Chapter 3: The Planning Process

44 CFR Requirements met:

Requirement §201.6(a)(3): *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process … Statewide plans will not be accepted as multi-jurisdictional plans.*

Requirement §201.6(b): *An open public involvement process is essential to the development of an effective plan.*

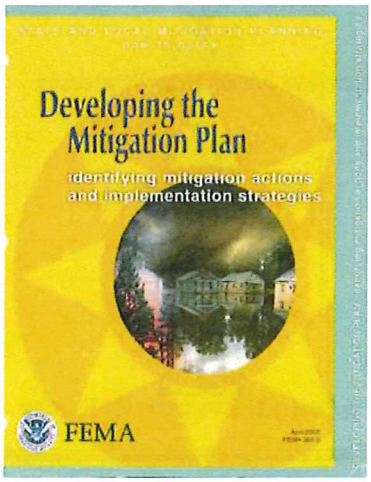
Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
(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; and
(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

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.*

Included in this Chapter:

Planning Process Introduction



The Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan is an effort to direct the multi-hazard planning, development, and mitigation activities of the Canadian County government, participating cities and towns, and participating primary, secondary and post-secondary public schools.

Canadian County is responsible for overall coordination and management of the study.

A mitigation plan is the product of a rational thought process that reviews the hazards, measures their impacts on the community, identifies alternative mitigation measures, and selects and designs those that will work best for the community.

This plan addresses the following hazards:

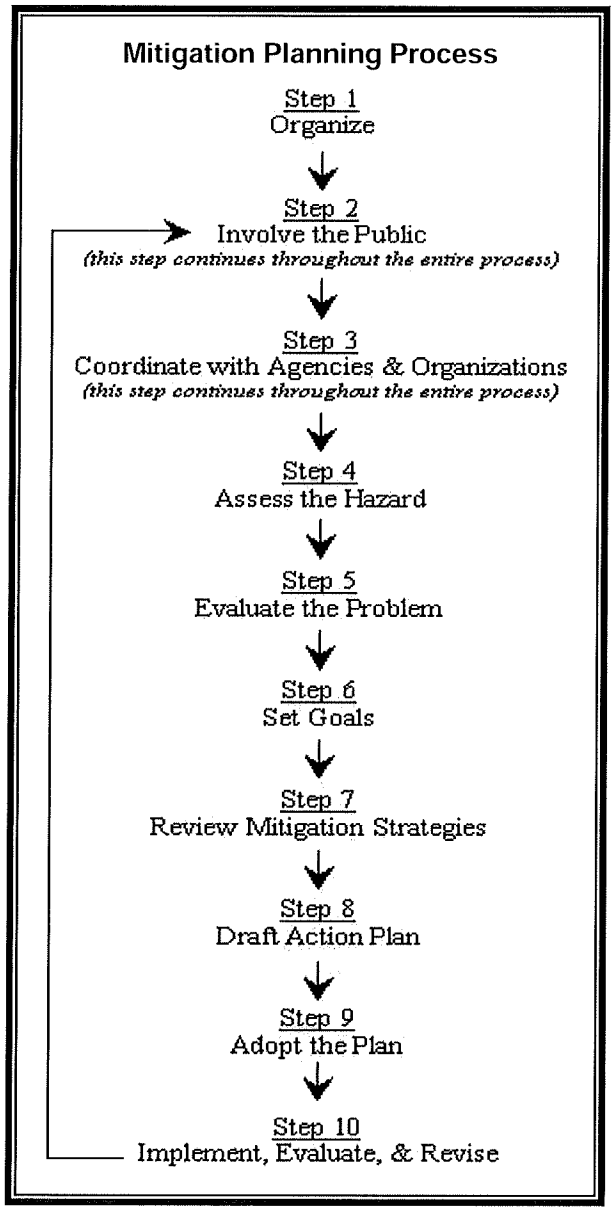
1. Floods
2. Tornadoes
3. High Winds
4. Lightning
5. Hail
6. Severe Winter Storms
7. Extreme Heat
8. Drought
9. Expansive Soils
10. Urban Fires
11. Wildfires
12. Earthquakes
13. Fixed-Site Hazardous Materials
14. Dam Failures
15. Transportation of Hazardous Materials

The planning for Canadian County followed a ten-step process, based on the guidance and requirements of FEMA. The ten steps are shown in the graphic to the left, and are described on the following pages.

