

4.0 MITIGATION STRATEGY

Specific mitigation goals and projects were developed for Cavalier County in conjunction with the public meeting held in Langdon and stakeholder interviews. A matrix developed for project ranking that emphasized cost-benefit and input from local officials was used to determine project prioritization. Following is a description of goals and objectives used to mitigate natural and technological hazards that builds on the community's existing capabilities. Project implementation and legal framework are discussed at the conclusion of this section.

4.1 LOCAL HAZARD MITIGATION GOALS

The plan goals describe the overall direction that Cavalier County agencies, organizations, and citizens can take to work toward mitigating risk from natural and technological hazards. Goals and objectives of the plan were developed during interviews and meetings with public officials and at the public meeting held in Langdon.

- Reduction of hazardous materials Incidents
- Reduction of impact of floods on roads, culverts, bridges
- Improved water runoff within populated areas, ditches, fields
- Reduction of fuel around structures
- Improve public awareness of summer and winter storms
- Identification of potable sources of water
- Improved distribution of critical materials during times of shortages

Special Note: Cavalier County has re-emphasized its role in the development of civil disorder/terrorism in the wake of 9-11. Although it is still analyzed as a low risk hazard, Cavalier County recognized its role to initiate and prepare for the threats of terrorism.

4.2 MITIGATION OBJECTIVES AND ACTIONS

The broad range of potential mitigation activities presented were considered, and below is a list of mitigation objectives and the actions (projects) identified by the Cavalier County. Although these projects may not be eligible for FEMA funding, counties may secure alternate funding sources to implement these projects in the future.

General: This list is designed to give Cavalier County a tool in project management and coordination. It isn't the job of the Emergency Manager to DO the project, just to be a coordinator or facilitator in the project management process.

Responsibility: During the risk analysis phase of the multi-hazard mitigation plan, the Emergency Manager has the lead in coordinating with all appropriate agencies to facilitate the planning process; however, once a hazard has been identified for mitigation, the Emergency Manager steps back from the leadership role and assumes the role of team participant. The lead role in project development should shift to the county department or the city department responsible for project management, such as the engineering department.

Purpose: The purpose of this appendix is to provide a visible record of the coordination completed by the Emergency Manager. Other departments have their own specific requirements.

Procedure: Complete a form for each identified hazard mitigation effort, whether a funding decision is made or not. Use the form too periodically (quarterly) document activity (or lack thereof) in reference to the specific project. Once the project is complete, remove it from the appendix and file as needed for historical purposes. Do not remove any project identified until it has been completed.

Process: Cavalier County and city officials have been through ten years of disaster declarations. Through that process they have become experts in determining the potential impact of many of the categories involved. Additional support was given by North Dakota State University and the Department of Emergency Services, as well as consulting with neighboring counties to determine the most appropriate course of action.

NOTE: Cavalier County is not limited to the information list that follows. Include anything you believe to be pertinent to provide a single source reference to project management

Table 4-1 CAVALIER COUNTY MITIGATION PROJECTS

TAB LE 4- 1							
CA VAL IER COU NTY MITI GAT ION PRO JECT S							
#	Project	Affected Jurisdictions	Hazard Mitigated	Lead Agency	Funding Sources	Cost	Timeframe
1	Replace Montross Township Culvert Block	Montrose Township Milton City	Flooding	Road Department	Township Mill Levy Milton Harvest States	10K	1 year

2	Drain Cleaning Program to prevent flooding of homes	Land Owners of Benefitted Acres	Flooding	Water Board	Assessment to individual land owners	15K	Yearly
3	Mount Carmel Dam – Repair, remediation, and maintenance	County and Water Board	Dam Failure Flooding	NRCS/Water Board	Grants & Loans	1.3 M	Continual
4	Vacating township or upgrade low maintenance roads	Langdon, Munich, Osnabrock, Milton, Alsen, Sarles, Nekoma, Hannah, Wales, Calio, Calvin, and Loma	Severe Snow Flooding	Twp. Cavalier County Commission Road Department	Townships	5K	2 years
5	Langdon Trailer Park –Storm Protection(fences), weather alerting	Langdon City	Severe Summer/ Winter Storm	Private Owners	Private Owners	25K	3 years
6	Bridge replacement Mulberry Creek NW at Langdon Wales Bridge	Dresden Township, City of Dresden, City of Wales	Flooding	Road Department	County	250K	5 years
7	Weaver Road – Replace with 3 larger culverts	Banner Township	Flooding	Road Department	Township & County	40K	3 years
8	SW corner Devils Lake Basin restoration prevent flooding	Langdon Owners, Waterboard & County	Flooding	Water Board	County Mill Levy on land owners	100K	7 years
9	Purchase load restriction signs	All Townships & County	Flooding	Road Department	County	25K	2 years
10	Calio grade raise and rip rap 5 sites	Bruce Township	Flooding/Winter Storm	Road Department	County & Township	60K	2 years
11	Darling Bridge needs to be maintained and repaired or replaced due to high water levels	County & Fremont Township	Flooding	Road Department	County, State, Highway Department & FEMA	165K	5 years

