

Codington County Pre-Disaster Mitigation Plan 2012-2016



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For: Federal Emergency Management Administration

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CHAPTER 1 INTRODUCTION

CHANGES/REVISIONS TO INTRODUCTION AND COMMUNITY PROFILE:

- The 2004 PDM Background, Authority, Funding Source, Purpose, Scope of Plan, and Methodology were either eliminated or revised as the previous information all fell under one or more of the following categories: outdated, not required, lacked purpose, or covered or further explained in another section of the plan. Use of Plan, Scope of Plan, and What is Hazard Mitigation were added to the Introduction.
- Additionally for organization purposes, the County Profile section was included in the Introduction rather than written as a separate Chapter of the plan. Changes were made to the County Profile as some elements such as population have changed since the 2004 draft was written.

INTRODUCTION

Codington County (County) is vulnerable to natural hazards that have the possibility of causing serious threat to the health, welfare, and security of our citizens. The cost of response and recovery, in terms of potential loss of life or loss of property, from potential disasters can be lessened when attention is turned to mitigating their impacts and effects before they occur or re-occur.

This plan is an update of the Pre-Disaster Mitigation Plan (PDM) that was developed by the County in 2004. The document will serve as a strategic planning tool for use by the county and its communities in its efforts to mitigate against future disaster events. The plan identifies and analyzes the natural disasters that may occur in the County in order to understand the county's vulnerabilities and propose mitigation strategies that minimize future damage caused by those hazards. This knowledge will help identify solutions that can significantly reduce threat to life and property. The plan is based on the premise that hazard mitigation works. With increased attention to mitigating natural hazards, communities can do much to reduce threats to existing citizens and avoid creating new problems in the future. In addition, many mitigation actions can be implemented at minimal cost.

This is not an emergency response or emergency management plan. Certainly, the plan can be used to identify weaknesses and refocus emergency response planning. Enhanced emergency response planning is an important mitigation strategy. However, the focus of this plan is to support better decision making directed toward avoidance of future risks and the implementation of activities or projects that will eliminate or reduce the risk for those that may already have exposure to a natural hazard threat.

AUTHORITY FOR PRE-DISASTER MITIGATION PLAN

In October of 2000, the Disaster Mitigation Act (DMA2K) was signed to amend the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act. Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a pre-disaster mitigation (PDM) plan in place that:

1. Identifies hazards and their associated risks and vulnerabilities;
2. Develops and prioritizes mitigation projects; and
3. Encourages cooperation and communication between all levels of government and the public.

The objective of this plan is to meet the hazard mitigation planning needs for the County and participating entities. Consistent with the Federal Emergency Management Agency's guidelines, this plan will review all possible activities related to disasters to reach efficient solutions, link hazard management policies to specific activities, educate and facilitate communication with the public, build public and political support for mitigation activities, and develop implementation and planning requirements for future hazard mitigation projects.

PURPOSE

The County PDM is a planning tool to be used by the County, as well as other local, state and federal units of government, in their efforts to fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the county are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, economy, environment, or the well-being of the County. This plan will aid city, township, and county agencies and officials in enhancing public awareness to the threat hazards have on property and life, and what can be done to help prevent or reduce the vulnerability and risk of each County jurisdiction.

USE OF PLAN

The plan will be used to help the county and communities and their elected and appointed officials:

- Plan, design and implement programs and projects that will help reduce their community's vulnerability to natural hazards
- Facilitate inter-jurisdictional coordination and collaboration related to natural hazard mitigation planning and implementation.
- Develop or provide guidance for local emergency response planning.
- Be compliant with the Disaster Mitigation Act of 2000.

SCOPE OF PLAN

- Provide opportunities for public input and encourage participation and involvement regarding the mitigation plan.
- Identify hazards and vulnerabilities within the county and local jurisdictions.
- Combine risk assessments with public and emergency management ideas.

- Develop goals based on the identified hazards and risks.
- Review existing mitigation measures for gaps and establish projects to sufficiently fulfill the goals.
- Prioritize and evaluate each strategy/objective.
- Review other plans for cohesion and incorporation with the PDM.
- Establish guidelines for updating and monitoring the plan.
- Present the plan to the Codington County Commissioners and the participating communities within the county for adoption.

WHAT IS HAZARD MITIGATION?

Hazard mitigation is defined as any cost-effective action(s) that has the effect of reducing, limiting, or preventing vulnerability of people, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life and property, fall into three categories. First are those that keep the hazard away from people, property, and structures. Second are those that keep people, property, and structures away from the hazard. Third are those that do not address the hazard at all but rather reduce the impact of the hazard on the victims such as insurance. This mitigation plan has strategies that fall into all three categories.

Hazard mitigation measures must be practical, cost effective, and environmentally and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages.

The primary focus of hazard mitigation actions must be at the point at which capital investment decisions are made and based on vulnerability. Capital investments, whether for homes, roads, public utilities, pipelines, power plants, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to hazard vulnerability. It is for these reasons that zoning and other ordinances, which manage development in high vulnerability areas, and building codes, which ensure that new buildings are built to withstand the damaging forces of hazards, are often the most useful mitigation approaches a jurisdiction can implement.

Previously, mitigation measures have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management. Hazard mitigation is the key to eliminating long-term risk to people and property in South Dakota from hazards and their effects. Preparedness for all hazards includes: response and recovery plans, training, development, management of resources, and mitigation of each jurisdictional hazard.

This plan evaluates the impacts, risks and vulnerabilities of natural hazards within the jurisdictional area of the entire county. The plan supports, provides assistance, identifies and describes mitigation projects for each of the local jurisdictions who participated in the plan update. The suggested actions and plan implementation for local governments could reduce the impact of future natural hazard occurrences. Lessening the impact of natural hazards can prevent such occurrences from becoming disastrous, but will only be accomplished through

coordinated partnership with emergency managers, political entities, public works officials, community planners and other dedicated individuals working to implement this program.

CODINGTON COUNTY PROFILE

Population

Codington County is in northeastern South Dakota. The county has a geographic area of 720 square miles and its Census 2010 population was 27,227, which averages to 37.8 persons per square mile. Just over fifteen percent of the population is older than age 65. Education levels of persons include eighty-eight percent high school graduates and twenty-two percent college level.

The county seat is Watertown, which is situated at the intersection of US Highway 81 and US Highway 212. Table 1.1 shows the population and number of housing units of the county's municipalities. Table 1.2 lists the seventeen County Townships by population. The County has continued to experience population growth since 1930. This is due primarily to the growth of the City of Watertown, which serves as the governmental, employment and trade center for the county and region.

Table 1.1: Codington County Municipalities

Name	Population	Location	Elevation	Housing Units
Florence	374	45 03' 20" N 97 19' 34" W	1,768 feet	146
Henry	267	44 52' 51" N 97 27' 46" W	1,790 feet	106
Kranzburg	172	44 53' 11" N 96 54' 36" W	1,960 feet	64
South Shore	225	45 06' 06" N 96 55' 49" W	1,980 feet	99
Wallace	85	45 05' 06" N 97 28' 39" W	1,770 feet	42
Watertown	21,482	44 54' 45" N 97 10' 00" W	1,739 feet	10,050
Unincorporated Areas	4,622	44 57' 30" N 97 11' 11" W		1,890
Codington County	27,227	44 57' 30" N 97 11' 11" W		12,397

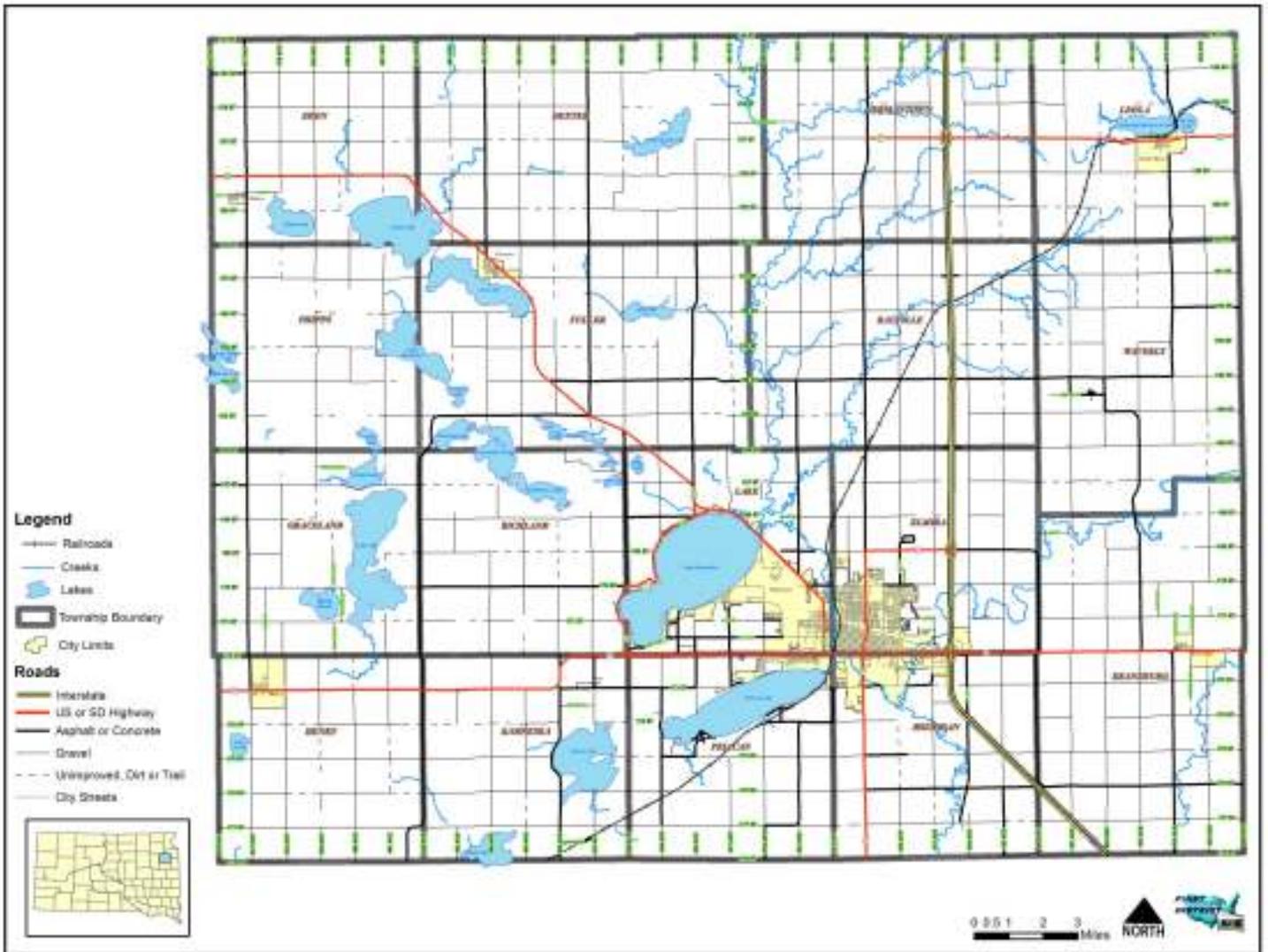
Source: 2010 Census, www.Lat-Long.com, www.usbeacon.com

Table 1.2: Codington County Townships

Township	Population	Township	Population
Dexter	194	Lake	646
Eden	98	Leola	74
Elmira	442	Pelican	718
Fuller	281	Phipps	75
Germantown	165	Rauville	282
Graceland	105	Richland	154
Henry	94	Sheridan	433
Kampeska	321	Waverly	189
Kranzburg	351		

Source: 2010 Census

Figure 1.1 Political Map



Social and Economic Description

The County's economy is dependent upon its agricultural and manufacturing sectors. Most non-agricultural employment is in manufacturing, education, health care, or service industries. Watertown is the governmental, employment and retail hub for the county and region. The remaining rural communities in the County serve as bedroom communities to Watertown and provide "small town" atmosphere to those residents. A large majority of the residents within these communities commute to Watertown or other employment centers. Most of the communities have limited retail and service sectors which provide basic needs to its residents. Florence, Henry, and the unincorporated community of Waverly also have K-12 elementary/secondary schools.

Physical Description and Climate

A majority of the land area within the County is very lightly settled (less than 7 persons per square mile in the unincorporated areas of the county) with most of the land consisting of grassland, pasture and cropland.

The topography of the County is mostly flat to undulating. The County's elevation has a range of approximately 1,740 feet above sea level to approximately 1,980 feet above sea level. The northeast corner of the county drains to the east, through the North Fork of the Yellow Bank River, and then into the Minnesota River. The remainder of the county drains into the Big Sioux River which divides the county: approximately forty percent lies east of the river and sixty percent to the west. The valley of the Big Sioux River is a gently undulating outwash from two to twelve miles wide. It is not uncommon for the Big Sioux River to experience minimum stream flow in the County during some winter and late summer months. Conversely, during wet years, the Big Sioux can accumulate enough moisture so as to cause flooding conditions, as was the case in 1997, 2001 and 2011. The headwaters for the Big Sioux River are found approximately forty miles north of the County. The river flows in a southerly direction. Contained within the drainage pattern are twenty-one meandered lakes including Lake Pelican and Lake Kampeska. Lake Kampeska has approximately 5,000 surface acres.

The County's climate is considered Mid-Continental with hot summers and cold winters. Normal summer temperatures are eighty degrees Fahrenheit and winter temperature twenty-one degrees (about twelve degrees in January). Average annual precipitation is twenty inches (approximately eighty percent of the precipitation falls between the months of April and September), and the average annual snowfall is twenty-four inches, although as much as eighty inches and as little as five inches have fallen annually. Due to the strong winds that usually accompany the snowfall, it is common to find open fields bare while snow piles up in the sheltered areas.

Transportation and Utility Infrastructure

The County has a total of one thousand one hundred thirty-two (1,132) total miles of roads split amongst one interstate, I-29, two federal highways, US 81 & US 212, one state highway, SD 20, its county highways, as well as the road systems in seventeen townships and eight towns (6 incorporated, 2 unincorporated). The high pressure large diameter Northern Border Natural Gas line, and Magellan gas line pass through the county along with many high tension power lines, both AC and DC circuits. Figure 1.1 shows the county's municipalities and road network. The Burlington Northern Santé Fe railroad runs from the northeast corner of the county to the southwest. The City of Watertown has a commercial service airport. Commercial Service Airports are publicly owned airports that boarded at least 2,500 passengers each calendar year and receive scheduled passenger service.

The cities of Watertown and South Shore have their own water systems, while Sioux Rural Water, Clark Rural Water and Grant-Roberts water systems serve rural households in the county, including the residents of Florence, Henry, Kranzburg, South Shore, and Wallace. Watertown's water comes from well fields located a few miles north of the city. Regarding wastewater disposal, all of the municipalities within the County have municipal wastewater collection and treatment systems. Rural residences rely on individual septic tanks and drainfields. The density of septic systems and their potential to cause water contamination is an environmental concern. Although residential growth is not expected to be significant in the county, new developments need to be controlled through planning and development guidelines. Electric power is provided to rural county residents and people in the communities by the Codington-Clark Electric Cooperative, Northwestern Energy and Otter Tail Power. Watertown operates its own municipal power system. The primary telephone companies serving the County's rural population are ITC Telecommunications and RC Technologies. Cellular phone service is available in most parts of the county, but there are still places in the county where signals are weak.

Medical and Emergency Services

The primary medical facility in the county is the Prairie Lakes Health Care System, a regional health care facility which has an eighty-one bed maximum capacity. The facility has the capacity to provide basic services, emergency procedures, critical care and other advanced services. Watertown has full-time fire and ambulance department. Florence, Henry, and South Shore have fully operational fire departments. All three departments are staffed by volunteers, and respond to both structural and wildland fires. South Shore also has an ambulance service.

CHAPTER 2 PREREQUISITES

CHANGES/REVISIONS TO PREREQUISITES:

- The Prerequisites section is entirely new to the Codington County PDM as it is required by the 2008 Crosswalk, but did not exist in the 2004 draft.

ADOPTION BY LOCAL GOVERNING BODY

The local governing body that oversees the update of the Codington County Pre-Disaster Mitigation Plan is the Codington County Board of Commissioners. The Commission has tasked the Codington County Emergency Management Office with the responsibility of ensuring that the PDM is compliant with Federal Emergency Management Agency (FEMA) Guidelines and corresponding regulations.

MULTI-JURISDICTIONAL PLAN PARTICIPATION

This plan is a multi-jurisdictional plan which serves the entire geographical area located within the boundaries of Codington County, South Dakota. The County has six incorporated municipalities. All of the incorporated municipalities located within the County elected to participate in the planning process and the update of the existing PDM. The participating local jurisdictions include the following municipalities:

Table 2.1: Plan Participants

Continuing Participants	Do Not Participate*
Florence	Kampeska Village
Henry	Grover Village
Kranzburg	Rauville Village
South Shore	Waverly Village
Wallace	All 17 Townships
Watertown	
Codington County	

*All villages and townships were represented at the April 5, 2011 Annual Codington County Townships Meeting and are eligible to benefit from future mitigation projects identified by the County.

All of the non-participants are unincorporated communities with very small populations (50 people or less) with the exception of Kampeska. Kampeska is located 5.5 miles west of Watertown (1 mile southwest of Lake Kampeska) with an estimated population of 100. Grover is located 7.5 miles southwest of Watertown and has an estimated population of twelve. Rauville is located 3.5 miles north of Watertown and has an estimated population of twelve. Waverly is located 7 miles northeast of Watertown and has an estimated population of thirty-seven. While none of the unincorporated communities directly participated in the PDM update, they were represented by their local Township Officials at a meeting on April 5, 2011.

The unincorporated villages and townships are not direct participating entities in the plan because these entities are too small, both in population and in resources, to be capable of handling disaster needs on their own. The villages are governed by the township boards and are served by the County whenever necessary. The townships were invited to participate in the PDM update and asked to identify hazard risks, vulnerability and critical infrastructure at a meeting on April 5, 2011. All townships supervisors in the County were invited. Attendees represented fourteen of the seventeen townships at that meeting. Those who attended submitted information to the plan author for projects they would like to see included in the PDM. Further arrangements were made to gather information for projects from townships which were not represented at the April 5, 2011 meeting.

The Codington County Commission and each of the listed participating municipalities will pass resolutions to adopt the updated PDM. In addition to these municipalities, Codington-Clark Electric Cooperative Inc., a local rural electric cooperative, and Interstate Telecommunications Cooperative (ITC), a telecommunications provider, also participated in the plan update and will pass a resolution to adopt the PDM. The dates of adoption by resolution for each of the jurisdictions are summarized in Table 2.2.

