of Bonner Springs
- Michael Webb, City of Edwardsville
- Kelli Mather, Kansas City, Kansas Public Schools
- David A. Smith, Kansas City, Kansas Public Schools
- Craig Duke, KCK Fire Dept.
- Kevin Shirley, KCK Fire Dept.

- Gary Martin, KU Hospital
- Kevin Faust, KU Police
- Donald Holland, KU Police
- Rob Richardson, Unified Government Planning
- Jerod Letcher, Unified Government Public Works
- Christian Cooley, Unified Government-GSS
- Bob Evans, Unified Government Emergency Management Department
- C.L. Webb, Unified Government Emergency Management Department

The primary purpose of this meeting was to explain the purpose and requirements of the hazard mitigation plan and to determine the list of jurisdictions and other stakeholders that should be invited to form the Hazard Mitigation Planning Committee. During this meeting, the attendees also discussed preliminary strategies to ensure that the public is engaged in the planning effort. Meeting minutes of all meetings, including the lists of participants, are included in Appendix B.

Once the list of potential Hazard Mitigation Planning Committee (HMPC) members was developed, letters and e-mail notifications were sent out by Wyandotte County Emergency Management inviting planning members to the Kick-off meeting. The list of representatives invited to the planning meetings is included in Appendix B. During the kick-off meeting, the following topics were addressed:

- Hazard Mitigation Planning Purpose
- Grant Program Availability Linked to Approved Plan—The FEMA mitigation programs were summarized emphasizing the requirement for an approved plan to be eligible for funding.
- Hazard Mitigation Planning Requirements-Summary—The implementing regulations for the Disaster Mitigation Act of 2000 were summarized
- Multi-jurisdictional Approach—The concept of a “multi-jurisdictional” plan was presented to the committee along with the definition of “jurisdiction” for purposes of the plan and participation requirements in the planning process for jurisdictions to take part in the multi-jurisdictional plan. The participation role for private-non-profit entities was also discussed.
- Data Collection Guides-- Participants were given the AMEC Data Collection Guide to facilitate the collection of information needed to support the plan, such as data on historic hazard events, values at risk, and current capabilities. Each participating jurisdiction completed and returned the worksheets in the Data Collection Guide document to AMEC. AMEC integrated this information into the plan, supporting the development of Chapters 2 and 3.
- Natural, Man-Made and Technological Hazards—The planning committee reviewed and reached consensus on the list of hazards previously identified by Wyandotte County Emergency Management for inclusion in the mitigation plan. This list of hazards was developed by comparing the hazards in the State Hazard Mitigation Plan and the Wyandotte County Emergency Operations Plan Vulnerability Analysis. The planning committee was

introduced to the State’s adopted planning significance ranking utilizing the calculated priority risk index (CPRI) and discussed and achieved consensus on the probability and magnitude levels for the majority of high and moderate ranked hazards. For the hazards that were not covered during the meeting, the planning committee provided comments via e-mail to reach group consensus. The CPRI methodology is further described in chapter 3.

- Next Steps in the Planning Process—The planning committee was provided with the schedule of the remaining planning process along with the due date to return the data collection guides.

**Figure 1.1 Wyandotte County Hazard Mitigation Kick-off Meeting**



The HMPC communicated during the planning process with a combination of face-to-face meetings, phone interviews, and email correspondence. The meeting schedule and topics are listed in Table 1.4. The sign-in sheets, agendas, and meeting minutes for each of the meetings are included in Appendix B.

**Table 1.4. Schedule of HMPC Meetings**

Meeting	Topic	Date
Steering Committee Meeting	Develop the list of organizations to invite to participate on the Hazard Mitigation Planning Committee and discuss public participation strategies.	May 5, 2009
Kick-Off Meeting	Kickoff meeting: introduction to DMA, the planning process, and hazard identification. Distribution of data collection guide to jurisdictions.	May 20, 2009
HMPC #2	Review of risk assessment. Identification of plan goals.	August 6, 2009
HMPC #3	Mitigation action identification and prioritization. Determine process to monitor, evaluate, and update plan.	September 1, 2009

## **Step 2: Plan for Public Involvement**

**44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural, man-made, and technological disasters, the planning process shall include: (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.**

