
Chapter 5: Mitigation Goals and Objectives

This chapter identifies the hazard mitigation goals set by Canadian County and the Canadian County Public School Districts, and discusses the mitigation projects, or measures, to be taken to achieve those goals.

The Research, Review, and Prioritization Process

The Hazard Mitigation Planning Committee (HMPC) and supporting staff identified and prioritized the measures that will help protect the lives and property of the residents of Canadian County.

National literature and sources were researched to identify best practice mitigation measures for each hazard. These measures were documented, and staff screened several hundred recommended mitigation actions and selected those that were most appropriate for the County. The HMPC reviewed the measures recommended by staff and revised, added, deleted, and approved measures for each hazard.

HMPC members from each participating jurisdiction in the *Canadian County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update* will take into account five primary considerations when prioritizing mitigation measures: Of most importance when determining priority is the protection of life; mitigation measures that ultimately prevent the loss of life in Canadian County, its Communities and Public School Districts will be placed at highest priority. Secondly, the participating jurisdictions will identify which mitigation measures will prevent loss of property; each jurisdiction will look at which hazards has caused the most property loss based on past event data. Third, the jurisdictions will consider which mitigation measures address multiple hazards in preventing loss of life and/or property; for example, public education and outreach programs mitigate against all hazards where lightning warning systems mitigate against only one hazard.

Next, an estimate will be made to determine the population served by each mitigation measure. Mitigation measures that are determined to do the greatest good for the greatest number of people will be placed at higher priority than those that protect only a small portion of the population overall. Lastly, the cost of each project will be considered by each participating jurisdiction in the prioritization of mitigation measures. Project costs are continually changing. Therefore, a Benefit Cost Analysis (BCA) will be completed as funds become available and during project development. For mitigation measures in which it is not feasible to conduct a BCA, justification of project costs will be identified during project development.

In addition to the five criteria mentioned, the STAPLEE process, recommended by FEMA, will be heavily relied upon in prioritizing mitigation measures for Canadian County, its Communities and Public School Districts. Table 7-1 lists the STAPLEE criteria. Other considerations in prioritizing the mitigation measures for each participating jurisdiction include historical

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considerations and post-disaster conditions. The overall list of mitigation measures identified for Canadian County is included in the Chapter 6, *Action Plan*.

Table 5-1: STAPLEE Prioritization and Review Criteria

Evaluation Category	Sources of Information
Social	Members of Local, County and State Government were members of the Hazard Mitigation Planning Committee and had input throughout the planning process. The plan was coordinated with existing community and county mitigation and response plans. Members of the Media were contacted and invited to attend all HMPC meetings.
Technical	The following Persons/Agencies were consulted as to the technical feasibility of the various projects: Oklahoma Emergency Management, Soil Conservation Service, County and State Health Departments, and the Oklahoma Forestry Service. All of these had their comments and suggestions incorporated.
Administrative	Staffing for proper implementation of the plan currently will rely on existing members of the various agencies involved. Technical assistance is available from contractors and various State Agencies. Some local jurisdictions have incorporated Hazard Mitigation efforts into their Capital Improvement Plans. The HMPC, led by the Canadian County Emergency Management Director, has agreed to an annual review and assessment of the Plan and its progress. Operations Costs are under discussion by the relevant department heads.
Political	County Commissioners, representatives of Public School Systems, and a representative of the U.S. Congressman's office participated in the planning process. In addition, representatives of regional, state, Tribal and federal offices were invited to attend the HMPC meetings and were consulted on all aspects of the Plan.
Legal	Members of the HMPC discussed legal issues with City and County officials, and it was their opinion that no significant legal issues were involved in the projects that were selected by the HMPC.
Economic	Economic issues were the predominant issues discussed by all concerned, with an emphasis on benefit/cost review. Each entity felt that the projects selected would have a positive effect in that the projects would attract business and recreation to the area as well as help the community be better prepared for a disaster. Funding for the various projects was the major concern as local budgets were not capable of fulfilling the needs due to the economic down turn. Reliance on outside grants will be relied on heavily for completion of projects.
Environmental	Oklahoma Department of Environmental Quality, Oklahoma Forestry Service, and the Oklahoma Water Resources Board were all consulted as to the environmental impact of the various projects and it was felt that there would be no negative impact. Local governments are currently considering zoning of environmentally sensitive areas.