3.1 Step One: Organize to Prepare the Plan

Citizens, community leaders, government staff personnel, and professionals active in disasters provided important input into the development of the plan and recommended goals and objectives, mitigation measures, and priorities for actions.

The planning process was formally created by a resolution of the Canadian County Commission. The resolution designated the individuals listed below to serve as the Canadian County Citizens' Advisory Committee (CAC) to oversee the planning effort. Supporting the CAC is the Canadian County Technical Advisory Committee (TAC), which includes representatives of departments that have roles in multi-hazard planning, response, protection, and mitigation, and representatives of all included jurisdictions. Most of the detail work was done by management teams consisting of the following:



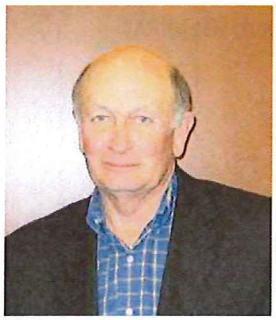
Canadian County Technical and Citizens' Advisory Committees

Jerry Smith
Canadian County

Emergency Management Director.

Amy Brandley
Canadian County
Floodplain Administrator, GIS Manager

Studies in Social relations at Cornell University;
Studies in Geography at Oklahoma University;
OFMA – Secretary;
Cameo Training; NIMS Training.



Phil Carson
Canadian County

County Commissioner – District 1.

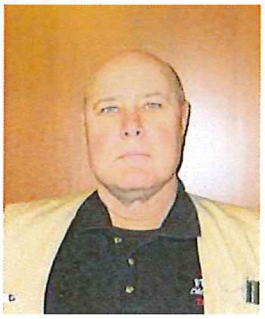
James Evans
Canadian County

Sheriff's Office.

Ronnie Funck
County Assessor, Canadian County
Bachelors Degree from Southern Nazarene University;
Vice President of Oklahoma Assessors Assn.;
American Legion; Kiwanis Secretary;
International Association of Assessing Officers;
State of Oklahoma IAAO;
PIO Training and Certificate; FEMA Certifications.

Ed Grimes
Canadian County

Sheriff's Office.



Steve Somerlott
Cedar Lake VFD

Cedar Lake VFD, Firefighter, First Responder, Board Member;
State of Oklahoma HMP Update

HMP Reviewer, State of Oklahoma, 2 years.

Judy Soos
Cedar Lake VFD

The TAC met periodically during the year's planning process. TAC members also attended all meetings of the CAC and meetings with elected officials.

Consultant:

Ronald D. Flanagan, CFM
Principal Planner

R.D. Flanagan & Associates
Planning Consultants
2745 E. Skelly Dr., Suite. 100
Tulsa OK 74105

Other entities involved in the development of the Mitigation Plan included:

Tulsa Partners, Inc

TPi in a Tulsa-based non-profit that has been working since 1998 to develop public / private / non-profit collaborations to help create a disaster-resistant and sustainable community and improve the community's safety and well-being by reducing deaths, injuries, property damage, environmental and other losses from natural or technological hazards. Tulsa Partners provides expertise in the areas of community education and public involvement in the planning process.

The TAC and CAC met monthly during the planning process to review progress, identify issues, receive task assignments, and advise the consultants. A list of CAC, TAC, and public meetings and dates is shown in Table 3-1. Refer to Appendix C for meeting agendas and sign-in sheets.

Table 3–1: Canadian County (Unincorporated) Hazard Mitigation Committee Meetings and Activities

Date	Activity
January 5, 2009	FEMA Obligation Date for Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update.
February 3, 2009	Project Start Date
February 3, 2009	Introductory Meeting with Canadian County Emergency Manager/Project Manager, Jerry Smith, to discuss Project Organization.
February 18, 2009	Introductory Meeting with Canadian County Community and School Officials to discuss HM Project.
April 4 , 2009	Canadian County (Unincorporated) Multi-Hazard Mitigation Team Staff Introductory/Organizational Meeting: Discuss Canadian County (Unincorporated) HM Plan.
May 5, 2009	Canadian County (Unincorporated) Hazard Mitigation Team Community Data Meeting: Reviewed maps and demographic data.
June 2, 2009	Meeting of TAC and CAC; Presentation, review, discussion of Lightning and Hail; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
September 1, 2009	Meeting of TAC and CAC; Presentation, review, discussion of Extreme Heat and Drought; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
October 6, 2009	Meeting of TAC and CAC; Presentation, review, discussion of Mass Communication, Earthquakes and Expansive Soils; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.