At the steering committee meeting, the HMPC discussed options for soliciting public input on the mitigation plan. Then during the kick-off meeting, the public participation requirements were summarized for the planning committee. At meeting #3, the Wyandotte County Emergency Management Director presented the public outreach strategy which was accepted by the committee by consensus. The following public outreach strategy was utilized to inform the public and allow comment during the drafting stage:

1. Place DRAFT Summary on Unified Government Web Page.
2. Place a comment Form for the Draft on Unified Government Web Page.
3. Add the above links in all Public Information Messages.
4. Send Release and LINKS to all PIO's in Wyandotte County.
5. Unified Government PIO will use electronic newsletter and media release to publicize the DRAFT Plan.
6. Send the release and LINKS to all agencies and participants and ask for internal distribution for comments.
7. Send the release and LINKS to Wyandotte County Libraries.
8. Add availability of the Plan Summary and comment forms to the Emergency Management Twitter Page.
9. Add the availability of the Plan Summary and comment forms to the Unified Government Intranet page.
10. Add the availability of the Plan Summary and comment forms to the Unified Government Internet home page.
11. Emergency Management will send to other local distribution lists in the community.
12. Email Summary Plan Information and comment forms to Elected Officials.
13. Emergency Management will offer presentations or STOP and LISTEN Sessions for agencies for the public and staff.

AMEC project planners, in coordination with Wyandotte County Emergency Management, developed the plan summary and questionnaire to be utilized in the public participation strategy outlined above. From September 28-October 15, 2009, the plan summary and questionnaire were made available during the drafting stage of the plan. They were available online on the County's website at <http://www.wycokck.org/mitigation> and in hard copy at the following public places:

**Argentine Library**  
2800 Metropolitan Ave.  
Kansas City, KS 66106

**KCK Main Library**  
625 Minnesota Ave.  
Kansas City, KS 66101

**West Wyandotte Library**  
1737 N. 82nd St.  
Kansas City, KS 66112

**City of Bonner Springs, Kansas**  
205 East 2nd Street  
Bonner Springs, KS 66012

**City of Lake Quivira, Kansas**  
10 Crescent Blvd.  
Lake Quivira, KS 66217

**Mr. and Mrs. F.L. Schlagle Library**  
4051 West Drive, Wyandotte County Lake Park  
Kansas City, Kansas 66109

**Turner Community Library**  
831 South 55th Street  
Kansas City, KS 66106

**Bonner Springs City Library**  
200 E. Third Street  
Bonner Springs, KS 66012

**City of Edwardsville, Kansas**  
690 South 4th Street  
Edwardsville, KS 66111

**Emergency Management Office**  
701 N 7th Street Room B-20  
Kansas City, KS 66101

To ensure the public had sufficient opportunity to comment on the plan, a second public comment period during the drafting stage was held from November 5-12, 2009. A press release was issued in the *Wyandotte County Echo* notifying the public that the plan summary and questionnaire were available on the County's website.

In the questionnaire, the general public was asked to indicate the level of risk, or extent of potential impacts, in Wyandotte County that they perceive for each hazard. They were asked to rate the impacts of each hazard profiled in this plan as 1=negligible, 2=limited, 3=moderate, 4=critical, or 5=catastrophic. 108 surveys were completed resulting in the ranking order provided in Table 1.5 from greatest perceived impacts to least perceived impacts. To provide a comparison, the ranking order developed by the Hazard Mitigation Planning Committee is provided in the far right column. The methodology used by the committee is discussed in detail in Chapter 3.

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**Table 1.5 Public Perceptions of Hazard Impacts (High to Low)**

<b>Public Hazard Ranking</b>	<b>Average Impact Rating</b>	<b>HMPC Hazard Ranking</b>
Tornado	4.09	Utility/Infrastructure Failure
Utility/Infrastructure Failure	3.74	Hazardous Materials
Major Disease Outbreak	3.54	Flood
Flood	3.48	Winter Weather
Hazardous Materials	3.43	Tornado
Winter Weather	3.29	Fire
Fire	3.15	Windstorm
Terrorism/Agri-Terrorism	3.12	Extreme Temperatures
Dam/Levee Failure	2.92	Hailstorm
Extreme Temperatures	2.86	Lightning
Hailstorm	2.79	Terrorism/Agri-Terrorism
Windstorm	2.78	Dam/Levee Failure
Lightning	2.58	Fog
Radiological	2.44	Major Disease Outbreak
Drought	2.41	Earthquake
Agricultural Infestation	2.35	Land Subsidence
Soil Erosion & Dust	2.22	Radiological
Land Subsidence	1.97	Drought
Fog	1.94	Expansive Soils
Earthquake	1.93	Soil Erosion and Dust
Expansive Soils	1.86	Agricultural Infestation
Landslide	1.64	Landslide