Changes in Hazard Mitigation Priorities

Canadian County identified and prioritized mitigation measures in the previously adopted Canadian County Hazard Mitigation Plan. Since the approval of the last plan update, priorities in Canadian County have changed due to an increase in the occurrence of all hazards identified in this plan. Okemah placed public education and outreach measures at highest priority to the county, addressing all hazards, as to hopefully prevent the level of damage, lost of life, and injury during future natural and man-made hazard events.

Mitigation Categories

The measures that communities and individuals can use to protect themselves from, or mitigate the impacts of, natural and man-made hazards fall into six categories:

- Public Information and Education;
- Preventive Measures;
- Structural Projects;
- Property Protection;
- Emergency Services;
- Natural Resources Protection.

This chapter is organized by mitigation category, with the HMPC mitigation mission statement and goals listed first in section 5.1.

5.1 Canadian County Hazard Mitigation Goals

5.1.1 Mission Statement

To create a disaster-resistant community and improve Canadian County's safety and well-being by reducing deaths, injuries, property damage, environmental and other losses from natural and technological hazards in a manner that advances community goals, quality of life, and results in a more livable, viable, and sustainable community.

5.1.2 Mitigation Goal

To identify County policies, actions and tools for long-term implementation in order to reduce risk and future losses stemming from natural and technological hazards that are likely to impact the Canadian County.

5.1.3 Goals for All Natural Hazards

- Minimize loss of life and property from natural hazard events.
- Protect public health and safety.
- Increase public awareness of risk from natural hazards.
- Reduce risk and effects of natural hazards.
- Identify hazards and assess risk for Canadian County.
- Ascertain historical incidence and frequency of occurrence.
- Determine increased risk from specific hazards due to location and other factors.
- Improve disaster prevention.
- Improve forecasting of natural hazard events.
- Limit building in high-risk areas.
- Improve building construction to reduce the dangers of natural hazards.
- Improve government and public response to natural hazard disasters.

5.2 Hazard-Specific Goals and Objectives

Flood
GOAL: <i>To reduce injuries and loss of life; trauma; damage to property, equipment and infrastructure; community disruption; and economic, environmental, and other losses caused by floods and flash floods.</i>
Objective 1. Public Information & Education. Improve public awareness of flood and flash flood hazards in general and at specific high-risk locations; and give people knowledge about measures they can use to protect themselves, their property and their community.
Objective 2. Preventive Measures. Expand mapping, regulations, and loss-prevention programs in areas with high risks and catastrophic potential, such as local portions of multi-jurisdictional riverine floodways and floodplains where additional safety considerations are warranted because a community does not have jurisdiction to regulate upstream and downstream runoff, blockages, or other actions that can affect safety.
Objective 3. Structural Projects. Obtain funding for and implement projects that can reduce flood and drainage hazards, with consideration for comprehensive solutions in accord with watershed-wide management plans.
Objective 4. Property Protection. Identify and protect people, structures, critical facilities, and critical infrastructure that are vulnerable to flood and flash flood hazards.
Objective 5. Emergency Services. Identify the needs, and implement additional emergency operations plans and services for areas at high risk of flooding, including additional prediction and forecasting capability, emergency alerts, and evacuation plans.
Objective 6. Natural Resource Protection. Protect and enhance natural floodplain and stormwater resources by adopting and implementing sustainable flood-management policies that have few or no negative impacts and have positive environmental effects whenever possible.