4.2.1 OTHER RECOMMENDED ACTIONS

Identified Hazard Mitigation Projects: Section 4.2.1 identifies the pre-disaster hazard mitigation project management list. The development and implementation of mitigation measures for every hazard identified in this plan attempts to include a comprehensive range of activities in one or more of the following areas:

- Prevention
- Property protection
- Natural resource protection
- Structural projects
- Emergency services

Public information

4.2.2 CAPABILITIES OF CAVALIER COUNTY AGENCIES

Local Mitigation Capabilities

A. Cavalier County Emergency Management

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions.)
 - a. Coordinate emergency planning and response activities with numerous Cavalier County agencies. Planning encompasses preparedness, response, recovery, and mitigation.
 - b. Responsible for everyday operations of the county's Emergency Operations Center.
 - c. Responsible for Cavalier Countywide communications system through Cavalier County Dispatch Center including radio and telephone systems. (also offer technical and administrative assistance to other Cavalier County agencies in this area)
 - d. Update and exercise emergency operations and mitigation plans.
 - e. Coordinate state sponsored training for Cavalier County agencies including; law enforcement, public health, social services, fire departments, emergency medical services, etc.
 - f. Coordinate the county's Local Emergency Planning Committee. (meets quarterly)
 - g. Coordinate the county's Tier Two reporting. (hazardous materials)
 - h. Public awareness and educational programs via newspapers, radio, and schools to decrease vulnerability to hazards.
 - i. Work with schools and local businesses to help create site specific hazard response plans and present in-service education to local business employees.
 - j. Responsible for timely and effective public information releases during emergency situations.
 - k. During a disaster declaration, emergency management has all Cavalier County resources at their disposal including manpower, communications, and equipment.
 - l. With effective planning, training, and exercising, emergency management can help to mitigate potential hazards within the county.
 - m. Assist in damage assessment and coordinate with state and federal agencies for recovery assistance.

2. Responsibility and authority in the regulating, inspecting, or funding of projects:
 - a. In coordination with Cavalier County Economic Development, assist with applications for federal and state funding such as the Hazard Mitigation Grant Program.
 - b. Involved with inspecting hazardous material storage sites and fulfilling Tier Two reporting requirements.
 - c. Participate in dam inspections with the Army Corp of Engineers.

1. Leadership and coordination with other government agencies:

- a. Local Agencies: Cavalier County Emergency Management coordinates with appropriate local agencies to ensure preparedness, response, recovery, and mitigation. These agencies include Cavalier County Commissioners, Cavalier County District Health, Cavalier County Road Department, Cavalier County Sheriff Department, and various other law enforcement, fire, communication, and emergency medical agencies.
- b. Non-local Agencies: Cavalier County Emergency Management coordinates with numerous state and federal agencies. These agencies include the North Dakota Department of Emergency Services, North Dakota Highway Patrol, State Health Department, Department of Transportation, and Federal Emergency Management Agency.

4. General recommendations/Emergency Management concerns:

- a. Provide listings of eligible mitigation projects so counties can be prepared when funds become available.
- b. Warning systems and sirens are outdated and inadequate. At this time, funding is not available for improvements.
- c. Cavalier County is constantly striving to improve planning and exercise activities and response capabilities. However, with Cavalier County becoming more rural, the threat of potential hazards increases, which increases the need for resources, training, and awareness.
- d. Zoning requirements for flood plain management need to be enforced.