The public was also asked to review the types of mitigation actions being considered by the Hazard Mitigation Planning Committee and place a check next to the four types of mitigation actions that they felt should be given the highest priority. Table 1.6 provides the compiled results of this question. To provide comparison, the HMPC prioritization of the types of actions is provided in the far right column.

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**Table 1.6 Public Prioritization of Types of Mitigation Actions**

<b>Project Type</b>	<b>Total Public "votes"</b>	<b>Total HMPC "votes"</b>
Emergency Services	99	37
Prevention	92	19
Public Education and Awareness	82	34
Structural Projects	57	17
Natural Resource Protection	56	6
Property Protection	55	14

In addition to providing input to the planning process through the survey questions, general comments were received by some members of the general public. The following are some of the public comments received:

“I think public education & awareness is important as it will prevent some of the destructive events/behaviors that happen especially east of I-635.”

“More salt and sand on streets in the winter time. Tornado plan for inside homes. More street lights...it's too dark. Dam/Levee failure...just fix it. Floods- flood action plan {if} person live in low areas.”

“Thanks for letting me input on this important matter.”

\*Prevention is the key.”

“Winter Weather - You need more plans for safety.”

“Ways to communicate when telecommunications fail. Example: How many people have emergency radios?”

Prior to finalization of the plan and submission to KDEM and FEMA, the Final Draft of the plan was made available in its entirety on the county website and in hard copy at public libraries. The plan was available for final public comment from November 19- December 3, 2009. Availability of the final draft was announced through the mechanisms discussed above that were utilized for the first public comment opportunity and hard copies were again placed at the public locations listed above. Supporting documentation such as press releases is included in Appendix B.

The HMPC invited other targeted stakeholders to comment on the draft plan by e-mail, which is described in greater detail in Step 3: Coordinate with Other Departments and Agencies.

### ***Step 3: Coordinate with Other Departments and Agencies***

**44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural, man-made, and technological disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process. (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.**

There are numerous organizations whose goals and interests interface with hazard mitigation in Wyandotte County. Coordination with these organizations and other community planning efforts is vital to the success of this plan. Wyandotte County Emergency Management invited other local, state, and federal departments and agencies to the planning meetings to learn about the hazard mitigation planning initiative. The list of all invited organizations is included in Appendix B. The other organizations, other than those officially participating jurisdictions and private non-profit organizations listed in Table 1.1 that participated in the planning process by attending planning meetings include:

- Jackson County, Missouri
- Johnson County, Kansas Emergency Management
- Kansas City, Missouri Emergency Management
- Kansas Division of Emergency Management
- Kansas Department of Agriculture, Division of Water Resources

In addition, the HMPC developed a list of neighboring communities and local and regional agencies involved in hazard mitigation activities, as well as other interests, to invite by e-mail to review and comment on both the plan summary as well as the complete draft of the Wyandotte County Multi-Hazard Mitigation Plan. Copies of these e-mails are provided in Appendix B.

As part of the coordination with other agencies, the HMPC collected and reviewed existing technical data, reports, and plans. These included the Kansas State Hazard Mitigation Plan, Wyandotte County Basic Operations Plan, Bonner Springs Hazard Mitigation Plan (2007), Wyandotte County Flood Insurance Study, 1979, Bonner Springs Flood Insurance Study, 1978, Edwardsville Flood Insurance Study, 1978, Johnson County Flood Insurance Study including Lake Quivira, 2002, current available Flood Insurance Rate Maps, reports from the National Flood Insurance Program's Community Information System, Kansas Forest Service Community Wildfire Hazard Assessment Report for Wyandotte County (2009), available Emergency Action Plans and Inspection Reports for high and significant dams, the US Army Corps of Engineers Seven Levees Study, crop loss statistics from the United States Department of Agriculture, as well as other data from state and federal agencies. This information was used in the development of the hazard identification, vulnerability assessment, and capability assessment and in the formation of goals and mitigation actions. These sources are documented throughout the plan and in Appendix A: References.