Table 2.2: Dates of Plan Adoption by Jurisdiction

Jurisdiction	Date of Adoption
Codington County Commission	
Florence	
Henry	
Kranzburg	
South Shore	
Wallace	
Watertown	

All of the participating jurisdictions were involved in the plan update. Representatives from each municipality, the County, and Codington-Clark Electric Cooperative Inc. attended the planning meetings and provided valuable perspective on the changes required for the plan. All representatives took part in the risk assessment exercise at the June 23, 2011 meeting.

Representatives also took information from the PDM planning meetings back to their respective councils and presented the progress of the plan update. The local jurisdictions have also presented the Resolution of Adoption to their councils and will pass the resolutions upon FEMA approval of the PDM update. The Resolutions are included in the Appendix I.

Table 2.3 was derived to help define “participation” for the local jurisdictions who intend on adopting the plan. To be considered “participating”, each jurisdiction must have at least seven of the ten participation requirements fulfilled.

Table 2.3: Record of Participation

Nature of Participation	Florence	Henry	Kranzburg	South Shore	Wallace	Watertown	Codington County
Attended Meetings or work sessions (a minimum of 4 meetings will be considered satisfactory).	■	■	■	■	■	■	■
Submitted inventory and summary of reports and plans relevant to hazard mitigation.	■	■	■	■	■	■	■
Submitted the Risk Assessment Worksheet.	■	■	■	■	■	■	■
Submitted description of what is at risk (including local critical facilities and infrastructure at risk from specific Hazards worksheet)	■	■	■	■	■	■	■
Submitted a description or map of local land-use patterns (current and proposed/expected).	■	■	■	■	■	■	■
Developed goals for the community.	■	■	■	■	■	■	■
Developed mitigation actions with an analysis/explanation of why those actions were selected.	■	■	■	■	■	■	■
Prioritized actions emphasizing relative cost-effectiveness.	■	■	■	■	■	■	■
Reviewed and commented on draft Plan.	■	■	■	■	■	■	■
Hosted opportunities for public involvement (allowed time for public comment at a minimum of 2 city council meetings after giving a status report on the progress of the PDM update)	■	■	■	■	■	■	■
<p>■ Requirement Met</p> <p>□ Requirement Not Met</p>							

CHAPTER 3 PLANNING PROCESS

CHANGES/REVISIONS TO PLANNING PROCESS:

- The Planning Process was edited and rewritten to reflect the PDM Update process undertaken by Codington County.

“An open and public involvement process is essential to the development of an effective plan.” Requirement 201.6(b).

BACKGROUND

The effort that led to the development of this plan is part of the larger, integrated approach to hazard mitigation planning in South Dakota that is led by the South Dakota Office of Emergency Management. Production of the plan was the ultimate responsibility of the Codington County Emergency Management Director, who served as the county’s point of contact for all activities associated with this plan. Input was received from the PDM Planning Team that was put together by the Emergency Management Director and whose members are listed below in Table 3.1.

The plan itself was written by an outside contractor, First District Association of Local Governments (First District) of Watertown, South Dakota, one of the state’s six regional planning entities. The office has an extensive amount of experience in producing various kinds of planning documents, including municipal ordinances, land use plans, and zoning ordinances, and it is an acknowledged leader in geographic information systems (GIS) technology in South Dakota. First District assisted the County in the development of the county’s original PDM in 2004. The following staff members of the First District Association of Local Governments were involved in the production of the plan. Todd Kays, Executive Director, and Luke Muller, Planner, were the project managers of the plan. Kays and Muller attended the PDM Planning Team meetings as the plan was being developed. Assisting Mr. Muller was Ryan Hartley, Geographic Information Systems Coordinator, who produced all the maps for the plan, directed the floodplain risk analysis (see next section), and completed the county land cover analysis discussed in the previous chapter. Additional research and information gathering was provided by Jan McNamara, an administrative professional with the First District. Several other individuals at the state level provided additional support and information that was quite useful. They include:

Nicole Prince, South Dakota State Hazard Mitigation Officer – provided guidance and direction as the plan was being developed.

William Arwood, South Dakota State NFIP Coordinator – provided classification and information regarding value and number of flood insurance policies and claims.

Helen King, South Dakota State Fire Marshall Office – provided information on fire in the county.

Tim Schaal, South Dakota State Dam Inspector – provided information on hazardous dams located in the county.

DOCUMENTATION OF THE PLANNING PROCESS

Methodology

Mitigation planning is a process that communities use to identify policies, activities, and tools to implement mitigation actions. The process that was used to develop this plan consisted of the following steps:

- Planning Framework
- Risk Identification and Assessment
- Mitigation Strategy
- Review of Plan
- Plan Adoption and Maintenance

Planning Framework

The planning framework component identified five objectives:

- Develop Plan to Plan;
- Establish PDM Planning Team;
- Define Scope of the Plan;
- Identify Governmental Entities/Stakeholders; and
- Establish PDM Planning Team

Prior to receiving funding public meetings were held at the Codington County Courthouse to inform the public about the required PDM update. Funding from FEMA and the South Dakota Office of Emergency Management to prepare the mitigation plan was received by the county in October 2010. Once funding was secured, the Codington County Emergency Management Director and the First District acted as the PDM Planning Team began to discuss the strategy to be used to develop the plan. The first task was to identify those entities/stakeholders that would have direct and indirect interests in the update of the PDM.

Prior to the first public informational meeting, the Chairman of the Codington County Commissioners and Codington County Emergency Management Director wrote letters to all the stakeholders, community organizations, municipalities, townships, utility providers and emergency responders and concerned residents who might wish to volunteer their time and serve on a committee, and to those who would act as a resource for the PDM Planning Team. The letters included a brief description of the PDM. Public input was solicited via notices regarding the PDM planning process in local media outlets and via the Internet.

Each individual who was contacted for the PDM Planning Team had at least one of the following attributes to contribute to the planning process:

- Significant understanding of how hazards affect the county and participating jurisdictions.
- Substantial knowledge of the county's infrastructure system.
- Resources at their disposal to assist in the planning effort, such as maps or data on past hazard events.

Table 3.1 lists the PDM Planning Team members, and it includes their attendance at the planning meetings, all of which were open to the public, that were held as the plan was being developed. An agenda was sent out to the PDM Planning Team prior to each meeting, and the meeting minutes were sent to them afterward to keep everybody informed of what was discussed and any decisions that were made.

Table 3.1: Participation in Plan Development

Last Name	First Name	Entity Represented	Meeting Attendance			
			Meeting 1	Meeting 2	Meeting 3	Meeting 4
Atyeo	Dave	SD Dept of Transportation	■	■		
Boehnke	Arlen	Henry School District	■		■	■
Callan	Pat	Town of Florence	■	■	■	■
Drake	Tom	City of Watertown	■	■	■	
Eide	Dave	Codington Clark Electric Co-op	■	■	■	
Froke	Randy	Town of Henry	■	■		■
Fuller	Dave	Henry Fire Dept.	■			
Goodall	Kelby	Henry Fire Dept.	■		■	■
Goodall	Toni	Henry Fire Dept.	■	■	■	■
Hallauer	Joyce	Prairie Lakes Hospital			■	
Herbeck	Jason	Prairie Lakes Hospital	■	■		
Howell	Brad	Codington Co. Sheriff		■	■	■
Johnson	Bob	Codington/Clark Electric			■	■
Johnson	Paul	SDSU Extension	■	■		
Kays	Todd	First District Association of Local Governments	■	■	■	■
Karnopp	Marty	Codington County EM		■	■	■
Kranz	Kevin	Town of Kranzburg	■			■
Kranz	Doug	Watertown Fire Dept.	■	■		
Marquardt	Lavern	Codington County Commissioner/LEPC		■	■	■
McMahon	Scott	Watertown Police Dept.	■	■	■	■
Meier	Mark	Watertown Municipal Utilities	■			■
Muller	Luke	First District Association of Local Governments	■	■	■	■
Olson	Chuck	ITC	■	■	■	
Small	Rick	Codington Co. Highway	■	■		■
Stacey	Darrell	Watertown School District	■	■	■	
Sutton	Jim	Codington County EM	■		■	■
Van Sickle	Gordon	Town of Henry	■		■	■
Wall	Greg	South Shore Fire Dept.	■	■	■	■
Zaug	Dave	Codington Clark Electric Co-op	■		■	■

Leadership and guidance in the planning effort and at the planning meetings was provided by the First District staff and the Codington County Emergency Management Director. An agenda was distributed to each PDM Planning Team member prior to each meeting, but free-flowing discussion was always encouraged. When PDM Planning Team members had questions about a topic of discussion, either First District staff or the Emergency Management Director would step in.

Generally speaking, the planning process associated with the plan's development was relaxed and informal. No subcommittees were formed, and all decisions were made by mutual consensus of the PDM Planning Team members - no votes were taken or motions made. Everyone's opinion was respected, nobody was discouraged from voicing their opinion, and no one was made to feel any less important than anyone else.

As the PDM Planning Team was being assembled, arrangements were made for the first PDM Planning Team meeting, which took place at the Codington County Extension building in Watertown in January of 2011. An agenda was distributed to prospective PDM Planning Team members. Appendix A, B, and C include a copies of each meeting agenda, the signup sheet from each meeting, and the minutes from each meeting.

Those who attended the January meeting for the PDM update were asked to volunteer to serve on the PDM Planning Team. The PDM Planning Team was tasked with fostering coordination between the various entities involved; reviewing the drafts and providing comments after First District Association of Local Governments staff initiated changes to the existing plan. There were no external contributors such as contractors or private businesses, other than Codington-Clark Electric Cooperative Inc. and ITC. Each of the local jurisdictions had a member of their respective councils represent the municipalities in the plan.

The representatives from the municipalities were asked to share the progress of the plan at their council meetings and to ensure that those attending the council meetings were aware that they are invited to make comments on and participate in the process of updating the new plan. Comments provided by local residents at the city council and PDM Planning Team meetings were collected and incorporated into the plan.

The public was provided several opportunities to comment on the plan during the drafting stages at the PDM Planning Team Meetings, Codington County Townships' Annual Meeting and City Council Meetings. There were several work sessions and public hearings held to keep the public updated and involved in the plan, however, there was no public comment on the plan from the public that attended the meetings. Those who were most involved were the representatives PDM Planning Team and representatives from the municipalities. The municipalities put the PDM update on the agenda at their council meetings and allowed people to comment at the meetings. Table 3.2 identifies the location and date of each opportunity that was provided for the public to comment and how it was advertised.

The first meeting of the PDM Planning Team served to introduce the participants to the concept of mitigation planning; why the plan was being updated and how the process would proceed in the months to come (scheduling, assigning responsibilities, etc.). The meeting also included a review of the existing plan, which led to two important decisions. First, it was the consensus opinion of the PDM Planning Team that a comprehensive rewrite of the plan would be needed. The PDM Planning Team decided that:

- The 2004 PDM did not include all of the necessary requirements found in the most recent crosswalk provided by FEMA dated July 1, 2008. Thus, to ensure that the updated plan included everything required by the crosswalk, the PDM Planning Team and community meetings used the crosswalk to guide the discussions. The 2004 PDM was then compared to the new crosswalk and any portion of the 2004 PDM that was not needed to fulfill the new crosswalk requirements was eliminated and deficiencies were noted as areas of focus.
- More information and data regarding the risk assessment was needed, more informative tables and maps would be helpful, and the mitigation strategy needed to be rethought.
- The risk identification and assessment as well as the identification of critical infrastructure and local municipal goals and objectives should be completed by the First District prior to the next meeting of the PDM Planning Team.

Table 3.2: Opportunities for Public Comment

Location of Opportunity	Date	Type of Participation			How Was Meeting Advertised	
		City Council or County Commission Meeting	PDM Meeting	City Staff/Township Annual Mtg/Survey	Public Notice	Website
Florence	02/04/11	■	□	□	■	□
	09/12/11	■	□	□	■	□
	Adoption Date	□	□	□	■	■
Henry	02/04/11	■	□	□	■	□
	09/12/11	■	□	□	■	□
	Adoption Date	■	□	□	■	■
Kranzburg	04/04/11	■	□	□	■	□
	09/05/11	■	□	□	■	□
	Adoption Date	□	□	□	■	■
South Shore	03/07/11	■	□	□	■	□
	09/05/11	■	□	□	■	□
	Adoption Date	□	□	□	■	■
Wallace	04/04/11	■	□	□	■	□
	09/06/11	■	□	□	■	□
	Adoption Date	■	□	□	■	■
Watertown	05/09/11	□	□	■	■	□
	09/07/11	□	□	■	■	□
	Adoption Date	□	□	□	■	■
Codington County	PDM Grant Application 3/10/09	■	□	□	■	□
	1/11/11	□	■	□	■	■
	4/5/11	□	□	■	■	□
	6/23/11	□	■	□	■	□
	1/23/12	□	■	□	■	■
	03/20/12	□	■	□	■	■
	Adoption Date	□	□	□	■	■

Risk Identification & Assessment/Mitigation Strategy/Review of Plan

The Risk Identification and Assessment component identified three objectives: Collect and Organize Data, Develop GIS Data, and Analyze Data. The Mitigation Strategy component identified five objectives: Review Existing PDM and other plans Formation of Goals/Objectives, Compile existing resources to accomplish goals/objectives, Public review of Goals/Objectives, and PDM Planning Team Review of goals/objectives. The Review of PDM component identified three objectives: Writing of PDM, Public Review of PDM, PDM Planning Team Review of PDM.

Prior to the second PDM Planning Team meeting, First District Staff met with the participating municipalities, Codington County Townships, City and County staffs, Codington-Clark Electric Cooperative Inc., and ITC at public noticed meetings to identify hazards and critical facilities, assess vulnerability, discuss development trends, and develop mitigation goals. Meeting dates are referenced in Table 3.2. First District staff also conducted research regarding the history of disaster events in the county, including events that had occurred since the original plan was developed.

First District also conducted a technical review of existing documents. This review incorporated existing plans, studies, reports, technical information, zoning and flood damage prevention ordinances into the PDM Update. It should be noted that most of the planning documents of each of the communities had been previously developed by the First District. However, some of the smaller communities did not have such planning documents. Additionally, the 2004 PDM was used as a resource for the new plan because most of the natural hazard profile research had already been completed when it was drafted. In addition to the 2004 PDM, the First District reviewed several other existing documents including but not limited to the State of South Dakota Hazard Mitigation Plan, Codington County Hazardous Materials Plan, and Flood Insurance Rate Maps for the local jurisdictions. A summary of the technical review and incorporation of existing plans is included in Table 3.3.

Risk Identification/Assessment was discussed at the PDM Planning Team meeting in June 2011. First District staff reviewed the hazards identified in the State of South Dakota Hazard Mitigation Plan and that risk assessment portion of the existing PDM. First District staff also provided an overview of the information regarding Critical Facilities, Risk Identification, Hazard Vulnerability and mitigation goals identified by the County's municipalities.

The list of hazards that the PDM Planning Team decided to focus on is presented in Chapter 4. A profile of each of the hazards was begun at this meeting. The profile included information from each of the participating jurisdictions about how the hazard affected their community. Discussion also occurred regarding the existing strategies being used to mitigate each hazard, with a particular emphasis on the critical and essential facilities in each community.

The PDM Planning Team also dealt with the Mitigation Strategy at the June 2011 meeting. Formation of the strategy began with a review of the results of the risk assessment, which led to discussion about the goals to be achieved with the mitigation plan. The list of goals is included in Chapter 5.

Based upon the discussions and information provided at the second meeting, it was determined that the existing PDM Risk Assessment and Mitigation Strategies were insufficient and that a comprehensive rewrite of the entire sections were needed. Before the third meeting, First District Staff revised or created the Introduction, Pre-requisites, Risk Assessment, Mitigation Strategy, and Plan Implementation components of the PDM. First District also met with each participating jurisdiction to review proposed mitigation actions, including estimated costs, responsibility and priority.

At the third meeting in January 2012 the PDM Planning Team reviewed the updates prepared by the First District and discussed specific mitigation actions. The PDM Planning Team began by reviewing the list of proposed actions included in the previous mitigation plan and discussion followed about the progress that had been made on implementing the actions. Specific mitigation actions recently identified by the participating jurisdictions were also discussed.

The rest of the meeting was spent prioritizing the mitigation actions and discussing how the plan would be implemented. It was emphasized that cooperation between the county and the participating jurisdictions was especially important, and discussion occurred about how this could best be achieved. Representatives from the jurisdictions were made aware of the critical role they needed to play to ensure the success of the mitigation strategy, such as implementing specific mitigation actions. The Emergency Management Director emphasized the importance of ensuring that no local decisions be made or actions taken contrary to the goals of this plan. Also, responsible parties were identified for reporting on progress being made to implement the proposed mitigation actions, for evaluating the plan's overall effectiveness, and for getting the public more involved in the planning process.

At the end of the meeting the First District was instructed to conduct an internal review of the document and forward the document to the South Dakota Office of Emergency Management for their review and comment. The draft plan was also to be posted on the First District Association of Local Governments and Codington County websites and emailed to all of the participants and to the emergency managers in the neighboring counties of: Clark, Day, Grant, and Hamlin. Everyone who received an email copy of the plan draft was allowed forty-five days to comment on the draft.

A fourth and final meeting of the PDM Planning Team was subsequently held in March 2012 to review and discuss final draft as amended based upon comments from the State. At the meeting the PDM Planning Team recommended that the plan be submitted to FEMA. The final draft of the plan was again posted on the First District Association of Local Governments and Codington County websites and emailed to all of the participants.