Date	Activity
November 3, 2009	Meeting of TAC and CAC; Presentation, review, discussion of Fires and Wildfires; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
December 1, 2009	Meeting of TAC and CAC; Presentation, review, discussion of Wildfires and Red Cedar Eradication with guest speakers Duane Crider (NRCS) and Brad Tipton (OSU); Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
January 5, 2010	Meeting of TAC and CAC; Presentation, review, discussion of Hazardous Materials and Transportation Hazards; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
February 2, 2010	Meeting of TAC and CAC; Presentation, review, discussion of Flooding and Dam Failures; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
March 2, 2010	Meeting of TAC and CAC; Presentation, review, discussion of Tornadoes and High Winds; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
April 6, 2010	Meeting of TAC and CAC; Presentation, and, discussion of Hazards Review; Goals and Objectives; Existing Mitigation Measures, Potential additional Mitigation Measures, Hazard Priority Matrix. Review of Other Canadian County Meetings.
October 17, 2012	Meet with Canadian County and it's jurisdictions to Prioritize Mitigation Measures

3.2 Step Two: Involve the Public

In addition to the CAC, the management team of TAC undertook projects to inform the public of this effort and to solicit their input. All meetings of the TAC/CAC were publicly posted as required by ordinances and rules of the jurisdiction. Ten public meetings were held. In all public meetings, surveys were made available to the participants to review concerns and questions. Information provided by the public was incorporated throughout this plan. Residents of Canadian County were invited to fully participate in the planning process. Public input was especially important when identifying sound and much needed mitigation measures. Public input was used when decided which mitigation measures to include in the plan. Primarily public input was used to summarize past hazard events and impacts in each respective community and school district that were not included in the National Climatic Data Center Storm Events Database. This was done with the knowledge that members of the community the best source of data when looking at repetitive hazard impacts in the community. The information was included in Chapter 4, Appendices F and G.

3.3 Step Three: Coordinate with Other Agencies & Organizations

Many public agencies, private organizations, and businesses contend with natural hazards. Management team members contacted them to collect their data on the hazards and determine how their programs can best support the Canadian County Multi-Hazard Mitigation planning program. A list of agencies contacted, and the respective title of each agency point of contact, is included in Table 3-2.

Table 3–2: Agency Contact Information

Title	Agency
Federal	
Natural Hazards Program Specialist.	FEMA Region VI
Meteorologist-in-Charge	National Weather Service (NWS)
State Conservationist	Natural Resource Conservation Service (NRCS)
Dam Safety	US Army Corps of Engineers
Disaster Response	US Army Corps of Engineers
Floodplain Management Coordinator	US Army Corps of Engineers
Field Supervisor	US Fish and Wildlife Service
District Chief	US Geological Survey
Warden	Federal Correctional Institute, El Reno
National Non-Profit	
Executive Director	American Red Cross, Canadian Valley Chapter
State Disaster Officer	American Red Cross
President	United Way of Canadian County
Divisional Director Social Services	Salvation Army
State	
Director	Oklahoma Biological Survey
Director	Oklahoma Climatological Survey
Executive Director	Oklahoma Conservation Commission
Secretary & Commissioner	Oklahoma Department of Agricultural, Food & Forestry
Executive Director	Oklahoma Department of Commerce
State Superintendent	Oklahoma Department of Education
Director	Oklahoma Department of Emergency Management
Executive Director	Oklahoma Department of Environmental Quality
Hazardous Materials	Oklahoma Department of Environmental Quality
Commissioner	Oklahoma Department of Health
Director	Oklahoma Department of Transportation
Director	Oklahoma Department of Wildlife Conservation
Fire Marshall	Oklahoma Fire Marshal
Director	Oklahoma Geological Survey
Insurance Commissioner	Oklahoma Insurance Department
State NFIP Program Coordinator	Oklahoma Water Resources Board
Dam Safety	Oklahoma Water Resources Board
Tribal	
Coordinator	Inter-Tribal Emergency Management Coalition
Acting Chairman	Cheyenne/Arapahoe Tribes
President	Wichita & Affiliated Tribes