B. Cavalier County Highway Department

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions)

a. Design bridges, culverts, and overflow sections. Cavalier County is working to reduce the total number of bridges by either eliminating them entirely or removing the structures and using a "low water crossing" on lower service roads only. Cavalier County Highway Department follows a very detailed list of design standards for all projects within the county.

b. Continually working with the Department of Transportation on various projects since the DOT dispenses federal funding. While the DOT provides technical advice concerning guidelines and standards, they do not provide equipment, materials, or personnel.

2. Responsibility and authority in the regulating, inspecting or funding of projects:

a. Responsible for and have authority to regulate and inspect all projects completed within the county.

b. All projects funded by the state or federal government are designed by a consulting engineer and meet the usual acceptable federal standards. Inspection of federal aid projects is the responsibility of the consulting engineering company and is overseen by Cavalier County to ensure standards are met. Many Cavalier County projects are designed with in-house expertise and engineers are consulted if problems arise.

c. All funding in one way or another comes through the county, whether it is a certain percentage of the federal aid project or 100% of Cavalier County projects.

3. Leadership and coordination with other government agencies:

a. Local Agencies: Cavalier County Highway Department has little interaction with other Cavalier County agencies concerning roads and bridges. They do, however, coordinate with various Cavalier County agencies concerning right of way and right of way purchasing. The legal aspect of right of way purchasing is overseen by the States Attorney's Office. The land values are usually developed by the Tax Equalization Office and approved by Cavalier County Commission.

b. Non-local Agencies: Cavalier County Highway Department coordinates with various State and Federal agencies for technical assistance, permitting, environmental concerns, archeological sites, and cultural issues. These agencies include the North Dakota Department of Transportation, US Fish and Wildlife, Corp of Engineers, and the North Dakota Historical Society.

4. General recommendations/Emergency Management concerns:

a. Cavalier County Highway Department should assist local government with floodplain management and water development permitting.

C. Cavalier County Health District

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions)

a. Deal with bona fide health hazards using cause and effect in those areas for both mitigation and risk reduction. If it is a hazard affecting any number of persons and within the scope of public health,

Cavalier County District Health will mitigate or exercise risk reduction through several methods ranging from enforcement of statutes to immunization programs.

b. Environmental Health has the knowledge and also access to the State Health Department for mitigation of incidents with hazardous or toxic wastes.

c. Programs include; waste water treatment, water pollution, public health nursing, immunization programs, solid waste regulation, food establishment inspections, air quality, and vector control.

2. Responsibility and authority in the regulating, inspecting or funding of projects.

a. Cavalier County District Health is a unit of state government that operates through agreements or Memorandums of Understanding with the North Dakota Department of Health to enforce state public health statutes within the five Cavalier County districts. Tax levies provide funding. There are no funding programs for non-operational programs.

3. Leadership and coordination with other government agencies:

a. Local Agencies: Within the scope of public health, Cavalier County District Health coordinates with the following local agencies; Cavalier County Emergency Management, local law enforcement agencies(city and county), local school boards, and planning and zoning agencies.

b. Non-local Agencies: Within the scope of public health, Cavalier County District Health coordinates with the following agencies; North Dakota Department of Health and state and federal law enforcement agencies.

4. General recommendations/Emergency Management concerns:

a. Public Health is normally under funded and understaffed at all levels of government. Should Cavalier County District Health be called upon for expertise at a time of emergency or disaster, it normally does not have instrumentation for site level determinations of any kind without support from other agencies.

b. Public health agencies should be included in equipment storage; e.g., FEMA equipment "stored" and used at public health agencies, rather than being stored at a warehouse. For example, radio equipment that belongs to FEMA is based at Cavalier County emergency management offices; the same could be done with air sampling equipment or other instruments/kits etc., which could be used by public health agencies both for daily work and at a time of emergency or disaster.

D. Cavalier County Sheriff's Department

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions.)

- a. Responsible for law enforcement and criminal investigation in unincorporated areas of Cavalier County and in smaller towns that do not have police departments.
- b. Provide 911 emergency operations through its involvement with Lake Region Dispatch.
- c. Provide standard law enforcement manpower and equipment
- d. In disaster situations, provide; warning, rescue assistance, evacuation assistance, security, traffic control, and information assistance.
- e. Coordinate the necessary resources to obtain a dive rescue team.
- f. Provide public awareness and educational programs. (911 education, safe kids program, etc.)
- g. Have mutual aid agreements with all surrounding counties and the North Dakota State Highway Patrol.