Table 3.3: Record of Review (Summary)

Existing Program/Policy/Technical Documents	Local Jurisdiction						
	Florence	Henry	Kranzburg	South Shore	Wallace	Watertown	Codington County
Comprehensive Plan	✓	✓	✓	✓	NA	✓	✓
Flood Damage Prevention Ordinance	✓	NA	NA	NA	NA	✓	✓
Flood Insurance Studies or Engineering studies for streams	✓	NA	NA	NA	NA	✓	✓
Hazard Vulnerability Analysis (by the local Emergency Management Agency)	C	C	C	C	C	C	C
Emergency Operations Plan	NA	NA	NA	NA	NA	✓	✓
Zoning Ordinance	✓	✓	✓	✓	NA	✓	✓
Building Code	NA	NA	NA	NA	NA	✓	NA
Drainage Ordinance	NA	NA	NA	NA	NA	✓	NA
Critical Facilities maps	✓	✓	✓	✓	✓	✓	✓
Existing Land Use maps	✓	✓	✓	✓	NA	✓	✓
Elevation Certificates	NA	NA	NA	NA	NA	✓	✓
State Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓
HAZUS	NA	NA	NA	NA	NA	NA	NA

- NA The jurisdiction does not have this program/policy/technical document
- O The jurisdiction has the program/policy/technical document, but did not review/incorporate it in the mitigation plan
- C The jurisdiction is regulated under the County's policy/program/technical document\
- ✓ The jurisdiction reviewed the program/policy/technical document

CHAPTER 4 RISK ASSESSMENT

CHANGES/REVISIONS TO RISK ASSESSMENT:

- Identifying Hazards. While some of the information correlates to the 2004 draft of the PDM, much of the information is either new or was rewritten for clarity.
- The types of natural hazards in the PDM Jurisdiction was edited and rewritten for clarity, however the general information did not change.
- The Hazard Profile was reorganized and some new information, tables, and narrative were added
- Addressing Repetitive Loss Properties is a new section
- Addressing Vulnerability (Overview) is a new section but some of the information was taken from the 2004 PDM's Chapter 3: Hazard Identification and Vulnerability Assessment
- Identifying Structures is a new section but some of the information was taken from the County Profile section of the 2004 Plan. Values of the structures included in this section were updated.
- Estimating Potential Losses, Methodology for Calculating estimated losses and Analyzing Development Trends are entirely new sections

IDENTIFICATION OF HAZARDS

In this chapter, the hazards that were identified by the PDM Planning Team as having the most significance for the County are analyzed. As part of the analysis, various maps and tables were produced and are included within this chapter. The planning participants began the risk assessment process by reviewing the State of South Dakota Hazard Mitigation Plan. The PDM Planning Team also reviewed records of hazard events that have occurred in the county since 2000, relying primarily on the Spatial Hazard Events and Losses Database for the United States (SHELDUS), compiled by the University of South Carolina's Hazards and Vulnerability Research Institute and data from the National Climatic Data Center's Storm Events Database. A summary of the findings for significant hazard occurrences from the past ten years is provided below in Table 4.1: The PDM Planning Team also identified potential hazards by observing development patterns, interviews from towns and townships, public meetings, PDM work sessions, previous disaster declarations and research of the history of hazard occurrences located within the County.

Table 4.1: Significant Hazard Occurrences 2000-2010

Type of Hazard	# of Occurrences Since 2000	Source
Drought	5	NOAA
Wildfire/Forest Fire	400	NOAA & State Fire Marshall's Office
Flood	8	NOAA
Hail	94	NOAA & SHELDUS
Lightning	1	NOAA
Tornado	5	NOAA & SHELDUS
Temperature Extremes	10	NOAA
Snow and Ice	32	NOAA
Thunderstorm and High Wind	27	NOAA & SHELDUS

Hazards were analyzed in terms of the hazard's probability of occurrence in the county. Representatives from each participating jurisdiction and the PDM Planning Team were asked to complete worksheets that categorized hazards by the likelihood of occurrence for either their specific geographical location, or for county-wide risks.

Every possible hazard or disaster was evaluated and placed into one of three separate columns depending on the likelihood of the disaster occurring in the PDM jurisdiction. Hazards that occur at least once a year or more were placed in the High Probability column; hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis were placed in the low probability column; and hazards or disasters that have never occurred in the area before and are unlikely to occur in the PDM jurisdiction any time in the future were placed in the Unlikely to Occur column. While man-made hazards were listed on the worksheets and discussed briefly during the completion of the worksheets, the PDM Planning Team decided to eliminate man-made hazards from the PDM because those types of hazards are difficult to predict and assess due to wide variations in the types, frequencies, and locations. Types and scopes of manmade hazards are unlimited.

Due to the topographical features of the County and the nature of the natural hazards that affect the geographical area covered by this PDM, most areas of the county have similar likelihood of being affected by the natural hazards identified. Only the natural hazards from the High Probability and Low Probability Columns will be further evaluated throughout this plan, with an emphasis on the High Probability hazards. All manmade hazards and hazards in the Unlikely to Occur column will not be further evaluated in the plan. Table 4.2 is an adjusted list of hazards produced from the FEMA worksheets completed by each participating jurisdiction and the PDM Planning Team.

Table 4.2: Hazards Categorized by Likelihood of Occurrence

High Probability	Low Probability	Unlikely to Occur
Extreme Cold	Aircraft Accident**	Avalanche
Extreme Heat	Biological**	Civil Disorder
Flood	Communication Disruption**	Coastal Storm
Freezing Rain/Sleet/Ice	Drought	Dam Failure
Hail	Hazardous Material**	Earthquake***
Heavy Rain	Ice Jam	Hurricane
Heavy Snow	Tornado	Landslide
Lightning	Transportation**	National Emergency
Rapid Snow Melt	Urban Fire	Radiological
Strong Winds	Wild Fire	Subsidence
Thunderstorm		Volcanic Ash
Utility Interruption**		Volcanic Explosion
<p>** Aircraft accidents, biological, hazardous material, transportation, utility interruptions and communication disruption are not natural hazards but often occur as a result of natural hazards such as ice storms and strong winds.</p> <p>***Earthquakes are marked with an asterisk because they occur but are so small that the effects are minimal. Thus, mitigation measures specifically for earthquakes are not a priority.</p>		

TYPES OF NATURAL HAZARDS IN THE PDM JURISDICTION AREA

Some descriptions of the natural hazards likely to occur in the County were taken directly from the 2004 Codington County PDM. Most of the descriptions were revised for better clarity. For the purpose of consistency throughout the plan, additional definitions were included to reflect all of the hazards that have a chance of occurring in the area and all of the hazards are alphabetized. For all of the hazards identified the probability of future occurrence is expected to be the same for all of the jurisdictions covered in the PDM.

Blizzards are a snow storm that lasts at least three hours with sustained wind speeds of thirty-five miles per hour (mph) or greater, visibility of less than one-quarter mile, temperatures lower than 20°F and white out conditions. Snow accumulations vary, but another contributing factor is loose snow existing on the ground which can get whipped up and aggravate the white out conditions. When such conditions arise, blizzard warnings or severe blizzard warnings are issued. Severe blizzard conditions exist when winds obtain speeds of at least forty-five mph plus a great density of falling or blowing snow and a temperature of 10°F or lower.

Drought is an extended period of months or years when a region notes a deficiency in its water supply. Generally, this occurs when a region receives consistently below average precipitation. It can have a substantial impact on the ecosystem and agriculture of the affected region. Although droughts can persist for several years, even a short, intense drought can cause significant damage and harm the local economy. This global phenomenon has a widespread impact on agriculture.

Dam Failure Dams function to serve the needs of flood control, recreation, and water management. During a flood, a dam's ability to serve as a control agent may be challenged. An excessive amount of water may result in a dam breach, simply an overflowing. Dams that are old or unstable, dams that receive extreme amounts of water, or dams that get debris pile-up behind their face may result in dam failure, a cracking and/or breaking. The County has two dams, with neither of the dams having the potential to endanger lives and damage property.

Earthquakes are a sudden rapid shaking of the earth caused by the shifting of rock beneath the earth's surface. Earthquakes can cause buildings and bridges to collapse, disrupt gas, electric and phone lines, and often cause landslides, flash floods, fires, avalanches, and tsunamis. Larger earthquakes usually begin with slight tremors but rapidly take the form of one or more violent shocks, and are followed by vibrations of gradually diminishing force called aftershocks. The underground point of origin of an earthquake is called its focus; the point on the surface directly above the focus is the epicenter.

Extreme Cold What constitutes extreme cold and its effects can vary across different areas of the country. In regions relatively unaccustomed to winter weather, near freezing temperatures are considered "extreme cold," however, Eastern South Dakota is prone to much more extreme temperatures than other areas in the country. Temperatures typically range between zero degrees Fahrenheit and 100 degrees Fahrenheit, so extreme cold could be defined in the Codington County PDM jurisdiction area as temperatures below zero.

Extreme Heat, also known as a Heat Wave, is a prolonged period of excessively hot weather, which may be accompanied by high humidity. There is no universal definition of a heat wave; the term is relative to the usual weather in the area. Temperatures in the County have a very wide range typically between 0 to 100 degrees Fahrenheit, therefore anything outside those ranges could be considered extreme. The term is applied both to routine weather variations and to extraordinary spells of heat which may occur only once a century.

Flooding is an overflow of water that submerges land, producing measurable property damage or forcing evacuation of people and vital resources. Floods can develop slowly as rivers swell during an extended period of rain, or during a warming trend following a heavy snow. Even a very small stream or dry creek bed can overflow and create flooding. Two different types of flooding hazards are present within the County.

1. Inundation flooding occurs most often in the spring. The greatest risks are realized typically during a rapid snowmelt, before ice is completely off all of the rivers.
2. Flash flooding is more typically realized during the summer months. This flooding is primarily localized, though enough rain can be produced to cause inundation flooding in areas along the Willow Creek, Big Sioux River and its tributaries. Heavy, slow moving thunderstorms often produce large amounts of rain. The threat of flooding would be increased during times of high soil moisture.

Freezing Rain/Ice occurs when temperatures drop below thirty degrees Fahrenheit and rain starts to fall. Freezing rain coats objects with ice, creating dangerous conditions due to slippery surfaces, platforms, sidewalks, roads, and highways. Sometimes ice is unnoticeable, and is then referred to as black ice. Black ice creates dangerous conditions, especially for traffic. Additionally, a quarter inch of frozen rain can significantly damage trees, electrical wires, weak structures, and other objects due to the additional weight bearing down on them.

Hail is formed through rising currents of air in a storm. These currents carry water droplets to a height at which they freeze and subsequently fall to earth as round ice particles. Hailstones usually consist mostly of water ice and measure between 5 and 150 millimeters in diameter, with the larger stones coming from severe and dangerous thunderstorms.

Heavy Rain is defined as precipitation falling with intensity in excess of 0.30 inches (0.762 cm) per hour. Short periods of intense rainfall can cause flash flooding while longer periods of widespread heavy rain can cause rivers to overflow.

Ice Jams occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of the river. The ice layer often breaks into large chunks, which float downstream and often pile up near narrow passages and other obstructions, such as bridges and dams.

Landslide is a geological phenomenon which includes a wide range of ground movement, such as rock falls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal and onshore environments. Although the action of gravity is the primary driving force for a landslide to occur, there are other contributing factors build up specific sub-surface conditions that make the area/slope prone to failure, whereas the actual landslide often requires a trigger before being released.

Lightning results from a buildup of electrical charges that happens during the formation of a thunderstorm. The rapidly rising air within the cloud, combined with precipitation movement within the cloud, results in these charges. Giant sparks of electricity occur between the positive and negative charges both within the atmosphere and between the cloud and the ground. When the potential between the positive and negative charges becomes too great, there is a discharge of electricity, known as lightning. Lightning bolts reach temperatures near 50,000° F in a split second. The rapid heating and expansion, and cooling of air near the lightning bolt causes thunder.

Severe Winter Storms deposit four or more inches of snow in a twelve-hour period or six inches of snow during a twenty-four hour period. Such storms are generally classified into four categories with some taking the characteristics of several categories during distinct phases of the storm. These categories include: freezing rain, sleet, snow, and blizzard. Generally winter storms can range from moderate snow to blizzard conditions and can occur between October and April. The months of May, June, July, August, and September could possibly see snow, though the chances of a storm is very minimal. Like summer storms, winter storms are considered a weather event not a natural hazard, and thus will not be evaluated as a natural hazard throughout this PDM.

Sleet does not generally cling to objects like freezing rain, but it does make the ground very slippery. This also increases the number of traffic accidents and personal injuries due to falls. Sleet can severely slow down operations within a community. Not only is there a danger of slipping, but with wind, sleet pellets become powerful projectiles that may damage structures, vehicles, or other objects.

Snow is a common occurrence throughout the County during the months from October to April. Average annual snowfall for the county is twenty-four inches. Accumulations in dry years can be as little as five to ten inches, while wet years can see yearly totals up to eighty inches. Snow is a major contributing factor to flooding, primarily during the spring months of melting.

Strong winds are usually defined as winds over forty miles per hour, are not uncommon in the area. Winds over fifty miles per hour can be expected twice each summer. Strong winds can cause destruction of property and create safety hazards resulting from flying debris. Strong winds also include severe localized wind blasting down from thunderstorms. These downward blasts of air are categorized as either microbursts or macrobursts depending on the amount geographical area they cover. Microbursts cover an area less than 2.5 miles in diameter and macrobursts cover an area greater than 2.5 miles in diameter.

Subsidence is defined as the motion of a surface as it shifts downward relative to a datum. The opposite of subsidence is uplift, which results in an increase in elevation. There are several types of subsidence such as dissolution of limestone, mining-induced, faulting induced, isostatic rebound, extraction of natural gas, ground-water related, and seasonal effects.

Summer Storms are generally defined as atmospheric hazards resulting from changes in temperature and air pressure which cause thunderstorms that may cause hail, lightning, strong winds, and tornados. Summer storms are considered a weather event rather than a natural hazard; therefore summer storms are not evaluated as a natural hazard throughout this PDM.

Thunderstorms are formed when moisture, rapidly rising warm air, and a lifting mechanism such as clashing warm and cold air masses combine. The three most dangerous items associated with thunderstorms are hail, lightning, and strong winds.

Tornados are violent windstorms that may occur singularly or in multiples as a result of severe thunderstorms. They develop when cool air overrides warm air, causing the warm air to rapidly rise. Many of these resulting vortices stay in the atmosphere, though touchdown can occur. The Fujita Tornado Damage Scale categorizes tornadoes based on their wind speed:

- F0=winds less than 73 m/h
- F1=winds 73-112 m/h
- F2=winds 113-157 m/h
- F3=winds 158-206 m/h
- F4=winds 207-260 m/h
- F5=winds 261-318 m/h
- F6=winds greater than 318 m/h

Wildfires are uncontrolled conflagrations that spread freely through the environment. Other names such as brush fire, bushfire, forest fire, grass fire, hill fire, peat fire, vegetation fire, and wild fire may be used to describe the same phenomenon. A wildfire differs from the other fires by its extensive size; the speed at which it can spread out from its original source; its ability to change direction unexpectedly; and to jump gaps, such as roads, rivers and fire breaks.

Fires start when an ignition source is brought into contact with a combustible material that is subjected to sufficient heat and has an adequate supply of oxygen from the ambient air. Ignition may be triggered by natural sources such as a lightning strike, or may be attributed to a human source such as "discarded cigarettes, sparks from equipment, and arched power lines.

HAZARD PROFILE

Requirement §201.6 (c)(2)(i): [The risk assessment shall include a] description of the type of the... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

It should be stated that most of the hazards identified in the previous section have the potential of occurring anywhere in the County. A brief section about the history of each hazard's occurrence in the county is provided. Table 4.3 below shows all of the Presidential Disaster Declarations that have involved the county. Information on previous occurrences – the location, the extent (i.e., magnitude or severity) of each hazard, probability of future events (i.e., chance or occurrence) are listed individually by the type of hazard in the following tables.

Table 4.3: Presidential Disaster Declarations in Codington County

Date	Disaster Dec #	Type	Total Damage	Public Assistance Cost
4/18/1969	257	Flooding	\$4,599,306	
5/3/1996	764	Severe Storms and Flooding	\$5,158,130	
7/19/1993	999	Severe Storms, Tornadoes and Flooding	\$53,068,748	
6/21/1994	1031	Severe Storms and Flooding	\$8,187,938	
5/26/1995	1052	Flooding	\$35,649,349	
1/5/1996	1075	Severe Winter Storm	\$13,085,649	
1/10/1997	1156	Severe Winter Storm and Blizzard	\$19,455,263	
4/7/1997	1173	Severe Winter Storm and Severe Flooding	\$87,069,429	
6/1/1998	1218	Flooding, Severe Storms and Tornadoes	\$16,853,902	
5/17/2001	1375	Severe Winter Storm and Flooding	\$10,441,684	\$5,097,818.74
12/20/2005	1620	Severe Winter Storm	\$28,071,441	\$24,647,039.99
5/13/2010	1915	Flooding		\$21,319,859.61
05/13/2011	1984	Flooding		\$26,952,484.70

SOURCE: <http://www.fema.gov/news/disasters.fema>

While the PDM Planning Team reviewed all hazard occurrences that have been reported in the last 100 years, the list for some of the hazards was extremely long. The information provided in the tables is not a complete history report, but rather an overview of the hazard events which have occurred over the last ten years. The PDM Planning Team felt the hazard trend for the last ten years could be summarized in this section and decided to include any new occurrence that have taken place since the previous PDM was drafted.

DAM FAILURE

Dam breach or failure is of lesser concern for the citizens of the County than flooding. Codington County has a number of structures which control or regulate flow from one water body to another. South Dakota Department of Environment and Natural Resources identifies only two dams in the County (listed below). Neither dam is listed as vulnerable to failure.

4.4 Dam Locations in Codington County

Owner	Location
US Fish and Wildlife Service	Section 17-118-55
Murphy Farm Partnership	SE ¼ Section 20-117-55

DROUGHT AND WILDFIRE

South Dakota's climate is characterized by cold winters and warm to hot summers. There is usually light moisture in the winter and marginal to adequate moisture for the growing season for crops in the eastern portion of the state. Semi-arid conditions prevail in the western portion. This combination of hot summers and limited precipitation in a semi-arid climatic region places South Dakota present a potential position of suffering a drought in any given year. The climatic conditions are such that a small departure in the normal precipitation during the hot peak growing period of July and August could produce a partial or total crop failure.

The fact South Dakota's economy is closely tied to agriculture only magnifies the potential loss which could be suffered by the state's economy during drought conditions. Roughly every fifty years a significant drought is experienced within the county, while many less severe droughts can occur at times every three years. Table 4.5 identifies the ten-year drought history for the County.

Table 4.5: Codington County Ten Year Drought History

Location	Date Start	Date End	Type
Codington County	5/16/2000	5/23/2010	Moderate Drought
Codington County	06/01/02	6/30/2002	Moderate Drought
Codington County	9/2/2003	5/25/2004	Moderate to Severe Drought
Codington County	7/25/2006	8/29/2006	Moderate to Severe Drought
Codington County	7/24/2007	9/4/2007	Moderate to Severe Drought
Codington County	5/16/2000	5/23/2010	Moderate Drought

SOURCE: <http://droughtmonitor.unl.edu/archive.html>

Major Drought Occurrences:

- 1987-1990: An abnormally low amount of precipitation in the summer of 1987 combined with a hot and dry summer during 1988, left South Dakota in dire straits. Agricultural income was down 0.8% and wheat price per bushel decreased significantly.
- 1930s: During the infamous dust bowl years, Codington County was not spared a fair share of problems. Particularly dry summers were in 1934 and 1936.
- 1880s-1890s: The years 1887, 1894-1896, 1898-1901 were very dry years. The National Weather Service has several fire danger informational items located on their website.