Title	Agency
County	
County Assessor	Canadian County Assessor
Chairman	Canadian County Board of Commissioners
Director	Canadian County Emergency Management
Administrator	Canadian County Flood Plain Management
Chairman	Canadian County LEPC
Administrative Director	Canadian County Health Department
Sheriff	Canadian County Sheriff's Office
Director	Kingfisher County Emergency Management
Sheriff	Kingfisher County Sheriff's Office
Director	Oklahoma County Emergency Management
Sheriff	Oklahoma County Sheriff's Office
Director	Caddo County Emergency Management
Sheriff	Caddo County Sheriff's Office
Director	Blaine County Emergency Management
Sheriff	Blaine County Sheriff's Office
Director	Grady County Emergency Management
Sheriff	Grady County Sheriff's Office
District Conservationist	Natural Resources Conservation Service
City	
Fire Chief	El Reno Fire Department
Interim Chief	El Reno Police Department
Director	El Reno Emergency Management
Mayor	City of El Reno
City Manager	City of El Reno
Police Chief	Oklahoma City Police Department
Fire Chief	Oklahoma City Fire Department
Director	Oklahoma City Emergency Management
Academic	
Extension Educator	Canadian County OSU Extension Office
Superintendent	Canadian Valley Technology Center
President	Redlands Community College
Businesses	
Manager, Community Affairs	Oklahoma Gas & Electric
Laboratory Director	Grazinglands Research Laboratory

3.4 Step Four: Assess the Hazard

The management team collected data on the hazards from available sources. Hazard assessment is included in Chapter 4, with the discussion of each hazard. Table 3-2 explains how and why each hazard was identified.

Table 3–3: How and Why Hazards Were Identified

Hazard	How Identified	Why Identified
Dam/Levee Failures	Input from US Army Corps of Engineers (USACE) Input from Oklahoma Water Resources Board, (OWRB), Dam Safety Division Input from State Levee Coordinator	• Population and buildings below dams and behind levees are very vulnerable in event of major release or dam failure • Dam break/release contingency plan needs to be updated • Warning systems need to be updated and refined
Drought	Historical vulnerability to drought, the "Dust Bowl" era Widespread Oklahoma drought of 2005-2007.	• Continuing mid-west and western drought and impacts on Oklahoma communities. • Acute awareness of Oklahoma's population to the severe results of drought • Need to ensure adequate long-term-water resources for Canadian County's population
Earthquakes	Historic records of area earthquakes Input from Oklahoma Geological Survey Input from USGS HAZUS Surveys of potential damages	• Until the November 5, 2011 earthquake, the El Reno earthquake of April 9, 1952 was the largest magnitude earthquake (5.5 Richter event) to hit Oklahoma • Canadian County has a history of mild earthquakes
Expansive Soils	Review of Natural Resource Conservation Service data Input from City Building Inspections Department Input from Oklahoma Department of Transportation	• Damage to buildings and infrastructure from expansive soils can be mitigated with public information and building code provision
Extreme Heat	Review of number of heat-related deaths and injuries from EMS and State/Local Health Departments Review of data from National Climatic Data Center and National Center for Disease Control & Prevention	• Emergency Management and local community service organizations have made heat-related deaths a high priority • High percentage of outdoor workers at risk • High percentage of poor and elderly populations at risk • 44 heat-related deaths in Oklahoma in the last 5 years
Fixed Site Hazardous Material Events	Historic records of U.S. Hazardous Materials Incidents Review of information from the US Environmental Protection Agency	• There were 9 fixed-site hazardous material events in Canadian County in the past 10 years (2000-2009), and 24 between 1995 and 2009 • Canadian County is vulnerable to hazardous materials incidents, and therefore its vulnerability is a constant and widespread threat.
Floods	Review of FEMA floodplain maps Buildings in the floodplains Historical floods and damages (detailed in Chapter 4)	• 30 Flood events in County between 1995-2009 caused over $3 million in damages • 176 Parcels with improvements are touched by the floodplain
Hailstorms	Review of data from National Climatic Data Center	• 105 reports of hail events in Canadian County from 1995–2009.
High Winds	National Weather Service data Loss information provided by national insurance companies	• 73 high wind-related events in Canadian County from 1995 thru 2009, and almost $6.8 Mil in damage • High winds are one of Canadian County's most frequent natural hazards.
Lightning	National Climatic Data Center information and statistics National Lightning Safety Institute Statistics	• Oklahoma has had 374 incidents resulting in 11 deaths, 76 injuries, and $26 Mil in damages from 1995–2009.