Tornado
GOAL: <i>To reduce injuries and loss of life; trauma; damage to property, equipment and infrastructure; community disruption; and economic, environmental and other losses caused by tornadoes.</i>
Objective 1. Public Information & Education. Improve public awareness of tornado hazards, in general and in specific high-risk situations; and give people knowledge about measures they can use to protect themselves, their property, and their community.
Objective 2. Preventive Measures. Prevent or reduce tornado losses by strengthening buildings and by publicizing, training, and creating market options for fortified new construction, retrofits, code changes and code-plus innovations.
Objective 3. Structural Projects. Provide safe tornado shelters, Safe Rooms, and fortified buildings for vulnerable populations, including children; offer training and incentives to encourage people of means to include shelters and Safe Rooms in new and retrofit building projects.
Objective 4. Property Protection. Identify and protect people, structures, and critical infrastructure that are vulnerable to tornado hazards, with emphasis on critical facilities.
Objective 5. Emergency Services. Identify the needs for and implement additional emergency operations plans and services to expand tornado safety, including Community Emergency Response Team training.

Tornado

Objective 6. Natural Resource Protection. Take advantage of opportunities for tornado programs and policies that reduce negative environmental impacts. Examples include sustainable programs for debris management and recycling, and fortified construction with environmentally friendly materials.

High Wind

GOAL: *To reduce injuries and loss of life; trauma; damage to property, equipment and infrastructure; community disruption; and economic, environmental and other losses caused by high winds.*

Objective 1. Public Information & Education. Improve public awareness of high-wind hazards, in general and in specific high-risk situations; and give people knowledge about measures they can use to protect themselves, their property, and their community.

Objective 2. Preventive Measures. Prevent or reduce high-wind losses by strengthening buildings and by publicizing, training, and creating market options for fortified new construction, retrofits, code changes and code-plus innovations.

Objective 3. Structural Projects. Provide fortified buildings for critical public facilities and vulnerable populations, including children; offer training and incentives to encourage people of means to build stronger structures in new and retrofit building projects.

Objective 4. Property Protection. Identify and protect people, structures, and critical infrastructure that are vulnerable to high winds, with emphasis on critical facilities.

Objective 5. Emergency Services. Identify needs for and implement additional emergency operations plans and services to expand safety in dangerous windstorms, including Community Emergency Response Team training.

Objective 6. Natural Resource Protection. Take advantage of opportunities for high-wind programs and policies that reduce negative environmental impacts. Examples include sustainable programs for debris management and recycling, and fortified construction with environmentally friendly materials.

Lightning

GOAL: *To reduce injuries, loss of life, and damage to property, equipment and infrastructure caused by Lightning strikes.*

Objective 1. Public Information & Education. Improve public awareness of lightning hazards and measures by which people can protect themselves, their property and their community.

Objective 2. Preventive Measures. Identify the costs and the benefits of loss-prevention programs, such as whole building surge protection, with consideration for uncalculated benefits such as data or work productivity loss.

Objective 3. Structural Projects. Provide for necessary construction, renovation, retrofitting or refurbishment of city infrastructure to protect vulnerable populations from the effects of lightning strikes.

Objective 4. Property Protection. Identify ways to protect structures, infrastructure, and critical facilities and their occupants from damage caused by lightning strikes.

Objective 5. Emergency Services. Establish or expand emergency services protocols that adequately address response scenarios in the event of scenarios with the possibility of severe lightning.

Lightning

Objective 6. Natural Resource Protection. Ensure that lightning damage mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment.

Hail

GOAL: *To reduce the high costs of property and infrastructure damage caused by Hailstorms.*

Objective 1. Public Information and Education. Improve public awareness of hailstorm hazards and measures by which people can protect themselves, their property and their community.

Objective 2. Preventive Measures. Identify the costs and the benefits of loss-prevention ordinances, such as building codes, with consideration for uncalculated benefits such as employee downtime or loss of city services.