A strong possibility exists for simultaneous emergencies during droughts. Wildfires are the most common. While researching the hazard occurrences that have taken place in the County, it became evident that the information found on the NOAA and SHELDUS websites was incomplete. Therefore, other sources were contacted whenever possible. Specifically, NOAA

had zero occurrences listed for wildfires in the County, but the State Fire Marshal's Office was contacted to verify that information. Helen King, the State Fire Marshal, said her information is derived from the reports submitted by the local fire departments who respond to the fires. She explained that since many of the fire departments in the County are Volunteer Fire Departments many times wildfires are extinguished and reports are never filed with the State. Thus, the information provided by the State Fire Marshall's office is not entirely complete either. For the purpose of this PDM we have used the numbers provided by the State Fire Marshal's Office as a point of reference in determining the likelihood of a wildfire hazard occurrence within the jurisdiction. The information provided by King identifies 213 structure fire responses, 129 vehicle fire responses, and 400 outside fire responses reported since 2000. The cause of the outside fires is not listed, so it is not known for certain whether all or some of these fires resulted due to a natural hazard occurrence or as a result of human behavior. Additionally, King provided information about the number of injuries and fatalities reported as a result of these fires. According to King's records, nine civilian injuries and three civilian fatalities were reported and four firefighter injuries were reported since 2001.

Table 4.6 identifies the number of fire department responses to structural, vehicle and outside fires that have been experienced within the county. It should be noted that the number of responses does not necessarily mean that there were 400 outside (wildfire) fires as some fires required multiple departments to respond. The 2004 PDM did not list or identify the history of wildfire occurrences.

**Table 4.6:
Codington County Structural, Vehicle and Outside (Wildfire) Department Responses**

Year	Structural Fires	Vehicle Fires	Outside Fires
2001	29	12	17
2002	24	12	29
2003	17	15	42
2004	15	19	50
2005	37	19	59
2006	22	14	76
2007	19	12	37
2008	13	5	22
2009	5	0	22
2010	32	21	46
Total	213	129	400

SOURCE: South Dakota State Fire Marshall Office

FLOOD

Flooding is a temporary overflow of water onto lands not normally covered by water producing measurable property damage or forcing evacuation of people and resources. Floods can result in injuries and even loss of life when quickly moving water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible. Table 4.7 is a ten-year flood history in the County from 2000 to 2010.

Table 4.7: Codington County 10-year Flood History

Location or County	Type	Date	Time	Property Damage
Watertown	Flash Flood	08/20/02	9:00 p.m.	0
Watertown Airport	Flash Flood	04/21/07	8:10 p.m.	0
Codington County	Flood	04/07/01	1:00 a.m.	785K
Watertown	Flood	03/19/07	11:00 a.m.	0
Rauville	Flood	03/16/09	9:00 a.m.	0
Florence	Flood	03/14/10	8:00 a.m.	0
Wallace	Flood	03/15/10	8:00 a.m.	0
Watertown Airport	Flood	04/01/10	0.00 a.m.	0

SOURCE: <http://www4.ncdc.noaa.gov>

HAIL

Table 4.8 indicates hail occurrences by location throughout the county. However, the information provided by the NOAA and SHELDUS websites was incomplete due to inconsistent reporting after such hazards occur. Obviously, with such a high number of occurrences it is reasonable to expect that at least some property or crop damage was sustained in the communities during some of the occurrences, even though the damage may not have been reported or recorded. It is possible that such damage was not reported because it was believed to be insignificant at the time, or because those responsible for reporting such information did not report to the proper agencies.

Table 4.8: Codington County 10-year Hail History

Location or County	Date	Time	Type	Magnitude
Watertown	03/07/00	7:15 p.m.	Hail	0.75 in.
Watertown	06/01/00	2:02 a.m.	Hail	0.75 in.
Wallace	06/23/00	12:33 a.m.	Hail	1.00 in.
Watertown	08/05/00	9:50 p.m.	Hail	0.75 in.
Watertown	04/06/01	8:55 p.m.	Hail	0.88 in.
Henry	06/06/01	6:35 p.m.	Hail	0.88 in.
Watertown	06/09/01	11:02 p.m.	Hail	0.75 in.
Florence	07/22/01	6:56 p.m.	Hail	1.00 in.
Rauville	07/22/01	7:15 p.m.	Hail	1.50 in.
Waverly	07/22/01	7:33 p.m.	Hail	0.75 in.
Kranzburg	08/20/02	2:35 p.m.	Hail	1.00 in.
Watertown	08/20/02	3:05 p.m.	Hail	0.88 in.
Wallace	07/20/03	1:30 a.m.	Hail	1.00 in.
Wallace	07/29/03	2:00 p.m.	Hail	1.75 in.
Wallace	07/29/03	2:05 p.m.	Hail	0.75 in.
South Shore	07/29/03	3:05 p.m.	Hail	0.75 in.
Wallace	09/17/03	10:00 p.m.	Hail	0.75 in.
Watertown	05/29/04	6:04 p.m.	Hail	0.75 in.
South Shore	06/07/04	9:20 p.m.	Hail	0.75 in.
Florence	06/15/04	11:51 a.m.	Hail	0.88 in.
Watertown	07/21/04	4:40 p.m.	Hail	1.00 in.

Location or County	Date	Time	Type	Magnitude
Watertown	07/21/04	4:47 p.m.	Hail	0.75 in.
Watertown	08/15/04	6:58 p.m.	Hail	0.88 in.
South Shore	08/15/04	7:10 p.m.	Hail	0.88 in.
Henry	05/07/05	5:45 p.m.	Hail	0.88 in.
Henry	05/07/05	6:00 p.m.	Hail	0.88 in.
Henry	05/08/05	3:37 p.m.	Hail	0.88 in.
Kranzburg	05/08/05	3:50 p.m.	Hail	1.00 in.
Watertown	05/08/05	4:07 p.m.	Hail	1.75 in.
Watertown	05/08/05	4:45 p.m.	Hail	1.00 in.
Watertown	05/08/05	4:50 p.m.	Hail	1.75 in.
Watertown	06/07/05	11:00 p.m.	Hail	1.00 in.
Watertown	07/03/05	1:15 a.m.	Hail	0.88 in.
Watertown	09/12/05	5:11 p.m.	Hail	0.75 in.
Kranzburg	05/02/06	6:18 p.m.	Hail	0.75 in.
Kranzburg	05/02/06	6:28 p.m.	Hail	1.00 in.
Wallace	06/13/06	1:55 p.m.	Hail	1.00 in.
Wallace	06/13/06	2:00 p.m.	Hail	0.88 in.
Wallace	06/13/06	2:00 p.m.	Hail	0.88 in.
Wallace	06/13/06	2:00 p.m.	Hail	1.25 in.
Wallace	06/13/06	2:02 p.m.	Hail	1.00 in.
Wallace	06/13/06	2:05 p.m.	Hail	1.00 in.
Wallace	06/13/06	2:24 p.m.	Hail	1.00 in.
Henry	06/14/06	1:30 p.m.	Hail	0.88 in.
Henry	06/14/06	1:30 p.m.	Hail	1.75 in.
Henry	06/14/06	1:32 p.m.	Hail	0.75 in.
Henry	06/14/06	1:35 p.m.	Hail	1.00 in.
Henry	06/14/06	1:45 p.m.	Hail	0.75 in.
Henry	06/14/06	1:46 p.m.	Hail	1.00 in.
Henry	08/10/06	6:56 p.m.	Hail	1.00 in.
Henry	08/10/06	7:54 p.m.	Hail	0.75 in.
Henry	09/16/06	4:53 p.m.	Hail	1.75 in.
Watertown Airport	04/02/07	7:35 p.m.	Hail	1.00 in.
Watertown Airport	04/21/07	7:52 p.m.	Hail	1.00 in.
Watertown Airport	04/21/07	7:58 p.m.	Hail	0.75 in.
Watertown Airport	04/21/07	8:10 p.m.	Hail	1.00 in.
Waverly	07/16/07	12:40 p.m.	Hail	0.88 in.
Kranzburg	07/16/07	12:45 p.m.	Hail	1.00 in.
Rauville	07/16/07	12:45 p.m.	Hail	0.88 in.
Rauville	07/16/07	12:45 p.m.	Hail	1.00 in.
Waverly	07/16/07	12:45 p.m.	Hail	0.75 in.
Waverly	07/16/07	12:45 p.m.	Hail	1.00 in.
Waverly	07/16/07	12:50 p.m.	Hail	0.88 in.
Waverly	07/16/07	12:55 p.m.	Hail	0.88 in.
Waverly	07/16/07	12:55 p.m.	Hail	0.88 in.
Kranzburg	07/16/07	1:00 p.m.	Hail	0.75 in.
Kranzburg	07/16/07	1:00 p.m.	Hail	0.88 in.
Kranzburg	07/16/07	1:00 p.m.	Hail	1.00 in.

Location or County	Date	Time	Type	Magnitude
Kranzburg	07/16/07	1:00 p.m.	Hail	1.00 in.
Kranzburg	07/16/07	1:00 p.m.	Hail	1.00 in.
Waverly	07/16/07	1:00 p.m.	Hail	0.75 in.
Waverly	07/16/07	1:00 p.m.	Hail	0.75 in.
Waverly	07/16/07	1:00 p.m.	Hail	1.00 in.
Waverly	07/16/07	1:09 p.m.	Hail	0.75 in.
Grover	09/20/07	5:00 a.m.	Hail	1.75 in.
Grover	06/12/08	3:45 p.m.	Hail	1.00 in.
Rauville	07/10/08	8:00 a.m.	Hail	0.88 in.
Florence	07/10/08	8:05 a.m.	Hail	0.75 in.
Watertown Airport	07/28/08	10:35 p.m.	Hail	0.75 in.
Florence	06/18/09	6:30 p.m.	Hail	0.75 in.
Florence	06/18/09	6:33 p.m.	Hail	0.75 in.
Kranzburg	07/06/09	12:30 p.m.	Hail	0.88 in.
Henry	07/06/09	3:05 p.m.	Hail	1.00 in.
Grover	07/06/09	3:20 p.m.	Hail	0.75 in.
Wallace	07/09/09	1:19 a.m.	Hail	1.25 in.
South Shore	04/30/10	4:00 p.m.	Hail	0.75 in.
Watertown	05/24/10	12:00 a.m.	Hail	1.00 in.
Henry	07/06/10	8:00 p.m.	Hail	0.88 in.
Henry	07/06/10	8:00 p.m.	Hail	1.00 in.
Florence	07/06/10	8:45 p.m.	Hail	1.00 in.
Henry	07/17/10	4:45 p.m.	Hail	2.00 in.
Watertown	09/01/10	9:35 p.m.	Hail	0.88 in.
Henry	09/14/10	11:29 p.m.	Hail	1.00 in.

SOURCE: <http://www4.ncdc.noaa.gov>

LIGHTNING

The extent or severity of lightning can range from significant to insignificant depending on where it strikes and what structures are hit. Water towers, cell phone towers, power lines, trees, and common buildings and structures all have the possibility of being struck by lightning. People who leave shelter during thunderstorms to watch or follow lightning also have the possibility of being struck by lightning. The lightning history for the past ten years only denotes one occurrence where damage was reported; however, possibility exists that the information reported is incomplete.

4.9 Codrington County Lightning History

Location	Date	Time	Type	Property Damage
Watertown	06/09/01	11:30 p.m.	Lightning	50K

SOURCE: <http://www4.ncdc.noaa.gov>

TORNADO

The annual risk for intense summer storms is very high. The entire County is susceptible to summer storms. Warning time for summer storms is normally several hours, sufficient for relocation and evacuation if necessary. However, tornadoes may occur with little or no warning. Between the years of 1950 and 2006, the County confirmed twenty-nine tornadoes. Table 4.10 includes the tornado history in the County over the course of the past ten years.

Table 4.10: Codington County 10-year Tornado History

Location	Date	Time	Type	Magnitude	Injuries	Property Damage
Wallace	07/25/00	1:10 p.m.	Tornado	F0	0	0
Watertown	06/24/03	6:35 p.m.	Tornado	F0	0	0
Watertown	06/13/05	2:23 p.m.	Tornado	F0	0	0
Watertown	06/13/05	2:49 p.m.	Tornado	F0	0	0
Watertown	06/13/05	2:51 p.m.	Tornado	F0	0	0

SOURCE: <http://www4.ncdc.noaa.gov>

Each year, many storms and a few tornadoes affect the county. Summer storms in the County usually produce a wide range of damage making damage estimates very difficult. A complete listing of all summer storms having occurred within the county is not possible due to inaccurate reporting. The National Weather Service reports online were the primary source for this information.

EXTREME TEMPERATURES

Extreme temperatures in the County are common occurrences. It is expected that at least two times each year there will be extreme heat or extreme cold in the area. The following information was found on the SHELDUS and NOAA websites. It is possible that people in the area have adapted to this type of extreme temperatures and thus such weather events are not reported as often as they occur. It is also possible that the information has only in recent years been tracked or reported. Table 4.11 identifies dates and times of the temperature extremes.

The location in table 4.11 is not specifically identified in the table by jurisdiction due to the vast area across the State of South Dakota affected by extreme temperatures. On January 13, 2009, after a clipper system dropped from one to four inches of snow, Arctic air and blustery north winds pushed into the area. The coldest air and the lowest wind chills of the season spread across much of central and northeast South Dakota. Wind chills fell to thirty-five to fifty degrees below zero late in the evening of the thirteenth and remained through the fourteenth. By the morning of January 15, 2009 the Arctic high pressure area settled in across northeast South Dakota, bringing wind chills as low as sixty degrees below zero. Many vehicles did not start because of the extreme cold and several schools had delayed starts. Daytime highs remained well below zero across the area. This was one of the coldest days that most areas experienced since the early 1970s. The records were broken by 1 to as much as 7 degrees. Some of the record lows included, -31 degrees at Sisseton; -32 degrees at Milbank; -35 degrees near Summit; and -39 degrees at Castlewood. Some near record low temperatures included -29 degrees at Redfield and Victor; and -34 degrees at Watertown. With these types of temperature extremes the biggest concern for people is exposure because prolonged exposure means almost certain death.

The counterpart to extreme cold is extreme heat which also has dangerous implications to humans, livestock, and critical structures and facilities if certain conditions are present. A temperature extreme occurrence took place between July 28 and July 30, 2006 when record heat and high humidity affected central, north central, and northeast South Dakota. Heat indices rose to 105 to 115 degrees across the area. Also in 2011 extreme heat and high humidity caused the deaths of many head of livestock in the County.

Table 4.11: Codington County 10-year History of Extreme Temperatures

Location	Date	Time	Type
Codington County	7/28/06	11:00 a.m.	Heat
Codington County	04/03/07	12:00 a.m.	Extreme Cold/Wind Chill
Codington County	01/29/08	9:00 a.m.	Extreme Cold/Wind Chill
Codington County	02/10/08	7:00 a.m.	Extreme Cold/Wind Chill
Codington County	12/15/08	2:00 a.m.	Extreme Cold/Wind Chill
Codington County	12/20/08	10:00 p.m.	Extreme Cold/Wind Chill
Codington County	01/13/09	9:00 p.m.	Extreme Cold/Wind Chill
Codington County	01/07/10	4:00 p.m.	Extreme Cold/Wind Chill
Codington County	02/02/11	12:00 a.m.	Extreme Cold/Wind Chill
Codington County	02/08/11	5:00 a.m.	Extreme Cold/Wind Chill

SOURCE: <http://www4.ncdc.noaa.gov>

THUNDERSTORMS/HIGH WIND

Thunderstorms and high wind occurrences in the County are also very common. According to the National Climatic Data Center Storm Events database, the County experienced ninety-two wind events from 1955-2006. Table 4.12 denotes the extent and severity of such hazards occurring in the last ten years. The County continues to educate residents of the dangers of such storms through public service announcements and other printed media.

Table 4.12: Codington County 10-year History for Thunderstorms

Location	Date	Time	Type	Mag
Codington County	4/5/2000	10:00 a.m.	High Wind	62 kts.
Watertown	5/22/2000	3:29 p.m.	Thunderstorm	51 kts.
Codington County	8/5/2000	9:15 p.m.	High Wind	56 kts.
Florence	6/9/2001	10:35 p.m.	Thunderstorm Wind	61 kts.
Watertown	06/09/01	10:59 p.m.	Thunderstorm Wind	51 kts.
Codington County	02/11/02	12:00 p.m.	High Wind	54 kts.
Florence	07/21/02	3:00 a.m.	Thunderstorm Wind	56 kts.
Watertown	07/03/03	11:15 p.m.	Thunderstorm Wind	56 kts.
Codington County	12/12/04	3:29 a.m.	High Wind	54 kts.

Location	Date	Time	Type	Mag
Codington County	03/10/05	7:00 a.m.	High Wind	58 kts.
Florence	05/07/05	7:55 p.m.	Thunderstorm Wind	56 kts.
Florence	06/07/05	11:30 p.m.	Thunderstorm Wind	65 kts.
Watertown Airport	07/31/08	4:16 a.m.	Thunderstorm Wind	54 kts.
South Shore	07/31/08	4:20 a.m.	Thunderstorm Wind	53 kts.
Codington County	10/26/2008	8:45 a.m.	High Wind	63 kts.
Wallace	07/07/09	1:50 p.m.	Thunderstorm Wind	61 kts.
Wallace	07/07/09	1:15 p.m.	Thunderstorm Wind	61 kts.
Henry	07/07/09	2:12 p.m.	Thunderstorm Wind	52 kts.
Florence	07/31/09	4:10 p.m.	Thunderstorm Wind	52 kts.
Wallace	07/31/09	4:12 p.m.	Thunderstorm Wind	52 kts.
Henry	07/31/09	4:20 p.m.	Thunderstorm Wind	52 kts.
Rauville	07/31/09	4:33 p.m.	Thunderstorm Wind	61 kts.
Henry	06/21/10	12:30 a.m.	Thunderstorm Wind	70 kts.
Watertown Airport	06/23/10	12:31 a.m.	Thunderstorm Wind	59 kts.
Watertown	06/23/10	12:45 a.m.	Thunderstorm Wind	52 kts.
Henry	07/17/10	5:00 p.m.	Thunderstorm Wind	61 kts.
Codington County	10/26/10	3:00 p.m.	High Wind	53 kts.