2. Responsibility and authority in the regulating, inspecting, or funding of projects:

None

3. Leadership and coordination with other government agencies:

- a. Local Agencies: Within the scope of law enforcement, Cavalier County Sheriff's Department coordinates with various local agencies. These agencies include Cavalier County Emergency Management and various local police departments.
- b. Non-local Agencies: Cavalier County Sheriff's Department coordinates with appropriate state and federal agencies including; North Dakota Highway Patrol, North Dakota Attorney Generals Office, Bureau of Criminal Investigation, North Dakota State Radio, North Dakota Department of Transportation, and Federal Bureau of Investigation.

4. General recommendations/Emergency Management concerns:

- a. Explore funding resources to upgrade technology such as; mobile data terminals, computers, etc.
- b. Upgrade communication integration among other state and federal agencies. (information sharing)

E. City/Rural Fire Departments

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions.)

- a. Respond to fires in order to protect lives, limit injuries, and minimize damage to property and the environment.
- b. Respond to accidents in order to provide rescue assistance.
- c. Assist Emergency Medical Services in providing emergency assistance to sick and injured. (first responders)
- d. Provide standard firefighting manpower and equipment.
- e. Respond to spills and releases of hazardous materials and assist in mitigating the detrimental human and environmental effects of these occurrences.
- f. Respond to emergencies resulting from natural occurrences such as storms, floods, etc., and assist

in mitigating the detrimental results of these occurrences.

- g. Provide training for department members that enable them to effectively and efficiently carry out their respective duties and responsibilities.
- h. Develop and provide educational programs that promote the prevention of fires and encourage fire-safe and fire-smart activities.
- i. Assist in enforcement of city fire ordinances.
- j. Fire investigation.
- k. Inspect and certify alarm systems, fire extinguishers, etc.
- l. Assist with the county's tier two reporting. (Hazardous materials storage sites)
- m. In disaster situations, provide assistance in warning, rescue, evacuation, and situation updates.

2. Responsibility and authority in regulating, inspecting, or funding of projects:

None

3. Leadership and coordination with other government agencies:

- a. Local Agencies: In efforts to decrease vulnerability to hazards, the City Fire Department coordinates with various local agencies. These agencies include Cavalier County Emergency Management, Cavalier County Sheriff's Department, Rural Fire Departments, Cavalier County Public Works, and various local EMS agencies.
- b. Non-local Agencies: North Dakota State Fire Marshal and the Federal Emergency Management Agency.

4. General recommendations/Emergency Management concerns:

- a. City/rural fire departments do not have the training or equipment to safely respond to hazardous material incidents or heavy industrial accidents. (such as the Burlington Northern Santa Fe Railroad)
- b. Only one career firefighter is on duty on a 24-hour basis, which is inadequate for optimal emergency response. Also, volunteer firefighters' access to stations is sometimes difficult during severe weather situations.
- c. Explore funding resources for the above concerns.

F. Cavalier County Extension Service

1. Mitigation and Risk Reduction: (including agency's role, capabilities, and programs that support mitigation actions.)

- a. Cavalier County Extension Service is linked in a unique partnership with North Dakota State University to provide practical, research-based information and educational programs to address critical issues facing individuals, families, agricultural producers, business operators, and communities.
- b. Cavalier County Extension Agents serve as subject-matter experts, educational planners, adult and youth teachers and community facilitators in several areas including agriculture and natural resources, horticulture, family and consumer sciences, 4-H and youth community development.
- c. Provide planning, designing, implementing, and evaluating of educational programs for livestock and forage producers.
- d. Areas of responsibility include beef and dairy cattle, swine, other livestock, water quality, waste management, and forages.
- e. Provide programming for Cavalier County citizens in the areas of family financial management, environmental concerns, housing, health and wellness, aging, foods and nutrition, parenting, and human development.

- f. Serve as an information resource in dealing with drought, winter storms, summer storms etc. in relation to agriculture, environment, water resources, etc.
 - g. Assist with damage assessment related to agriculture.
2. Responsibility and authority in regulating, inspecting, or funding of projects:
- a. Authority is at federal level.
3. Leadership and coordination with other government agencies:
- a. Local Agencies: Cavalier County Emergency Management and Cavalier County Health District.
 - b. Non-local Agencies: North Dakota State University, North Dakota State Health Department, United States Department of Agriculture, and Farm Service Agency.
4. General recommendations/Emergency Management concerns:
- a. Urban development taking over agricultural lands.