Hazard	How Identified	Why Identified
Severe Winter Storms	Review of past disaster declarations Input from Emergency Management Input from area utility companies	• Severe winter storms are an annual event in Canadian County and can produce both wide-spread economic disruption and massive public utility outages. • Canadian County has had 35 documented snow & ice events during the period 1995 through 2009. • Four of the most expensive disasters in Oklahoma history were winter storms in the last eight years.
Tornadoes	Review of recent disaster declarations Input from Emergency Management Review of data from the National Climatic Data Center	• Canadian County is located in "Tornado Alley" • An average of 62 tornadoes per year strike Oklahoma (averaging period: 1991-2010) • Recent disaster events and damage, such as the May 24, 2011 tornado that struck El Reno and Piedmont. • Oklahoma City tornado of 1999 killed 42 people and destroyed 899 buildings • All citizens and buildings are at risk
Transportation Events	Review of information from National Transportation Safety Board (NTSB) Historic Canadian County transportation events Review of Information from U.S. Department of Transportation.	• Oklahoma alone has over 111,000 miles of highways including Interstates 35, 40 and 44, over 180 navigable river miles • Oklahoma airports, in the year 2000, performed 61,512 departures enplaning over 3.4 million passengers. • Canadian County has 215.4 miles of highways over which hazardous materials are carried, including 46 miles of US Interstate highways, 65.8 miles of United States highways, and 103.6 miles of Oklahoma state highways and turnpikes.
Urban Fires	Input from surrounding county & community fire departments Input from State Fire Marshal	• In 2008, Oklahoma ranked second (behind only Washington D.C.) in the number of fire deaths per capita: 26.4 million residents • Canadian County, during the 10-year period from 2000 to 2009, experienced a total of 858 structural fires, 75 injuries, 15 deaths, and over $16.9 million in fire damage, including fires in critical facilities.
Wildfires	Input from surrounding county & community fire departments Input from State Fire Marshal Input from Oklahoma State University Rangeland Conservation Southern Wildfire Assessment Model Analysis	• Fires in the urban/rural interface threaten Canadian County properties • Several miles of Canadian County's perimeter and a number of identified critical facilities are exposed and vulnerable to wildfires • From 2000 to 2009 Canadian County fire departments made 1,838 wildfire runs that burned a total of 22,662 acres, and did $1,129,720 in damage

3.5 Step Five: Assess the Problem

The hazard data was analyzed in light of what it means to public safety, health, buildings, transportation, infrastructure, critical facilities, and the economy. The discussion of the problem assessment is addressed for each hazard in Chapter 4.

Damage Estimation Methodology

The following methodologies were used in the development of damage cost estimated for buildings and contents for flooding and tornado/high wind damage, used in the *Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update:*

HAZUS Damage Estimation Model: FEMA's HAZUS Damage Estimation Models were used to calculate damages from Flooding and Earthquakes.

Structure Value: Value of buildings within Canadian county was obtained from the Canadian County Assessor's office.

For critical facilities, non-profit properties with structural improvements, such as churches, which are tax exempt and where no county assessor valuation was available, the buildings' footprints were measured using aerial photography, GIS, and field investigation to determine size, in square feet. The value of structure was obtained by calculating the square footage times the value per square foot obtained by using FEMA publication *State and Local Mitigation Planning: Understanding Your Risks: Identifying Hazards and Estimating Losses*, August 2001, "Average Building Replacement Value per square foot," p. 3-10, source: HAZUS.

Contents Value: Value of contents for all buildings was estimated using "Contents Value as Percentage of Building Replacement Value" table, page 3-11, *Understanding Your Risks.*

Depth of Damage: Flooding damage estimates for building and contents are based on actual structures' estimated flood depth determined by aerial topographic mapping and field investigations. Maps of the floodplains are included in Chapter 4.

Flood damage curves, for structures (single-family, multi-family, office, commercial, industrial), and contents were estimated using Table A-3, "Damage Factors," Economics Branch, Tulsa District, U.S. Army Corps of Engineers.