SOURCE: <http://www4.ncdc.noaa.gov>

WINTER STORMS

Table 4.13 shows just how common snow and ice storms are in the County. While such storms would be considered extreme in many parts of the State, the consistent nature of such weather hazards are expected in this area. Thus, planning and response mechanisms for snow and ice storms are vital to the County and are routine procedures in the County due to the common nature of such storms. Winter storms in South Dakota are known to cover large geographical areas, often an entire county or multiple counties can be affected by a single storm. All of the storms identified in Table 4.13 were considered to have occurred countywide. Due to the multiple occurrences of winter storms each year, an exhaustive compilation is not possible.

Table 4.13 Codington County 10-year History of Snow and Ice Storms

Location	Date	Time	Type
Codington County	11/11/00	4:00 p.m.	Winter Storm
Codington County	12/16/00	12:45 a.m.	Blizzard
Codington County	12/28/00	8:00 a.m.	Blizzard
Codington County	01/29/01	5:00 p.m.	Winter Storm
Codington County	02/24/01	1:00 p.m.	Winter Storm
Codington County	02/27/01	1:00 a.m.	Winter Storm
Codington County	04/22/01	5:00 a.m.	Ice Storm
Codington County	11/26/01	1:00 a.m.	Winter Storm
Codington County	03/14/02	3:00 a.m.	Winter Storm

Location	Date	Time	Type
Codington County	02/02/03	12:00 a.m.	Winter Storm
Codington County	11/21/03	2:00 p.m.	Heavy Snow
Codington County	01/25/04	12:00 p.m.	Heavy Snow
Codington County	01/21/05	6:00 p.m.	Blizzard
Codington County	11/27/05	10:00 a.m.	Ice Storm
Codington County	12/29/05	8:00 a.m.	Winter Storm
Codington County	12/30/06	5:00 a.m.	Winter Storm
Codington County	02/23/07	11:00 p.m.	Winter Storm
Codington County	02/28/07	11:00 a.m.	Heavy Snow
Codington County	03/02/07	9:30 a.m.	Blizzard
Codington County	12/01/07	7:00 a.m.	Heavy Snow
Codington County	03/20/08	2:00 p.m.	Heavy Snow
Codington County	04/10/08	1:00 p.m.	Blizzard
Codington County	04/25/08	6:00 a.m.	Winter Storm
Codington County	11/06/08	3:40 p.m.	Winter Storm
Codington County	12/13/08	6:00 p.m.	Blizzard
Codington County	01/12/09	4:00 a.m.	Blizzard
Codington County	03/30/09	9:00 p.m.	Blizzard
Codington County	01/22/10	1:00 p.m.	Winter Storm
Codington County	12/11/10	8:00 a.m.	Blizzard
Codington County	12/30/10	12:30 p.m.	Blizzard
Codington County	12/31/10	12:00 p.m.	Blizzard

SOURCE: <http://www4.ncdc.noaa.gov>

ASSESSING VULNERABILITY: OVERVIEW

Requirement §201.6(c) (2) (ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c) (2) (i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Hazards were also analyzed in terms of the level of the community or county's vulnerability to the hazard. Vulnerability to the hazard is the susceptibility of life, property, and the environment to injury or damage if a hazard occurs. Representatives from each participating jurisdiction and the PDM Planning Team were asked to complete worksheets that rated their perception to vulnerability of hazards for either their specific geographical location, or for county-wide risks. A low vulnerability hazard is one that has very low damage potential to either life or property (minor damage to less than 5% of the jurisdiction). A "medium" vulnerability hazard is unlikely to threaten human life, although some people may be at risk, but may pose moderate damage potential (causing partial damage to 5% to 10% of the jurisdiction, on an irregular occurrence). A "high" vulnerability hazard may threaten human life, and more than ten percent of the jurisdiction may be at risk on a regular occurrence. Table 4.14 above is an overall summary of vulnerability by jurisdiction produced from the FEMA worksheets completed by each participating jurisdiction and PDM Planning Team.

Table 4.14: Overall Summary of Vulnerability by Jurisdiction

Type of Disaster	Codington County	Town of Florence	Town of Henry	Town of Kranzburg	Town of South Shore	Town of Wallace	City of Watertown	Townships
Drought	H	L	H	H	H	H	L	H
Earthquake	N	N	N	N	L	L	N	N
Extreme Cold	H	H	H	H	L	H	H	H
Extreme Heat	H	H	H	H	L	H	H	H
Flood	H	L	L	M	L	H	H	H
Freezing Rain/Sleet/Ice	H	H	H	H	H	H	H	H
Hail	H	L	H	H	M	H	H	M
Heavy Rain	M	H	H	H	L	H	M	H
Heavy Snow	H	H	H	H	M	H	M	H
Ice Jam	L	N	N	N	N	N	H	N
Landslide	N	N	N	N	N	N	N	N
Lightning	L	L	L	H	L	L	M	L
Rapid Snow Melt	H	H	L	H	L	H	M	H
Strong Winds	H	H	H	H	H	M	H	H
Thunderstorm	M	M	H	H	M	M	M	M
Tornado	M	H	H	H	H	H	L	L
Urban Fire	L	M	L	H	M	L	L	N
Utility Interruption	H	H	M	H	H	H	M	H
Wild Fire	M	N	N	N	L	L	L	M

- N** : Not applicable; not a hazard to the jurisdiction
- L** : Low risk/vulnerability; little damage potential (minor damage to less than 5% of the jurisdiction)
- M** : Medium risk/vulnerability; moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)
- H** : High risk/vulnerability; significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)

The following paragraphs summarize the description of the jurisdiction’s vulnerability to each hazard and the impact of each hazard on the jurisdiction.

Blizzards are characterized by high winds, blowing snow, cold temperatures, and low visibility. Blizzards create conditions such as icy roads, closed roads, downed power lines and trees. The County’s population is especially vulnerable to these conditions because people tend to leave their homes to get to places such as work, school, and stores rather than staying inside. Traffic is one of the biggest hazards in the County during a blizzard because people often get stuck, stranded, and lost when driving their vehicles which usually prompts others such as family and or emergency responders to go out in the conditions to rescue them.

Drought can be defined as a period of prolonged lack of moisture. High temperatures, high winds, and low relative humidity all result from droughts and are caused by droughts. A decrease in the amount of precipitation can adversely affect stream flows and reservoirs, lakes, and groundwater levels. Crops and other vegetation are harmed when moisture is not present within the soil.

South Dakota's climate is characterized by cold winters and warm to hot summers. There is usually light moisture in the winter and marginal to adequate moisture for the growing season for crops in the eastern portion of the state. Semi-arid conditions prevail in the western portion. This combination of hot summers and limited precipitation in a semi-arid climatic region present a potential position of suffering a drought in any given year. The climatic conditions are such that a small departure in the normal precipitation during the hot peak growing period of July and August could produce a partial or total crop failure. South Dakota's economy is closely tied to agriculture only magnifies the potential loss which could be suffered by the state's economy during drought conditions. Roughly every fifty years a significant drought is experienced within the county, while less severe droughts have occurred as often as every three years.

Earthquakes occur in the area, but have not had a great enough magnitude or intensity in the past ten years to be reported. The magnitude and intensity of an earthquake is measured by the Richter scale and the Mercalli scale. An earthquake of noteworthy magnitude has not occurred in the county for decades, but it would be reasonable to expect that a large earthquake would have comparative impact on the County as it would anywhere else. The County does not have skyscrapers or very many tall buildings, but it also does not have codes in place that require homes or buildings to be retrofitted.

Extreme Cold temperatures often accompany a winter storm, so you may have to cope with power failures and icy roads. Whenever temperatures drop decidedly below normal and as wind speed increases, heat can leave your body more rapidly. These weather-related conditions may lead to serious health problems. Extreme cold is a dangerous situation that can bring on health emergencies in susceptible people, such as those without shelter or who are stranded, or who live in a home that is poorly insulated or without heat. Exposure is the biggest threat/vulnerability to human life, however, incidences of exposure are isolated and thus unlikely to happen in masses.

Extreme Heat Severe heat waves have caused catastrophic crop damage, thousands of deaths from hyperthermia, and widespread power failures due to increased use of air conditioning. Loss of power and crop damage are the largest vulnerability to the county during extreme heat. Both have an effect on quality of life, however, neither are detrimental to the existence of the population of the County.

Flooding can result in injuries and even loss of life when quickly moving water is involved. Six inches of moving water is enough to sweep a vehicle off a road. Disruption of communication, transportation, electric service, and community services, along with contamination of water supplies and transportation accidents are very possible.

The county is networked with a series of creeks and tributaries, which are part of the Big Sioux River watershed. This area receives several large thunderstorms per year that can cause intense rainfall for short periods of time, resulting in water feeding the Big Sioux River through its respective tributaries. In addition to flooding caused by rainfall, the area surrounding the Big Sioux River is subject to flood damage because of the possibility of extensive snowpack and subsequent spring snowmelt flooding.

There have also been past issues dealing with the maintenance and clearing of drainage channels in the area that have resulted in obstructions restricting the flow of water during a storm. Many residents live in the 100-year flood plain located in the Big Sioux River watershed. Conditions, at times, make response and evacuation operations, very difficult, adversely affecting the safety of residents.

The flooding of township roads is a concern for the entire county. Township officials have identified areas that are either vulnerable or have experienced recurring damages. These areas are identified in maps contained in Appendix E.

Freezing Rain causes adverse conditions such as slippery surfaces and extra weight buildup on power lines, poles, trees, and structures. The additional weight can often cause weak structures to cave in and cause tree branches and power lines to break and fall. The County and the local jurisdictions within are susceptible to these conditions due to the types of structures and surfaces that exist in the county that cannot be protected from freezing rain. Traffic on the roads and highways tend to be the biggest hazard during freezing rain conditions because vehicles often slide off the road which prompts emergency responders and others to have to go out on rescue missions in the adverse conditions.

Hail causes damage to property such as crops, vehicles, windows, roofs, and structures. The County and its local jurisdictions are vulnerable to hail, like most other areas in the State due to the nature of the hazard. Mitigating for hail is difficult and is usually found in the form of insurance policies for structures, vehicles, and crops.

Heavy Rain causes damage to property such as homes and roads. Often when heavy rains occur in the County it may cause sewers to backup in homes due to excess water entering the wastewater collection lines. The excess water sometimes has no place to go and thus basements fill up with water which results in damage to water heaters, furnaces, and damage to living quarters for people who live in basement apartments. Roads and bridges can be washed out, thus causing traffic hazards for travelers and commuters. Many times the roads have to be closed causing rural traffic to have to take alternate routes which can sometimes be an additional five to ten miles out of the way. All areas of the County are vulnerable when heavy rains occur. Storm sewers are built for the typical storm and therefore do not accommodate for excessive or heavy rains.

Ice Jams cause damage to bridges, roads, and culverts due to water currents pushing large chunks of ice under or through small openings. There are eight bridges inside the City limits of Watertown, located on Broadway Street, Highway 212, 4th Avenue South, Kemp Avenue, 3rd Avenue, 10th Avenue and 14th Avenue 3rd Street and 21st street, which are at risk for ice jams. There are also many other unspecified areas throughout the county that are vulnerable to ice jams.

Landslides have a low chance of occurring in the County due to the relatively flat topography.

Lightning often strikes the tallest objects within the area. In towns trees and poles often receive the most strikes. In rural areas, shorter objects are more vulnerable to being struck. Electrical lines and poles are also vulnerable because of their height and charge. In addition, many streetlights function with sensors. Since thunderstorms occur primarily during hours of darkness, lightning strikes close to censored lights cause the lights to go out, causing a potential hazard for drivers. Flickering lights and short blackouts are not at all uncommon in the county.

One of lightning's dangerous attributes includes the ability to cause fires. Since the entire county is vulnerable to lightning strikes and subsequent fires, these fires will be treated under the fire section of this PDM.

Most injuries from lightning occur near the end of thunderstorms. Individuals who sought shelter leave those areas prior to the entire completion of the thunderstorm. Believing it is safe to freely move around, concluding lightning strikes catch them off guard.

Severe Winter Storms have a high risk of occurrence. Approximately five snowstorms each resulting in five to ten inches of snow occur in the County area annually. Heavy snow can immobilize transportation, down power lines and trees and cause the collapsing of weaker structures. Livestock and wildlife are also very vulnerable during periods of heavy snow. Most storms can be considered to have occurred countywide. Due to the multiple occurrences of winter storms each year, an exhaustive compilation is not possible.

Additionally, winter storms often result in some forms of utility mishaps. High voltage electric transmission/distribution lines run the length of the County. These lines are susceptible to breaking under freezing rain and icy conditions and severing during high blizzard winds. Within the county, particularly within Watertown, there are fiber optics associated with phone transmissions that are the lifeline to communications. Any electrical complications bring associated risk of food spoilage, appliance burnout, loss of water, and potential harm for in-house life support users. Limited loss of power is not uncommon on an annual basis. A typical power interruption lasts from one to three hours. Most residents are prepared to deal with this type of inconvenience.

The greatest danger during winter weather is traveling. Many individuals venture out in inclement weather. Reasons include the necessity of getting to work, going to school, going out just to see how the weather is, and to rescue stranded persons.

Snow Drifts are caused by wind blowing snow and cold temperatures. These drifts can be small finger drifts on roadways causing cautionary driving, or twenty to forty foot high drifts that block entire highways, roads, and farmyards for several days.

Populations at highest vulnerability for this type of hazard are rural homeowners, which account for approximately seventeen percent of the county, and the elderly. As with any weather event, those dependent upon healthcare supplies and other essentials will also bear the brunt of highway closures and slowed transportation due to snow and ice. Emergency services will also be delayed during winter storms.

Snow removal policies and emergency response is at excellent performance and no projects will be considered in this area. Generators provide back-up power to many critical facilities within the municipalities and in rural areas. However, some of the critical facilities that could be utilized in disaster situations do not have backup generators. Also, some facilities have generators that only power a portion of operations.

Strong Winds can be detrimental to the area. Trees, poles, power lines, and weak structures are all susceptible and vulnerable to strong winds. When strong winds knock down trees, poles, power lines, and structures it creates additional traffic hazards for travelers and commuters. Strong winds are a common occurrence in all parts of the County. The farming community tends to be vulnerable because many old farm sites have weak, dilapidated, or crumbling structures or structures such as grain bins which can easily be blown over. Another area of particular vulnerability would be those areas with dense tree growth where dead or decaying trees lose their stability and can be blown over or knocked down easily.

Thunderstorms cause lightening and sometimes large amounts of rain in a small timeframe. The entire county experiences thunderstorms on a regular basis and is only vulnerable when weather events outside the norm occur. Specific vulnerabilities are further identified in the paragraphs for “Lightening” and “Heavy Rains”.

Tornadoes present significant danger and occur most often in South Dakota during the months of May, June, and July. The greatest period of tornado activity (about 82 percent of occurrence) is from eleven a.m. to midnight. Within this time frame, most tornadoes occur between four p.m. and six p.m. The annual risk for intense summer storms is very high. Often associated with summer storms are utility problems. High voltage electrical transmission lines run the length of the County. These lines are susceptible to breaking during high winds and hail. Tall trees located near electrical lines can be broken in wind or by lightning strikes and land on electrical lines, severing connections. Any electrical complications bring associated risk of food spoilage, appliance burnout, loss of water, and potential harm to in-house life support dependents. Limited loss of power is common on an annual basis. Typical power interruptions last around one to three hours. Most residents are prepared to deal with this.

Wildfires occur primarily during drought conditions. Wildfires can cause extensive damage, both to property and human life, and can occur anywhere in the county. Even though wildfires can have various beneficial effects on wilderness areas for plant species that are dependent on the effects of fire for growth and reproduction, large wildfires often have detrimental atmospheric consequences, and too frequent wildfires may cause other negative ecological effects. Current techniques may permit and even encourage fires in some regions as a means of minimizing or removing sources of fuel from any wildfire that might develop.

Since there are no remote forested regions in the County, wildfires can be easily spotted and are capable of being maintained. The County does not have any areas that are considered wildland-urban interface because property outside city limits is primarily agricultural land, thus, there are no urban interface areas of risk in the County. In addition, fire interference with traffic on highways is not a major concern. The most important factor in mitigating against wildfires continues to be common sense and adherence to burning regulations and suggestions disseminated by the County.

Moisture amounts have the biggest impact on fire situations. During wet years, fire danger is low. More controlled burns are conducted and fewer mishaps occur. During dry years, severe restrictions are placed on any types of burns. For information on dealing with open/controlled burning within the county, see SDCL 34-29B and SDCL 34-35.

ADDRESSING VULNERABILITY: REPETITIVE LOSS PROPERTIES

Requirement §201.6(c) (2) (ii): [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

Due to various geomorphologic and topographical conditions, periodic flooding affects numerous areas in both incorporated and unincorporated areas of the County. High concentrations of residential development occurred adjacent to Lake Pelican and Lake Kampeska prior to the initial flood hazard boundaries being identified on January 24, 1978. As a result, numerous structures already existed at the time of adoption of the first map and continue to be lived in today. Further, the City of Watertown was established in 1879 in areas identified today as floodprone and expanded significantly in areas now identified as flood hazard areas until the identification of the flood hazard boundaries in 1978. As a result numerous

structures with residential, commercial, public/quasi-public and industrial uses associated with them are located within Flood Hazard Areas currently identified as Zone AE, AO, A, and C. Many structures located within the County have experienced flooding or are required to be insured against flood due to their proximity to special flood hazard areas. The County has a total of nine hundred five (905) flood insurance policy holders. The vast majority of those policies, eight hundred thirty-one (831), insure property within the City of Watertown.

Table 4.15: Codington County National Flood Insurance Program Statistics

Community Name	Current NFIP Policies	Number of Claims Paid Since 1978	Total Value of Claims Paid	Policies for Structures in A-Zones	Repetitive Loss Properties
City of Watertown	831	396	\$5,211,720.00	294	75
Unincorporated areas of Codington County	74	25	\$336,383.00	18	2
Totals	905	421	\$5,548,103.00	312	77

SOURCE: South Dakota State NFIP Coordinator

The PDM Planning Team focused attention particularly on flood related issues. An issue of primary concern the number of times specific properties and structures on those properties flood. The County, more specifically the City of Watertown has a large incidence of repetitive loss claims in comparison to other jurisdictions in South Dakota. Repetitive loss properties are those for which two or more losses of at least \$1,000 each have been paid under the National Flood Insurance Program (NFIP) within any ten-year period since 1978. A total of seventy-seven are classified as “repetitive loss properties.” As was previously mentioned a goal of the County is to protect specific areas in the county from flooding. This goal aims to protect properties prone to flood losses, but does not discount the possibility that in some cases structures located in the floodplain may need to be removed.