## **Phase 2 Assess Risk**

### ***Step 4: Identify the Hazards***

AMEC assisted the HMPC in a process to identify the natural, man-made, and technological hazards that have impacted or could impact communities in Wyandotte County. At the kickoff meeting, the HMPC examined the history of disaster declarations in Wyandotte County and the list of hazards included in the Kansas State Hazard Mitigation Plan. The committee then worked through this list of all potential hazards that could affect the planning area. They discussed past hazard events, types of damage, and where additional information might be found.

### ***Step 5: Profile the Hazards***

During the kick-off meeting and meeting #2, the HMPC discussed past events and impacts and came to consensus on the probability level for each hazard. After the kick-off meeting, Wyandotte County Emergency Management provided archived records to AMEC staff to provide additional details on previous events for the hazards. AMEC staff reviewed the records and added the applicable information to the profiles for each hazard. During the second meeting,

the planning committee reviewed the magnitude, duration, and warning elements that were utilized in preparation of the preliminary hazard profiles and made recommendations for modifications to more accurately reflect the impacts of the hazards in the planning area. A profile of each of these hazards was then developed. Web resources, existing reports and plans, and existing geographic information systems (GIS) layers were used to compile information about past hazard events. This information, supplemented by information provided by the HMPC, was used to develop profiles detailing the location, previous occurrences, probability of future occurrences, and magnitude/severity of each hazard. The data collection guide distributed at the kickoff meeting also provided information to identify hazards and vulnerabilities. More information on the methodology and resources used to identify and profile the hazards can be found in Sections 3.1 and 3.2.

### **Step 6: Identify Assets**

After profiling the hazards that could affect Wyandotte County, the HMPC collected information to describe the likely impacts of future hazard events on the participating jurisdictions. This step included two parts: a vulnerability assessment and a capability assessment.

**Vulnerability Assessment**—Participating jurisdictions inventoried their assets at risk to natural, man-made, and technological hazards—overall and in identified hazard areas. These assets included total number and value of structures; critical facilities and infrastructure; natural, man-made, and technological, historic, and cultural assets; economic assets; and vulnerable populations. The HMPC also analyzed development trends in hazard areas. Available GIS layers, including assessors parcel data, were also provided to AMEC by the Unified Government Geospatial Support Services for use in inventorying assets at risk as well as analyzing these assets utilizing FEMA’s loss estimation computer software, HAZUS-MH. HAZUS-MH was utilized to provide information on populations at risk as well as estimated numbers and values of buildings at risk. The assets at risk were discussed for the planning area as a whole for those hazards that do not vary geographically. Additionally, utilizing the HAZUS-MH tool, assets at risk to a 100-year flood and 2500-year probabilistic earthquake event in Wyandotte County were discussed separately as these hazards vary across the planning area.

**Capability Assessment**—This assessment consisted of identifying the existing mitigation capabilities of participating jurisdictions. This involved collecting information about existing government programs, policies, regulations, ordinances, and plans that mitigate or could be used to mitigate risk to disasters. Participating jurisdictions collected information on their regulatory, personnel, fiscal, and technical capabilities, as well as ongoing initiatives related to interagency coordination and public outreach. This information is included in Chapter 2 Planning Area Profile and Capabilities.

### **Step 7: Estimate Losses**

Where sufficient information was available, a variety of methods were used to estimate losses for each profiled hazard that received a moderate or high planning significance level. For the flood

hazard and earthquake hazard, FEMA's loss estimation computer software, HAZUS-MH was utilized to estimate losses in the planning area as a result of a 100-year flood event, and 2500-year probabilistic earthquake event respectively. The methodology is described in detail for each hazard analysis that included a loss estimate. This information can be found in Section 3.3.3

Results of the risk assessment were presented and comments discussed at the second meeting of the HMPC on August 6, 2009. The draft risk assessment was provided to the HMPC on July 29th prior to meeting #2 for review and comment by the committee.