Flood depth of damage curve estimates were used for riverine flooding and dam failures (Chapter 4).

Tornado Damage: Damage estimates for the tornado scenario were based on:

1. Structure value: Canadian County Assessor's office.
2. Contents: FEMA's Contents Value, *Understanding Your Risks.*
3. Damage to structure: based on percent damage experienced during typical events, using the Fujita Scale, damage characteristics, Table 4-12.

Damage estimates were based on a "worst case" scenario, assuming about 25% of the buildings in the tornado path would experience substantial damage or total destruction; 35% would suffer 50% damage, and 40% would suffer slight to moderate or average 25% damage.

Estimation of the value of tax-exempt structures, for which no county assessor valuation is available, was done using the same methodology as for flood damaged structures, described above—that is, using FEMA publication, *State and Local Mitigation Planning: Understanding Your Risks: Identifying Hazards and Estimating Losses*, August 2001, "Average Building Replacement Value per square foot," p. 3-10.

3.6 Step Six: Set Goals

Project and community hazard mitigation goals and objectives for unincorporated areas of Canadian County were developed by the CAC to guide the development of the plan. The hazard mitigation goals for the jurisdictions are listed in Chapter 5 and Appendix B.

3.7 Step Seven: Review Possible Activities

Wide varieties of measures that can affect hazards or the damage from hazards were examined. The mitigation activities were organized under the following six categories. A more detailed description of each category is located in Chapter 5: Mitigation Strategies.

1. **Public Information and Education**—Outreach projects and technical assistance
2. **Preventive Activities**—Zoning, building codes, stormwater ordinances

3. **Structural Projects**—Levees, reservoirs, channel improvements
4. **Property Protection**—Acquisition, retrofitting, insurance
5. **Emergency Services**—Warning, sandbagging, evacuation
6. **Natural Resource Protection**—Wetlands and floodplain protection, natural and beneficial uses of the floodplain, and best management practices

The TAC and the CAC, after reviewing the potential mitigation activities, screened and selected the measures they felt were applicable, feasible, cost effective, and politically acceptable to their community. The measures specifically identified as potentially benefiting the community were combined into a new, more community-specific list for review.

To prioritize the list of possible mitigation measures, made up of over 200 identified mitigation measures, the CAC members were given twenty votes each to select the individual measures they felt would best benefit the community's efforts to reduce or eliminate the adverse impacts of hazards on lives and property. The votes were tallied, and the Mitigation Measures were ranked in descending order. The Mitigation Measures selected and prioritized by this voting process best reflected the values and goals of the community, and the Mitigation priorities generally reflected the disaster and damage experience of the community.

The true challenge is to identify mitigation strategies and measures that represent the goals and political will of the community. Table 6-1, *Multi-Hazard Mitigation Measures, By Priority and Hazard* is the comprehensive list of Mitigation Measures receiving at least one vote from the 20-vote selection process described above. After confirming the outcome with each advisory committee, the top priority measures became the focus for the next phase of the plan, the "Action Plan".

3.8 Step Eight: Draft an Action Plan

The top high-priority Mitigation Measures constituted the Action Plan, and each Measure was further detailed to identify:

- a brief description of the Mitigation Measure (Action Plan Item);
- the lead agency responsible for implementation;
- anticipated time schedule for completion;
- estimated project cost;
- possible sources of funding;
- the Work Product, or Expected outcome.

The Action Plan items should be developed in enough specificity to respond to a Notice of Intent/Interest (NOI) from the State when HMGP Funds become available, or to provide basic information to begin to put together a Pre-Disaster Mitigation Grant Application.

3.9 Step Nine: Adopt the Plan

The Draft *Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan 2013 Update* was submitted to the Oklahoma Department of Emergency Management and FEMA Region VI for review and approval. The CAC approved the final plan, and submitted it to, and was approved and adopted by the Canadian County Commission.

3.10 Step Ten: Implement, Evaluate, and Revise

Adoption of the *Multi-Hazard Mitigation Plan* is only the beginning of this effort. Community offices, other agencies, and private partners will proceed with implementation. The CAC will meet on a regular basis to monitor progress, evaluate the activities, and periodically recommend revisions to the Plan and Action Items. The plan will be formally updated a minimum of every five years, as required by FEMA.