ADDRESSING VULNERABILITY: SEVERE REPETITIVE LOSS PROPERTIES

The Flood Insurance Reform Act of 2004 identified another category of repetitive loss, severe repetitive loss, and defined it as “a single family property (consisting of one-to-four residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage with the amount of each claim payment exceeding \$5,000 and with cumulative amount of such claims payments exceeding \$20,000; or for which at least two separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.” As of 2008 the County is home to the only property (a campground) that meets this definition in South Dakota. Losses to this property, which has multiple structures, between March 1986 and April 2001 equaled \$337,374.

ASSESSING VULNERABILITY: IDENTIFYING STRUCTURES

Requirement §201.6 (c) (2) (ii) (A): The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area...

One of the primary purposes of this PDM is identifying critical facilities, emergency shelters, and summer storm shelters and equipping those facilities with the means to provide the necessary energy for access to sanitation and maintain important functions during a natural hazard occurrence. In the event of a disaster as a result of severe summer or winter storms, a terrorist attack, or a hazardous materials incident, the County and participating entities will have the ability to prevent further loss of life by generator powered critical facility shelters. The City of Watertown has many structures that are vital to emergency operations. Each jurisdiction was responsible for listing critical infrastructure within their communities. Table 4.16 is a list of critical facilities that would cause the greatest distress in the county if destruction occurred. The information provided in Table 4.16 was compiled via survey of the participating communities.

Table 4.16: Critical Structures in Codington County

Jurisdiction/ Entity	Location	Address	Sector	Sub sector	Name	Owner Type
Alltel/AT&T	Codington County	314 347 th Avenue	Telecommunications	Cell Phone Tower	Alltel/AT&T	Private
Codington-Clark Electric COOP	Phipps Township		Utility	Power Lines, 10 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Kranzburg Township		Utility	Power Lines, 1mile	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Fuller Township		Utility	Power Lines, 3 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Sheridan Township		Utility	Power Lines, 4 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Dexter Township		Utility	Power Lines, 46 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Leola Township		Utility	Power Lines, 5 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Germantown Township		Utility	Power Lines, 5 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Elmira Township		Utility	Power Lines, 6 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Lake Township		Utility	Power Lines, 6 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Richland Township		Utility	Power Lines, 6 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Pelican Township		Utility	Power Lines, 6 miles	Codington-Clark Electric COOP	Public
Codington-Clark Electric COOP	Eden Township		Utility	Power Lines, 7 miles	Codington-Clark Electric COOP	Public
Interstate Tele- communications	Town of Henry	First Street	Non Emergency Response Facility	Fiber Optic and Phone Line	Interstate Tele- Communications	Private
Interstate Tele- communications	Town of South Shore	Main Street	Non Emergency Response Facility	Fiber Optic and Phone Line	Interstate Tele- Communications	Private
Interstate Tele- communications	Rural Codington County	1329 41 st St SE	Non Emergency Response Facility	Fiber Optic and Phone Line	Interstate Tele- Communications	Private
Magellan Mid Stream Partners	City of Watertown	1000 17th St NE	Non Emergency Response Facility	Petroleum Pipeline	Magellan Mid Stream Partners	Private
Northern Border Pipeline	Rural Codington County	NW to SE from Graceland Township to Pelican Township	Non Emergency Response Facility	Natural Gas Supply	Northern Border Pipeline	Private
Northern Natural Gas	Rural Codington County	From Section 1-116- 53 southwest toward Willow Lake, SD	Non Emergency Response Facility	Natural Gas Supply	Northern Natural Gas	Private
North Sioux Conifer Road	Rural Codington County	Section 14-117-53	Non Emergency Response Facility	Water Supply – Wells	North Sioux Conifer Road	Public
Northwestern Energy	Rural Codington County	North from South border of Pelican Township to City of Watertown	Non Emergency Response Facility	Natural Gas Supply	Northwestern Energy	Private
NBPL – TBS	Rural Codington County	45371 178 th St	Non Emergency Response Facility	Natural Gas Supply	NBPL – TBS	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub sector	Name	Owner Type
Western Area Power Headquarters	Rural Codington County	1330 41st St SE	Non Emergency Response Facility	Electrical Supply	Western Area Power Headquarters	Public
Florence	Town of Florence	308 Main Avenue	Emergency Services	Fire Department	Florence Fire Department	Public
Florence	Town of Florence	308 Main Avenue	Government Facility	Community Center	Florence Community Center	Public
Florence	Town of Florence	515 Main Avenue	Government Facility	Emergency Operations Center	Florence School	Public
Florence	Town of Florence	202 Thorson Ave	Non Emergency Response Facility	Sanitary Sewer	Sewer Lagoon	Public
Florence	Town of Florence	471 Thorson Ave	Non Emergency Response Facility	Sanitary Sewer	Lift Station	Public
Florence	Town of Florence	Intersection of Seever's Ave. and 5 th Street	Non Emergency Response Facility	Water Distribution Point	Water System Pump House	Public
Florence	Town of Florence	1004 6 th Street	Population to Protect	Elderly Housing	Country View Assisted Living Center	Private
Florence	Town of Florence	515 Main Avenue	Public Institution	School	Florence School	Public
Florence	Town of Florence	312 4 th St	Telecommunications	Switch/Router	Interstate Telecom (ITC)	Private
Henry	Town of Henry	218 3 rd Street	Emergency Services	Fire Department	Henry Fire Department	Public
Henry	Town of Henry	210 Main Street	Government Facility	Community Center	Henry Community Center	Public
Henry	Town of Henry	210 Main Street	Government Facility	Emergency Operations Center	Henry Fire Department	Public
Henry	Town of Henry	210 Main Street	Government Facility	Emergency Shelter	Henry Community Building	Public
Henry	Town of Henry		Non Emergency Response Facility	Sanitary Sewer	Lift Station	Public
Henry	Town of Henry	200 Second Street	Population to Protect	Low Income Housing	Westside Apartments	Private
Henry	Town of Henry	111 North Cedar	Public Institution	School	Henry Elementary and Secondary School	Public
Kranzburg	Town of Kranzburg	103 St Peter St NE	Education Institution	Private School	Holy Rosary School	Private
Kranzburg	Town of Kranzburg	151 Dakota Ave N.	Government Facility	Town Hall	Kranzburg Town Hall	Public
Kranzburg	Town of Kranzburg	East Hwy 212	Non Emergency Response Facility	Sanitary Sewer Lagoon	Kranzburg Sewer Lagoon	Public
Kranzburg	Town of Kranzburg	103 St Peter St NE	Population to Protect	Day Care	Holy Rosary Day Care	Private
Kranzburg	Town of Kranzburg	316 St Mary St E.	Population to Protect	Elderly Housing	Kranzburg Housing Inc.	Private
Kranzburg	Town of Kranzburg	204 Hastings Ave NW	Private Home	Emergency Operations Center	Kevin Krantz House	Private
South Shore	Town of South Shore	102 N. Main Street	Emergency Services	Building	South Shore Fire Department	Public
South Shore	Town of South Shore	102 N. Main Street	Government Facility	Building	South Shore City Hall	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub sector	Name	Owner Type
South Shore	Town of South Shore	102 N. Main Street	Government Facility	Emergency Shelter	South Shore City Hall	Public
South Shore	Town of South Shore	West Lake Front Drive	Population to Protect	Campground	Punished Woman Lake Campground	Private
South Shore	Town of South Shore	101 S. Broad Street	Population to Protect	Day Care	Tiny Tots Daycare	Private
South Shore	Town of South Shore	210 W. Berry Ave	Population to Protect	Day Care	Our Savior's Lutheran Church	Private
South Shore	Town of South Shore	300 S. Main Street	Population to Protect	Day Care	Rhonda Schaefer Day Care	Private
South Shore	Town of South Shore	203 Trailer Court Lane	Population to Protect	Manufactured Home Court	Private Residences	Private
South Shore	Town of South Shore	203 S. School Street	Non Emergency Response Facility	Vacant School Building	South Shore School	Public
Wallace	Town of Wallace	611 Main Street	Emergency Services	Fire Department	Wallace Fire Department	Public
Wallace	Town of Wallace	611 Main Street	Government Facility	Emergency Operations Center	Wallace Fire Department	Public
Wallace	Town of Wallace	643 Main Street	Government Facility	Emergency Shelter	Town Hall	Public
Watertown	City of Watertown	222 9 th Ave SE	Communications	Telephone, cable, Internet Services	Mid-continent	Private
Watertown	City of Watertown	22 2 nd St SE	Communications	Telephone, cable, Internet Services	Knology	Private
Watertown	City of Watertown	1511 9 th Ave SE	Communications	Telephone, cable, Internet Services	Swiftel Communications	Private
Watertown	City of Watertown	200 E Kemp Ave	Communications	Telephone, cable, Internet Services	Lake Area Communications	Private
Watertown	City of Watertown	1018 6th ST	Communications	Telephone, cable, Internet Services	RC Technologies	Private
Watertown	City of Watertown	128 Maple St NE	Government Facility	Building	Watertown Police Station	Public
Watertown	City of Watertown	14 1st Ave SE	Government Facility	Building	Codington County Courthouse	Public
Watertown	City of Watertown	14 1 st Ave SE	Government Facility	Building	Codington County Sheriff's Office	Public
Watertown	City of Watertown	129 1 st Ave NW	Government Facility	Building	Watertown Fire Department	Public
Watertown	City of Watertown	500 Golf Course Road	Government Facility	Building	Watertown Fire Department	Public
Watertown	City of Watertown	1201 10 th St NW	Government Facility	Emergency Fuel Facility	Codington County Highway Department	Public
Watertown	City of Watertown	730 Arrow Ave	Government Facility	Emergency Fuel Facility	Watertown Street Department	Public
Watertown	City of Watertown	119 S. Maple St	Government Facility	Emergency Power Facility	Watertown Detention Center	Public
Watertown	City of Watertown	125 S. Broadway St	Government Facility	Emergency Shelter	Watertown City Auditorium	Public
Watertown	City of Watertown	125 S. Broadway St	Government Facility	Emergency Shelter	Watertown City Auditorium	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub sector	Name	Owner Type
Watertown	City of Watertown	1910 W. Kemp Ave	Government Facility	Emergency Shelter	Codington County Extension Center	Public
Watertown	City of Watertown	200 9 th St NE	Government Facility	Emergency Shelter	Watertown High School	Public
Watertown	City of Watertown	77 S Lake Dr	Government Facility	Emergency Shelter	Stokes-Thomas City Park, Lake Kampeska	Public
Watertown	City of Watertown	1200 N Lake Dr	Government Facility	Emergency Shelter	Memorial Park, Lake Kampeska	Public
Watertown	City of Watertown		Non Emergency Response Facility	Railroad	Burlington Northern, Santé Fe (BNSF) DM&E	Private
Watertown	City of Watertown	1000 Golf Course Rd	Non Emergency Response Facility	Water Supply – Pump House	Derby Downs	Public
Watertown	City of Watertown	605 2 nd St NW	Non Emergency Response Facility	Water Supply – Pump House	Mellette School	Public
Watertown	City of Watertown	300 14 th St SE	Non Emergency Response Facility	Water Supply – Pump House	Larson Substation Area	Public
Watertown	City of Watertown	405 14th Ave NW	Non Emergency Response Facility	Water Supply - Storage Tanks	14th Ave NW	Public
Watertown	City of Watertown	302 14th St SE	Non Emergency Response Facility	Water Supply - Storage Tanks	14th St SE	Public
Watertown	City of Watertown	1028 18th St NE	Non Emergency Response Facility	Water Supply – Storage Tanks	19 th St NE	Public
Watertown	City of Watertown	16769 SD HWY 20	Non Emergency Response Facility	Water Supply – Storage Tanks	North Lake Drive	Public
Watertown	City of Watertown	955 S. Lake Dr.	Non Emergency Response Facility	Water Supply – Storage Tanks	South Lake Drive	Public
Watertown	City of Watertown	1415 6 th Ave NW	Non Emergency Response Facility	Water Supply – Wells	Treatment Plant	Public
Watertown	City of Watertown	119 S Maple St	Non Emergency Response Facility	Water Supply – Wells	Detention Center Area	Public
Watertown	City of Watertown	311 1 st Ave NE	Non Emergency Response Facility	Electrical Supply	Uptown Substation	Public
Watertown	City of Watertown	Fish Road SW	Non Emergency Response Facility	Electrical Supply	Pelican Substation	Public
Watertown	City of Watertown	300 14 th St SE	Non Emergency Response Facility	Electrical Supply	East Substation	Public
Watertown	City of Watertown	3225 9 th Ave SW	Non Emergency Response Facility	Electrical Supply	West Substation	Public
Watertown	City of Watertown	901 4 th Ave SW	Non Emergency Response Facility	Electrical Supply	Watertown Municipal Utilities (Main Location)	Public
Watertown	City of Watertown	Loop around Watertown	Non Emergency Response Facility	Electrical Supply	Transmission Line and Fiber Ring	Public
Watertown	City of Watertown	701 20 th Ave SW	Non Emergency Response Facility	Natural Gas Supply	Peak Shaving Plant	Public
Watertown	City of Watertown	702 20 th Ave SW	Non Emergency Response Facility	Natural Gas Supply	NNG - TBS	Public

Jurisdiction/ Entity	Location	Address	Sector	Sub sector	Name	Owner Type
Watertown	Rural Codington County		Non Emergency Response Facility	Water Supply – Transmission Lines	Rauville Well Transmission Lines	Public
Watertown	Rural Codington County	45453 165 th St	Non Emergency Response Facility	Water Supply – Wells	Rauville Wells	Public
Watertown	City of Watertown	600 Block, 4th Ave SW	Transportation	Bridge on Evacuation Route	4 th Ave SW	Public
Watertown	City of Watertown	300 Block 9th Ave SW and 2200 Block 9th Ave SE	Transportation	Bridge on Evacuation Route	US Hwy 212	Public
Watertown	City of Watertown	900 Block Broadway St South	Transportation	Bridge on Evacuation Route	Broadway St	Public
Watertown	City of Watertown	100 Block First Ave NE	Transportation	Bridge on Evacuation Route	1 st Ave NE	Public
Watertown	City of Watertown	1100 Block 20th Ave SE	Transportation	Bridge on Evacuation Route	20 th Ave SE	Public
Watertown	City of Watertown	800 Block, 14th Avenue NW	Transportation	Bridges on Evacuation Route	14 th Ave NW	Public
Watertown	City of Watertown	600 Block, 10th Avenue NW	Transportation	Bridges on Evacuation Route	10 th Ave NW	Public
Watertown	City of Watertown	600 Block, 3rd Avenue NW	Transportation	Bridges on Evacuation Route	3 rd Ave NW	Public
Watertown	City of Watertown	601 Block, Kemp Ave West	Transportation	Bridges on Evacuation Route	Kemp Ave W	Public
Watertown	City of Watertown		Transportation	Evacuation Route	Highway 212	Public
Watertown	City of Watertown		Transportation	Evacuation Route	Interstate 29	Public
Watertown	City of Watertown		Transportation	Evacuation Route	Highway 81	Public
Watertown	City of Watertown		Transportation	Evacuation Route	Highway 20	Public
Watertown	City of Watertown	100 Block First Ave NE	Transportation	Bridge on Evacuation Route	1 st Ave NE	Public

ASSESSING VULNERABILITY: ESTIMATING POTENTIAL LOSSES

Requirement §210.6(c) (2) ii) (B): [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c) (2) (ii) (A) of this section and a description of the methodology used to prepare the estimate...

The information provided in the following tables was collected from the Codington County Director of Equalization and Codington County Zoning Office. Bob Johnson from Codington-Clark Electric Cooperative Inc. provided the information for Codington-Clark Electric. Inconsistencies and missing information result from lack of existing mechanisms, plans, and technical documents available.

The assessor's office provided the assessed valuation of properties within the municipalities and in rural areas of the county. All properties with structures, whether owner occupied or not were included in the valuations provided in Tables 4.17 through 4.25. The reports provided by the assessor's office did not include the number of people in each structure; thus, many of the tables are missing this information. The following tables also do not address information regarding religious, governmental, or utility structures. Although not included in Tables 4.17 through 4.25, the State of South Dakota Hazard Mitigation Plan incorporated HAZUS analysis accounting for potential losses to those structures within Codington County.

**Table 4.17: Codington County (Rural Area)
Estimated Potential Dollar Losses to Vulnerable Structures**

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in County	# in HA	% in HA	\$ in County	\$ in HA	% in HA	# in Rural Areas	# in HA	% in HA
Residential	1,697	37	2.18	\$155,691,230	\$3,394,564	2.18	4,622	103	2.23
Commercial/Industrial	99	2	2.02	\$10,117,997	\$204,383	2.02			
Agricultural	921	34	3.69	\$20,158,861	\$743,862	3.69			
Mobile Homes	235	5	2.13	\$4,814,957	\$102,446	2.13	Included in "Residential"		
Total	2,952	78	2.64	\$190,783,045	\$4,445,255	2.33	4,622	103	2.23

Table 4.18: Florence Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	123	0	0	\$7,284,594	0	0	374	0	0
Commercial/Industrial	22	0	0	\$1,455,290	0	0			
Agricultural	2	0	0	\$2,754	0	0			
Manufactured Home	28	0	0	\$1,171,884	0	0			
Total	175	0	0	\$9,914,522	0	0	374	0	0

Table 4.19: Henry Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	101	0	0	\$3,365,113	0	0	267	0	0
Commercial/Industrial	14	0	0	\$537,410	0	0			
Agricultural	1	0	0	\$2,510	0	0			
Manufactured Home	38	0	0	\$1,123,834	0	0			
Total	154	0	0	\$5,028,867	0	0	267	0	0

Table 4.20: Kranzburg Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	61	0	0	\$3,697,128	0	0	172	0	0
Commercial/Industrial	13	0	0	\$399,494	0	0			
Agricultural	1	0	0	\$68,790	0	0			
Manufactured Home	10	0	0	\$297,325	0	0			
Total	85	0	0	\$4,462,737	0	0	172	0	0

Table 4.21: South Shore Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	103	0	0	\$3,664,102	0	0	225	0	0
Commercial/Industrial	22			\$914,763					
Agricultural	2			\$6,460					
Manufactured Home	18			\$501,577					
Total	145	0	0	\$5,086,902	0	0	225	0	0

Table 4.22: Wallace Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	48	0	0	\$811,440	0	0	85	0	0
Commercial/Industrial	17	0	0	\$582,480	0	0			
Agricultural	2	0	0		0	0			
Manufactured Home	4	0	0	\$87,634	0	0			
Total	71	0	0	\$1,481,554	0	0	85	0	0

Table 4.23: Watertown Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in City	# in HA*	% in HA	\$ in City	\$ in HA	% in HA	# in City	# in HA	% in HA
Residential	7,467	1,192	15.96	\$713,322,845	\$113,846,326	15.96	21,482	3,011	14.02
Commercial/Industrial	1,062	156	14.69	\$295,170,186	\$43,358,332	14.69			
Agricultural	1			\$3,160					
Manufactured Home	973	215	22.09	\$10,408,488	\$2,299,923	22.09	Included in "Residential"		
Total	9,503	1,563	16.45	\$1,018,904,679	\$159,504,581	15.65	21,482	3,011	14.02

NOTE: *1,192 residential structures include: 917 single family dwelling units, 199 units in multiple family dwellings.