OTHER AGENCY RESOURCES

Mitigation and risk reduction:

Rural Water District: Manage the lower heart floodplain (dike system). Provide engineering expertise, supply sandbags and pumps.

Cavalier County Social Services: Temporary assistance to needy families, food stamps, medically needy programs, adult services, homeless assistance, family planning, etc.

Langdon Fire Department: General fire suppression, rescue, no hazardous materials response, public awareness and educational programs.

Langdon Ambulance Service: Emergency response, patient care, transport, and public awareness programs.

Army Corps of Engineers: Water and dam management within the county. Provide technical expertise, sandbags, and heavy equipment.

North Dakota Highway Patrol: Situation and damage assessment; provide transportation resources for movement of state personnel, supplies, and equipment to include air and ground reconnaissance; traffic control.

State Fire Marshal: Hazmat route utilization; hazmat technical assistance; situation and damage assessment.

North Dakota Forestry Service: Debris removal from recreational facilities; technical assistance; situation and damage assessment.

North Dakota Game and Fish: Technical assistance; debris removal from recreational facilities; facility improvements; situation and damage assessment.

State Radio Communications: Exercise readiness of warning systems and communication support.

Department of Agriculture: Assists with situation and damage assessment; coordination with USDA; hazmat technical assistance; state land use program.

Job Service: Situation assessment and administration of disaster unemployment assistance programs.

Human Services: Ensure liaison with private relief agencies for disaster victims.

State Historical Society: Project screening and situation assessment._

4.3 PROJECT RANKING AND PRIORITIZATION

Evaluation: A pre-disaster mitigation plan will be accomplished annually through an internal review process. Additionally each project has been evaluated utilizing common sense approaches such as the STAPLEE process. The process is only utilized to determine if the project is viable. The Cavalier County Emergency Manager will make a performance review for each hazard within the plan for updating purposes. Additions to the multi-hazard mitigation plan will be added to the yearly work plan of the Cavalier County Emergency Manager. All disaster or emergency incidents will be evaluated for general/specific mitigation recommendations to be added to the plan.

Table 4-2 STAPLEE process is:

- Socially Acceptable
- Technically Feasible
- Aministratively Possible
- Politically Acceptable
- Legal
- Environmentally Sound
- Economical (Cost/Benefit)

Each area receives a yes or no rating.

A cost-benefit matrix was developed to rank the mitigation projects using the following criteria. Each project was assigned a “high”, “medium”, or “low” rank for *Population Impacted*, *Property Impacted*, and *Cost*. For the *Population Impacted* category, a “high” rank represents greater than 50 percent of Cavalier County residents; a “medium” rank represents 20 to 50 percent of Cavalier County residents; and a “low” rank represents less than 20 percent of Cavalier County residents. For the *Property Impacted* and *Project Cost* categories, a “high” rank represents greater than \$500,000, a “medium” rank represents between \$100,000 and \$500,000, and a “low” rank is less than \$100,000. The matrix was completed by assigning each rank a numeric value as follows:

Table 4-3 COST-BENEFIT SCORING MATRIX			
	Population Impacted	Property Impacted	Cost
High	7	7	1
Medium	5	5	5
Low	1	1	7

	STA PL EE Rank ing							Cost/ Ben efit Ranki ng				
Project	S	T	A	P	L	E	E	Pop	Prop	Cost	Rank	Score
1	X	X	X	X	X	X	X	1	1	7	9	Low
2	X	X	X	X	X	X	X	1	1	7	9	Low
3	X	X	X	X	X	X	X	7	5	7	19	High
4	X	X	X	X	X	X	X	1	1	7	9	Low
5	X	X	X	X	X	X	X	5	1	7	13	Medium
6	X	X	X	X	X	X	X	5	5	7	17	High
7	X	X	X	X	X	X	X	1	5	7	13	Medium
8	X	X	X	X	X	X	X	7	5	7	19	High
9	X	X	X	X	X	X	X	1	5	7	13	Medium
10	X	X	X	X	X	X	X	5	1	7	13	Medium
11	X	X	X	X	X	X	X	5	5	7	17	High