Objective 3. Structural Projects. Identify costs and benefits of loss-prevention programs, such as covered vehicle parking, with consideration for uncalculated benefits such as averting response delays and business losses.

Objective 4. Property Protection. Identify, fund, and implement projects to protect people and public and private property from losses in hail events, including critical infrastructure such as utilities or public vehicles.

Objective 5. Emergency Services. Establish or expand emergency services protocols that adequately address response scenarios in the event of severe hail events.

Objective 6. Natural Resource Protection. Ensure that Hail mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment. Encourage homeowners, for example, to use Class 4 roofing made of recycled materials.

Winter Storms

GOAL: *To reduce injuries and loss of life; trauma; loss of critical utilities; damage to property, equipment and infrastructure; community disruption; and economic, environmental and other losses caused by winter storms. Winter hazards can include extreme temperatures, ice and snow, high winds, and cascading hazards such as loss of utilities.*

Objective 1. Public Information & Education. Improve public awareness of winter storm hazards and give people knowledge about measures they can use to protect themselves, their property and their community.

Objective 2. Preventive Measures. Identify costs and the benefits of loss-prevention programs such as burying power lines to reduce utility outages or building snow-load roofs, with consideration for uncalculated benefits such as averting environmental and business losses.

Objective 3. Structural Projects. Identify, fund, and implement measures, such as winterization retrofits to homes, critical facilities, transportation systems and infrastructure, to avert or reduce losses from winter storms. Provide additional protection, such as generators and emergency shelters, for agencies and facilities that serve vulnerable populations.

Objective 4. Property Protection. Identify, fund, and implement projects to protect people and public and private property from losses in winter storms.

Winter Storms

Objective 5. Emergency Services. Identify and expand emergency services for people who are at high risk in winter storms, such as the homeless, elderly, disabled, and oxygen-dependent people.

Objective 6. Natural Resource Protection. Evaluate options and take advantage of opportunities for sustainable winter-storm policies and programs to reduce negative environmental impacts; examples include programs for debris management, streets snow removal, tree trimming and replacement, energy conservation, and winterization.

Heat

GOAL: *To reduce heat-related illnesses, loss of life, and exacerbation of other hazards such as drought and expansive soils caused by extreme Heat conditions.*

Objective 1. Public Information and Education. Improve public awareness of extreme heat hazards and measures by which people can protect themselves, their property and their community.

Objective 2. Preventive Measures. Identify and protect people and critical infrastructure that are vulnerable to extreme heat conditions.

Objective 3. Structural Projects. Provide for necessary construction, renovation, retrofitting or refurbishment of city properties to protect vulnerable populations from the effects of extreme heat.

Objective 4. Property Protection. Implement construction and retrofitting measures to minimize the risk to public properties and their occupants caused by extreme heat.

Objective 5. Emergency Services. Ensure that a Heat Emergency Action Plan is followed and that heat alerts are issued in a timely manner. Establish or expand emergency services protocols that adequately address response scenarios in the event of extreme heat.

Objective 6. Natural Resources Protection. Ensure that extreme heat mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment, such as the creation and development of urban green spaces.

Drought

GOAL: *To reduce the impact of Drought on property, infrastructure, natural resources and local government response functions.*

Objective 1. Public Information and Education. Improve public awareness of drought and measures by which people can protect themselves, their property, and their community.

Objective 2. Preventive Measures. Identify and protect resources and critical infrastructure that are vulnerable to drought.

Objective 3. Structural Projects. Provide for necessary construction, renovation, retrofitting or refurbishment to protect vulnerable structures from the effects of drought.

Objective 4. Property Protection. Implement measures to minimize the risk to public property caused by drought events.

Objective 5. Emergency Services. Establish or expand emergency services protocols that adequately address response scenarios in the event of drought.

Drought

Objective 6. Natural Resource Protection. Ensure that Drought mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment.