Table 4.24: Codington County Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Number of Structures			Value of Structures			Number of People		
	# in County	# in HA	% in HA	\$ in County	\$ in HA	% in HA	# in County	# in HA	% in HA
Residential	9,600	1,229	12.80	\$887,836,452	\$117,240,890	13.21	27,227	3,114	11.44
Commercial/Industrial	1,249	158	12.65	\$309,177,620	\$43,562,715	14.09			
Agricultural	930	34	3.66	\$20,242,535	\$743,862	3.68			
Manufactured Homes	1,306	220	16.85	\$18,405,699	\$2,402,369	13.05	Included in "Residential"		
Total	13,085	127	0.013	\$1,235,662,306	\$163,949,836	13.27	27,227	3,114	11.44

Notes:
in HA: Number in structures in hazard area was determined using land use surveys performed since 2008, aerial photography and DFIRM boundaries provided by FEMA. Some structures included may have received LOMA's, removing them from the flood plain, since the effective date of the current DFIRM.

\$ in HA: Value of structures in hazard area was estimated by determining the average value per structure and multiplying that value by the number of properties or structures used with a corresponding land use.

in [Jurisdiction]: The number of people was based on the 2010 Census.

in Hazard Area: The number of people in a hazard area was determined by multiplying the average household size of a given community as identified by the number of structures in the identified hazard area, and multiplying that number by the rate of occupancy for the community (All statistics from the US Census 2010).

Table 4.25: Codington-Clark Electric Co-op Inc. Estimated Potential Dollar Losses to Vulnerable Structures

Type of Structure	Total Number of Structures	Total Value of Structures	HAZARDS			
			Flood	Strong Winds	Tornado	Winter Storms
Poles	2100	\$1,867,200	Yes	Yes	Yes	Yes
Underground Equipment	75	\$90,000	Yes	No	No	No
Transformers/Wire	100 Transformers 97 Miles of Overhead Line	\$1,479,000	Yes	Yes	Yes	Yes
Substations	N/A	N/A	No	No	No	No

SOURCE: Codington-Clark Electric Cooperative Inc.

As part of the State of South Dakota Hazard Mitigation Plan, data were prepared for specific hazard types. Although the data is not current, the modeling used in the plan would be difficult to replicate or improve upon. The following sections describing vulnerability to flooding and tornadoes is based largely on the corresponding sections in the State of South Dakota Hazard Mitigation Plan.

Flooding

Portions of the Big Sioux Watershed were identified in the State of South Dakota Hazard Mitigation Plan as priority regions and jurisdiction. Based on its history of flood problems, the County was deemed a high priority jurisdiction in South Dakota's Plan. For that reason HAZUS-MH analysis was performed in conjunction with the completion of the State's Plan. The results were based on flooding with a one percent chance of occurrence or commonly referred to as a

“100-year flood” and display the potential base flood losses to the County. Most startlingly the results indicate a flood of the projected magnitude would displace three thousand twenty seven (3,027) people. The full results of HAZUS-MH analysis for the County are displayed in Table 4.26

Table 4.26: HAZUS-MH Base Flood (1 Percent Chance) Loss Estimation Results (2007)

Building Damage	Loss Ratio*	Contents Damage and Inventory Loss	Total Economic Building Loss	Number of Displaced People	People Needing Shelter
\$28,917,000	1.70%	\$48,403,000	\$81,843,000	3,027	2,301

SOURCE: *State of South Dakota Hazard Mitigation Plan. p 3-147; Table 3-41. South Dakota Office of Emergency Management. 2011.*

*Loss ratio is the percent of the total building inventory value that could be damaged from flooding in any given year.

Tornado

As part of the State of South Dakota Hazard Mitigation Plan HAZUS-MH analysis was performed calculating potential building exposure to tornadoes in the state. Total value of structures lost due to tornadoes from 1950 – 2009 was calculated, inflated to current (2009) dollars. A loss ratio was then calculated by dividing the total damage by the total building exposure. Table 4.27 identifies data specific to the annualized losses from tornadoes for the County as identified in the State of South Dakota Hazard Mitigation Plan.

Table 4.27: Codington County Annualized Losses from Tornadoes

Total Events 1950-2009	Total Property Damage (inflated) 1950-2009	Annualized Losses	Total Building Exposure	Loss Ratio
29	\$20,494,124.00	\$341,569.00	\$1,678,645.00	0.0002

SOURCE: *State of South Dakota Hazard Mitigation Plan. p. 3-179; Table 3-67. South Dakota Office of Emergency Management. 2011.*

ASSESSING VULNERABILITY: ANALYZING DEVELOPMENT TRENDS

Requirement §201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

The land use and development trends for each jurisdiction were identified by the representatives from each of the jurisdictions. The only communities in the County that are experiencing any growth and/or development at this time are Watertown and Florence and some rural areas around Watertown. The rest of the jurisdictions have experienced declining populations over the past ten years and at this time are just trying to maintain the population they have. Despite declining populations the smaller jurisdictions, except for Wallace, maintain Comprehensive Land Use Plans for growth and development.

UNIQUE OR VARIED RISK ASSESSMENT

Requirement §201.6(c) (2) (iii): For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

After conducting the risk assessment for each jurisdiction, the PDM Planning Team decided that all areas of the county have an equal chance of a natural hazard occurrence in their area. While the extent to which each jurisdiction is affected by such hazards varies slightly between the local jurisdictions, the implications are the same. Thus the PDM Planning Team decided that all jurisdictions in the County, with the exception of Watertown because of its size, are equally affected by the types of hazards/risks that affect the PDM jurisdiction. Thus, the unique or varied risk requirement is not applicable to the Codington County PDM.

On the following pages, a hazard vulnerability map is shown for each of the jurisdictions participating in this PDM. The maps identify critical infrastructure and one hundred year flood plain. Since the other major hazards facing the county are not geographically based. Winter storms and severe summer storms are about as likely to occur in one part of the county as another. Similarly, wildfires can occur almost anywhere in the county, although they are more likely to occur in areas with extensive grassland cover or shrubs. While specific locations for above ground electrical distribution lines are not identified on the map(s), they are located throughout the County and are vulnerable to both flooding and severe weather. (See Figures 4.1 through 4.7).