### **Phase 3 Develop the Mitigation Plan**

#### ***Step 8: Set Goals***

AMEC facilitated a brainstorming and discussion session with the HMPC during their second meeting to identify goals for the overall multi-jurisdictional mitigation plan. To focus the committee on the issues brought out by the risk assessment, key issues were summarized for each hazard profiled. Then the HMPC discussed definition of plan goals according to FEMA guidance and considered the goals of the state hazard mitigation plan and other relevant local plans. Then, the planning committee participated in a "voting" exercise to choose the main themes for the plan goals. After this facilitated exercise, the committee refined the wording of the goals as a group and achieved consensus on the final goals for the multi-jurisdictional plan, which are described in Chapter 4.

#### ***Step 9: Review Possible Activities***

Prior to the third HMPC meeting, a worksheet was sent to each of the HMPC members for them to develop and record ideas for potential mitigation actions. This worksheet summarized the key issues or problem statements brought out by the risk assessment for each hazard profiled and invited committee members to brainstorm action ideas to address the problems. The action ideas were requested to be returned ahead of the meeting and were utilized to facilitate a group discussion during the third meeting. During the meeting, the HMPC reviewed the list of actions that had been submitted and discussed their validity for incorporation or dismissal. Many of the action ideas are already being implemented by governmental agencies, but the HMPC members are not familiar with every jurisdiction's mitigation actions already being accomplished. After reviewing the actions that were submitted prior to the meeting, additional actions were brainstormed and recorded. Appendix C contains the complete list of all mitigation action alternative ideas that were discussed during this meeting. After the action ideas had been discussed, the HMPC members were broken into groups and instructed to complete an action identification worksheet and a modified STAPLEE worksheet for one action they wished to include in the plan. This was accomplished to familiarize the committee with the forms and answer any questions as a group. The purpose of the action identification worksheet is to document background information, ideas for implementation, alternatives, responsible office, partners, potential funding, cost estimates, benefits, and timeline for each identified action. The modified STAPLEE worksheet is a tool to assist the jurisdictions with prioritization of submitted

actions. Special emphasis was placed on the cost-effectiveness of the actions. HMPC members were instructed that a principal eligibility factor for FEMA's mitigation grant programs requires applicants to demonstrate that the action will not cost more than the anticipated value of the reduction in both direct damages and subsequent negative impacts to the area if future disasters occur. It was explained to the HMPC that cost-effective mitigation actions are those actions that, over time, have a higher value of avoided damages than the cost to implement the measure.

To facilitate a group prioritization exercise, the actions that had been submitted prior to the third meeting utilizing the "Action Idea" worksheet and those added during the brainstorming session during the meeting were condensed into one of the six categories of mitigation activities provided in FEMA's publication *Developing the Mitigation Plan*. The six categories were hung on the walls on large white paper. Each member of the HMPC was given four red "voting dots" to place next to the categories that they felt were most important to implement, keeping in mind the STAPLEE considerations that had just been reviewed. Results of this exercise are recorded in Table 1.6 and are compared to the results from the general public. This process is described in more detail in Chapter 4 Mitigation Strategy.

#### ***Step 10: Draft the Plan***

A complete first draft of the plan was made available to the planning committee on October 6, 2009. Comments were received from committee and incorporated into the final draft of the plan which was made available online and in hard copy for review and comment by the general public and other agencies and interested stakeholders. This review period was from November 2-16, 2009. Methods for inviting interested parties and the public to review and comment on the plan were discussed in Steps 2 and 3, and materials are provided in Appendix B. Comments were integrated into a final draft for submittal to the Kansas Division of Emergency Management and FEMA Region VII.

### **Phase 4 Implement the Plan and Monitor Progress**

#### ***Step 11: Adopt the Plan***

To secure buy-in and officially implement the plan, the governing bodies of each participating jurisdiction adopted the plan. Scanned copies of resolutions of adoption are included in Appendix E of this plan.

#### ***Step 12: Implement, Evaluate, and Revise the Plan***

The HMPC developed and agreed upon an overall strategy for plan implementation and for monitoring and maintaining the plan over time during Meeting #3. This strategy is described in Chapter 5 Plan Maintenance Process.