Expansive Soil

GOAL: *To reduce the damage and economic losses caused by expansive soils on property and local infrastructure.*

Objective 1. Public Information & Education. Improve public awareness of expansive-soil hazards, with both general and site-specific information, and provide knowledge about available measures by which people can protect their property and their community.

Objective 2. Preventive Measures. Avoid expansive-soils locations, whenever possible. Explore options for loss-mitigation from expansive soils, including building codes and code-plus options. Examine expansive soils before building critical facilities and infrastructure.

Objective 3. Structural Projects. Identify and implement measures to reduce or avert expansive-soils damages and losses to structures and infrastructure, with emphasis on critical facilities and utilities.

Objective 4. Property Protection. Identify and protect resources and critical infrastructure that are vulnerable to expansive soils.

Objective 5. Emergency Services. Survey emergency and critical facilities for potential expansive-soil problems; repair and retrofit as needed; and consider soils when building emergency facilities.

Objective 6. Natural Resource Protection. Protect and enhance natural resources by adopting and implementing sustainable expansive-soils policies that have few or no negative impacts and have positive environmental effects whenever possible.

Urban Fire

GOAL: *To reduce the incidence of injuries, loss of life, and damage to property, equipment and infrastructure due to Urban Structure Fires.*

Objective 1. Public Information & Education. Improve public awareness of urban Fire hazards and measures by which people can protect themselves, their property and their community.

Objective 2. Preventive Measures. Identify and protect populations, structures, and critical infrastructure that are vulnerable to Urban Fires.

Objective 3. Structural Projects. Include structural fire considerations in the development of public buildings, schools, and community centers. Include infrastructure improvements that support effective firefighting.

Objective 4. Property Protection. Implement building materials and techniques in retrofitting or in new construction to minimize the risk to public property caused by urban structure fires.

Objective 5. Emergency Services. Establish or expand emergency services protocols that adequately address response scenarios in structure fire events, to include equipment, training, and exercise scenarios for high-impact events.

Objective 6. Natural Resource Protection. Ensure that urban fire mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment.

Wildfire	
GOAL: <i>To reduce injuries, loss of life, and damage to property, equipment and infrastructure caused by Wildfires.</i>	
Objective 1.	Public Information & Education. Improve public awareness of wildfire hazards and measures by which people can protect themselves, their property and their community.
Objective 2.	Preventive Measures. Identify and protect populations, structures, and critical infrastructure that are vulnerable to wildfires.
Objective 3.	Structural Projects. Include wildfire considerations in landscaping, public parks, and other properties that would fall into wildland-urban interface or other areas of wildfire risk. Include infrastructure improvements that support effective firefighting.
Objective 4.	Property Protection. Implement building materials and techniques in retrofitting or in new construction to minimize the risk to public property caused by wildfires.
Objective 5.	Emergency Services. Establish or expand emergency services protocols that adequately address response scenarios in wildfire events.
Objective 6.	Natural Resource Protection. Ensure that Wildfire mitigation policies have no negative impacts and, whenever possible, provide positive enhancements to the environment.

Earthquake	
GOAL: <i>To reduce injury, loss of life, and damage to property, equipment and infrastructure caused by Earthquakes.</i>	
Objective 1.	Public Information and Education. Improve public awareness of earthquake hazards and measures by which people can protect themselves, their property and their community.
Objective 2.	Preventive Measures. Identify and protect populations, structures, and critical infrastructure that are vulnerable to Earthquakes.
Objective 3.	Structural Projects. Provide for necessary construction, renovation, retrofitting or refurbishment to protect vulnerable structures from the effects of earthquakes.
Objective 4.	Property Protection. Implement building materials and techniques in retrofitting or in new construction to minimize the risk to public properties and their occupants caused by earthquakes.
Objective 5.	Emergency Services. Establish emergency services protocols that adequately address response scenarios in the event of earthquake.
Objective 6.	Natural Resource Protection. Take advantage of opportunities for earthquake programs and policies that reduce negative environmental impacts. Examples include sustainable programs for debris management and recycling, and fortified construction with environmentally friendly materials.

Hazardous Materials, Fixed Site	
GOAL: <i>To reduce the incidence of injuries and loss of life and the negative impact on the County and the environment due to Fixed Site Hazardous Material incidents.</i>	
Objective 1.	Public information & education. Improve public awareness of Fixed Site Hazardous Material incidents and measures by which people can protect themselves and their community.
Objective 2.	Preventive measures. Identify and protect populations and critical infrastructure that are vulnerable to Fixed Site Hazardous Material incidents.
Objective 3.	Structural Projects. Provide for necessary construction, renovation, retrofitting or refurbishment to protect against Tier 2 releases of hazardous chemicals in appropriate government buildings.
Objective 4.	Property Protection. Implement building materials and techniques in retrofitting or in new construction to minimize the risk to their occupants caused by hazardous materials.
Objective 5.	Emergency services. Identify needs for and implement additional emergency operations plans and services in areas at high risk of Fixed Site HazMat events, including emergency alerts and evacuation plans.
Objective 6.	Natural resource protection. Identify and limit the damage that Fixed Site Hazardous Material incidents have on the environment

Dam and Levee Break	
GOAL: <i>To reduce injuries and loss of life; trauma; damage to property, equipment, critical facilities, and infrastructure; community disruption; and economic, environmental, and other losses caused by partial or total dam and levee failures.</i>	
Objective 1.	Public information & education. Improve public awareness of dam and levee break hazards, in general and at specific high-risk locations; and give people knowledge about measures they can use to protect themselves, their property, and their community.
Objective 2.	Preventive measures. Expand mapping, regulations, and loss-prevention programs in areas with high risks, including extension of flood insurance regulations behind high-risk levees; updated risk mapping downstream of high-risk dams; and pre-disaster evacuation and hazard-mitigation programs.
Objective 3.	Structural projects. Analyze safety of existing high-risk dams and levees, including maintenance programs and funding; and implement highest-priority measures to strengthen the structures and reduce risks.
Objective 4.	Property protection measures. Identify and protect people, structures, critical facilities, and critical infrastructure that are vulnerable to dam and levee break hazards.
Objective 5.	Emergency services. Identify needs for and implement additional emergency operations plans and services in areas at high risk to dam and levee breaks, including additional prediction and forecasting capability, emergency alerts, and evacuation plans.
Objective 6.	Natural resource protection. Protect and enhance natural resources by adopting and implementing sustainable dam and levee break policies that have few or no negative impacts and have positive environmental effects whenever possible. Include analysis of downstream impacts on environment and wildlife in dam and levee planning.

Transportation

GOAL: *To reduce the incidence of injuries and loss of life and the negative impact on public infrastructure and the environment due to Transportation-related hazardous material incidents and other Transportation incidents with the potential for causing mass casualties.*

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| Objective 1. | Public information & education. Improve public awareness of transportation incidents and measures by which people can protect themselves and their community. |
| Objective 2. | Preventive measures. Identify and protect populations and critical infrastructure that are vulnerable to transportation incidents. |
| Objective 3. | Structural projects. Provide for necessary construction, renovation, retrofitting or refurbishment to protect against releases of hazardous chemicals in government buildings and critical facilities located in transportation corridors. |
| Objective 4. | Property Protection. Implement building materials and techniques in retrofitting or in new construction to minimize the risk to their occupants caused by transportation accidents. |
| Objective 5. | Emergency services. Identify needs for and implement additional emergency operations plans and services to facilitate response to potential mass casualty transportation incidents, including emergency alerts, evacuation plans, and exercises. |
| Objective 6. | Natural resource protection. Protect and enhance natural resources by adopting and implementing sustainable policies that have few or no negative impacts and have positive environmental effects whenever possible. Include analysis of downstream impacts on environment and wildlife in potential transportation incidents. |