Figure 4.1: Codrington County Hazard Vulnerability Map

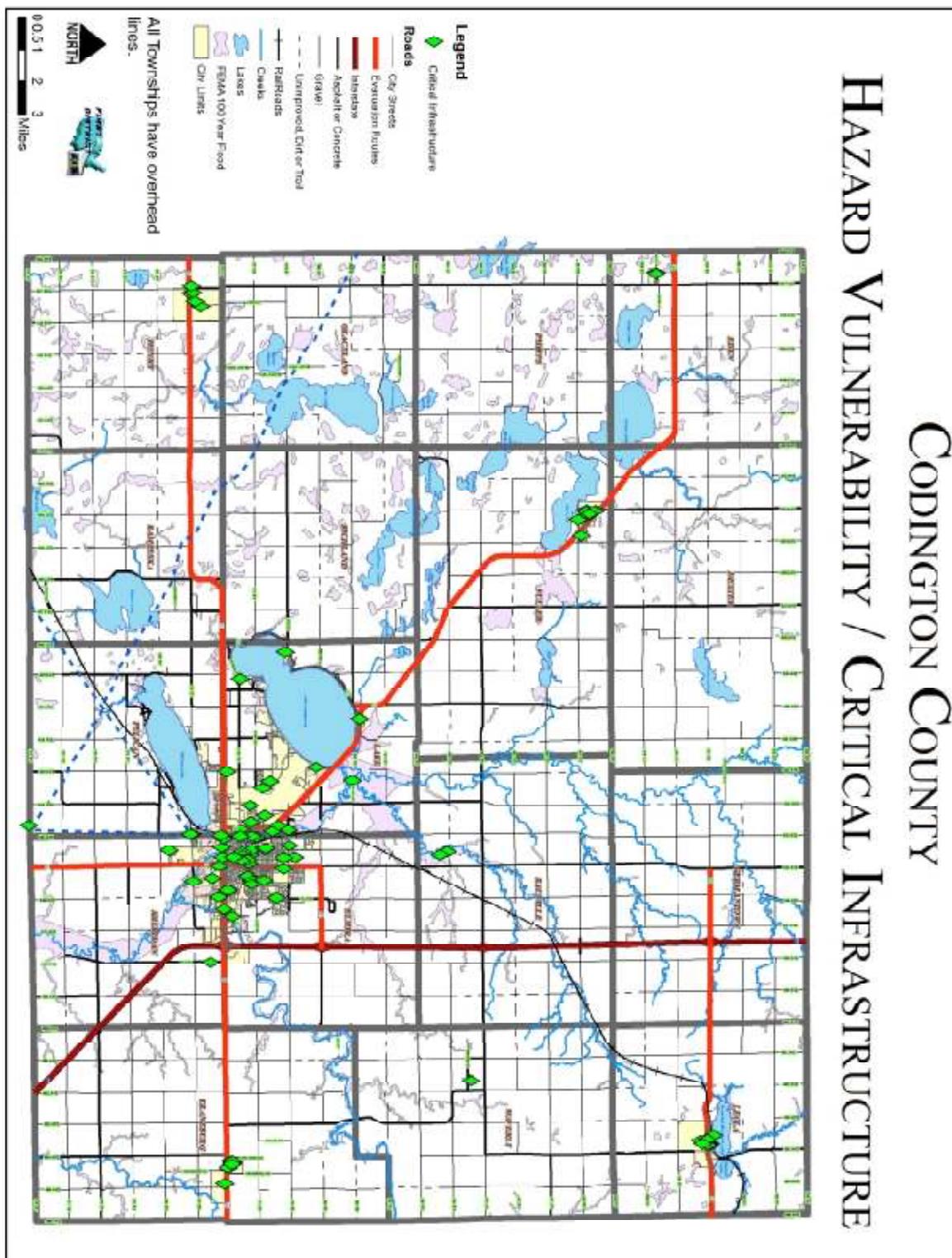


Figure 4.2: Town of Florence Hazard Vulnerability Map

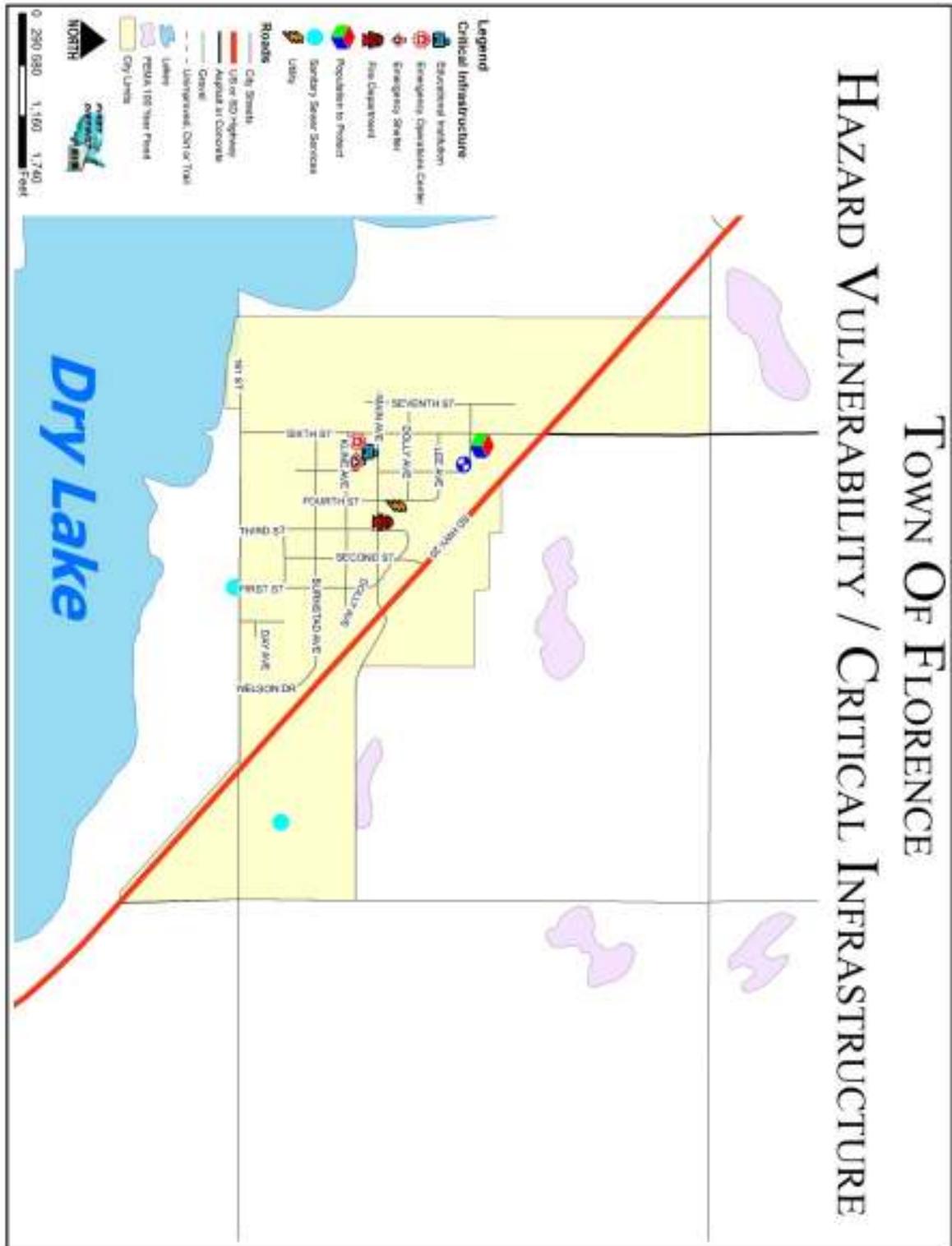


Figure 4.3: Town of Henry Hazard Vulnerability Map

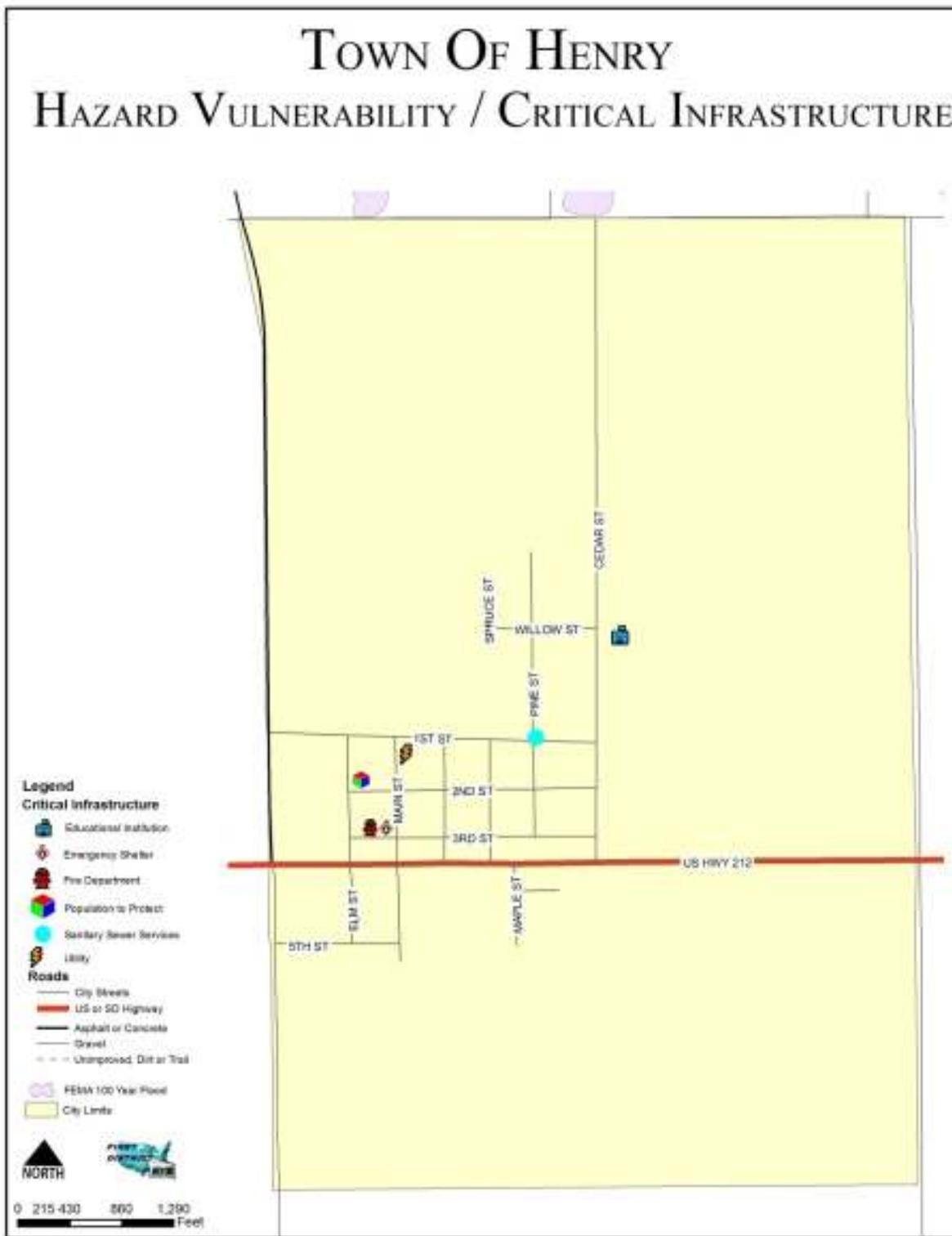


Figure 4.4: Town of Kranzburg Hazard Vulnerability Map

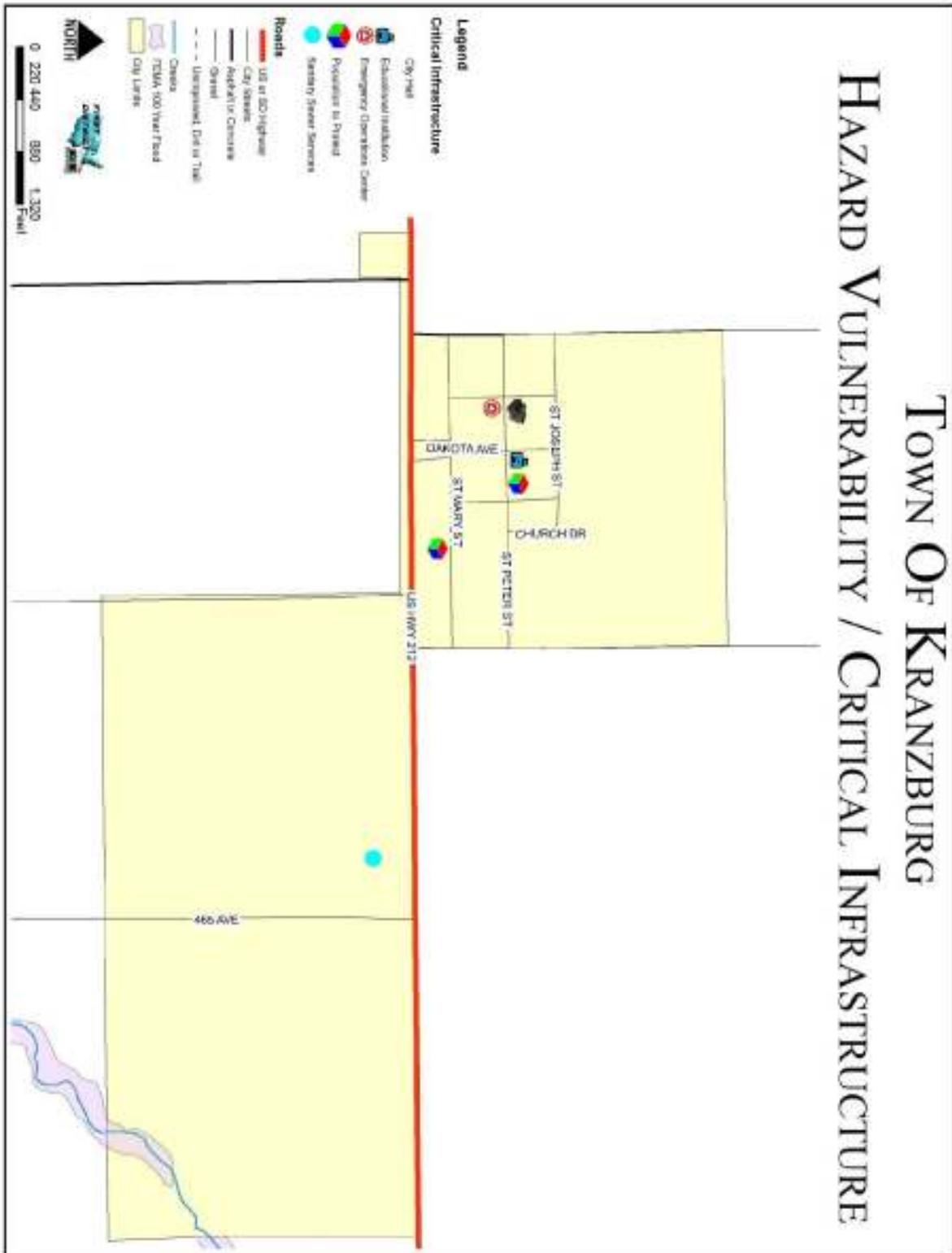


Figure 4.5: Town of South Shore Hazard Vulnerability Map

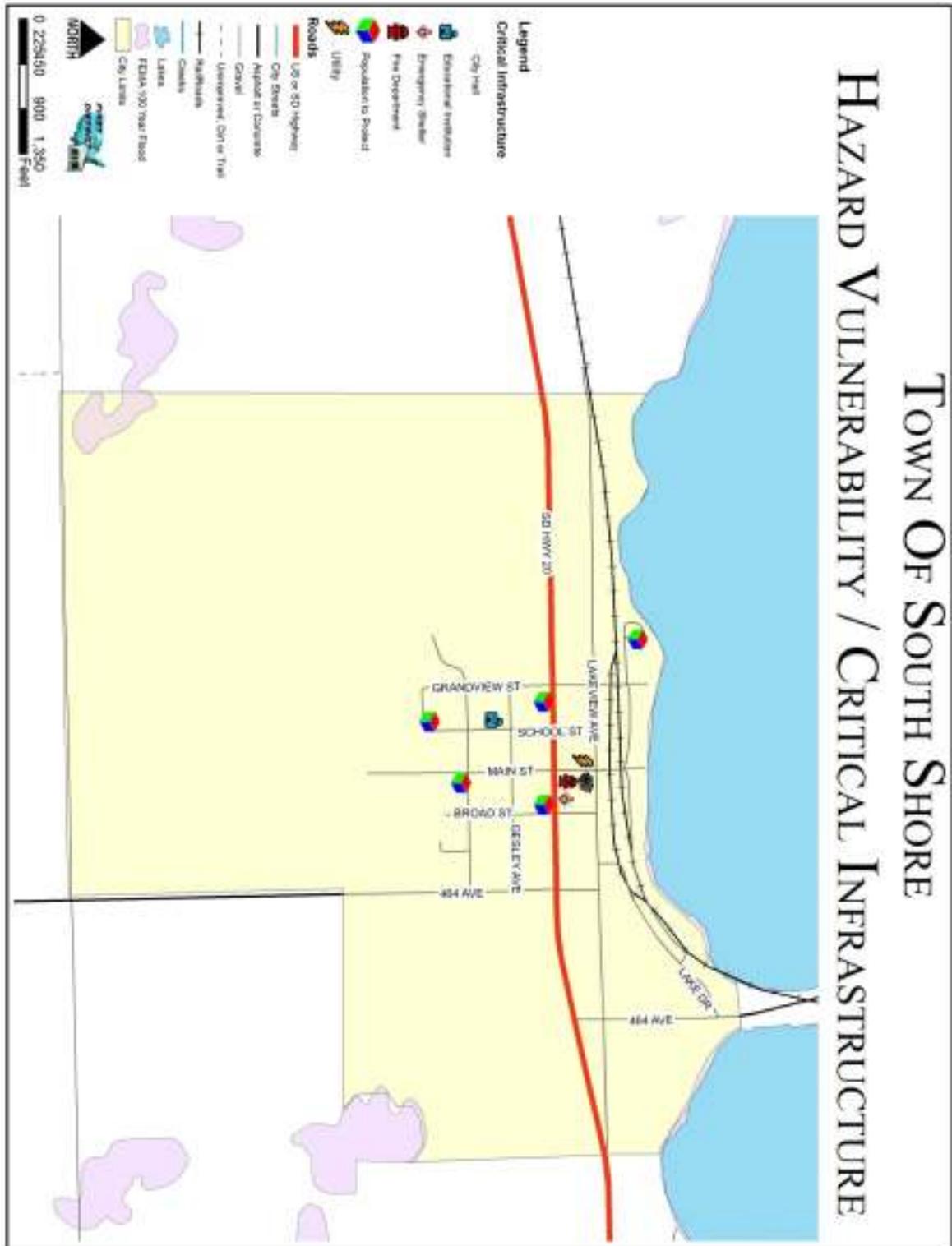


Figure 4.6: Town of Wallace Hazard Vulnerability Map

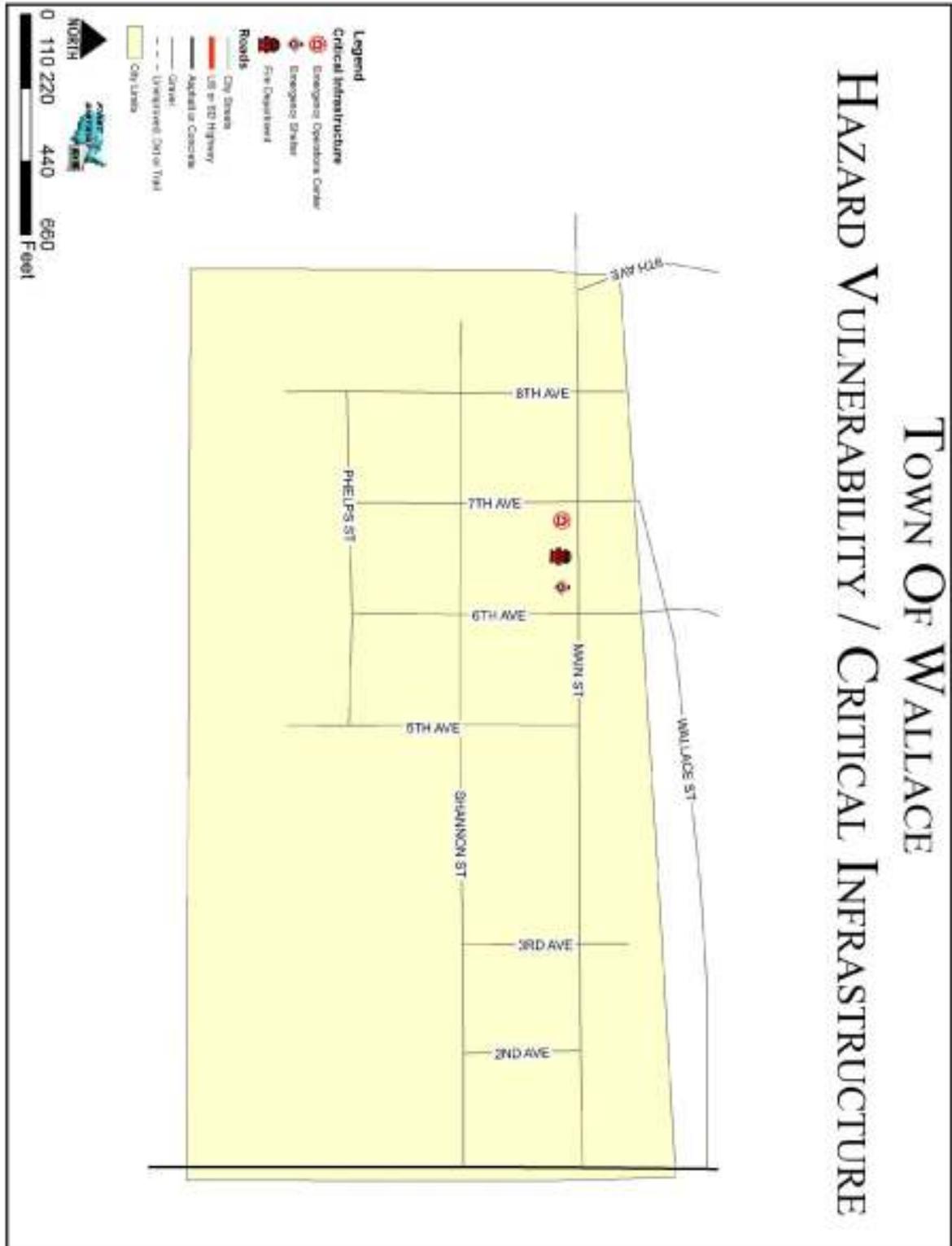
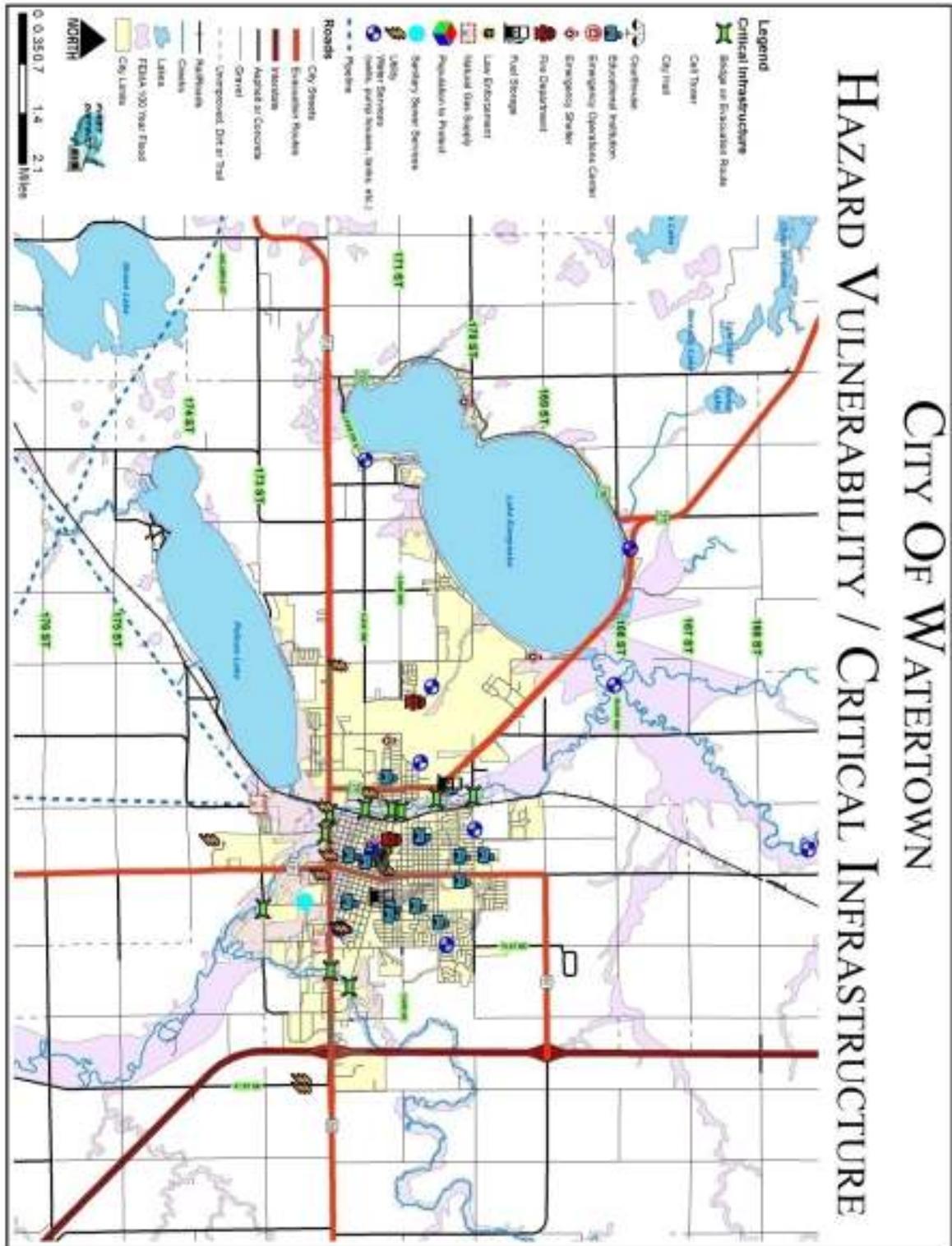


Figure 4.7: City of Watertown Hazard Vulnerability Map



CHAPTER 5 MITIGATION STRATEGY

CHANGES/REVISIONS TO THE MITIGATION SECTION:

- Projects were submitted by individual communities and incorporated into the mitigation strategy. Several projects were eliminated due to completion and/or reconsideration by the PDM Planning Team (see Appendix G).

MITIGATION REQUIREMENTS

Requirement §201.6(c) (3) (i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Requirement §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard with particular emphasis on new and existing buildings and infrastructure.

MITIGATION OVERVIEW

The State Hazard Mitigation Plan addresses several mitigation categories including warning and forecasting, community planning, and infrastructure reinforcement. The County and participating entities' greatest needs are mitigating flood hazards, backup generators for critical infrastructure, construction of storm shelters, and public awareness.

After the completion of the risk assessment (identification of hazards, probability of hazards and vulnerability to hazards), it was the mutual consensus of the PDM Planning Team that mitigation strategies of the PDM should focus on the following hazards: winter storms, severe summer storms, flooding, wildfires (urban/rural)

The PDM Planning Team completed the goal identification process by considering the county's and participating jurisdictions' vulnerability to each identified hazard, and the severity of the threat posed by each hazard. Much of the discussion focused on damage caused by past events, and what could be done to ensure that future damage will be lessened or eliminated. By reviewing each jurisdiction's Comprehensive Land Use Plan (if available), the participants also considered how future development might affect the county's and participating jurisdictions' vulnerability to the hazards they face. When identifying goals, numerous activities or projects were identified with broadly defined benefits to numerous jurisdictions within the County. Numerous actions were agreed by the PDM Planning Team to have broad reaching benefits but due to scope or varying levels of importance to individual jurisdictions no specific cost, timeframe, or priority was assigned. Likewise many infrastructure projects and policies throughout all communities would mitigate hazards but were not located in the most vulnerable areas. Those activities/policies are listed below with the goals and priorities for each of the hazards as determined by the PDM Planning Team. For example all communities benefit from flood-proofing lift stations or burying above ground electric utility lines. Specific projects are listed in Table 5.1 and represented in Figures 5.1 through 5.7).

Principal Goals

1. Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.
2. Improve public safety during severe weather, flooding and other natural disasters.
3. Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.

Mitigation Activities for Flooding Hazards

Goal #1: Protect specific areas of Codington County from flooding.

Goal #2: Educate and inform Codington County residents regarding flooding safety.

Goal #3: Reduce the extent to which utility mishaps affect areas during flooding events.

➤ **Actions/Projects to reduce risk through policy implementation**

- Purchase LiDAR
- Public education. Disseminate information regarding how to deal with flooding. This would include transportation issues, home protection strategies, safety issues, and how to move forward after a flooding situation
- Conduct necessary studies addressing drainage (storm water flow/runoff, etc)
- Participation in the National Flood Insurance Program for those jurisdictions not currently participating.
- Ensure continued National Flood Insurance Program compliance.
- Work to improve the level of communication and coordination with the State NFIP coordinator.
- Encouraging homeowners in flood-prone areas to purchase flood insurance.
- Adoption and enforcement of zoning for those jurisdictions without zoning.
- Developing a county/city drainage ordinance.
- Develop building code standards
- Continue enforcement of building codes
- Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible

➤ **Actions/Projects to change the characteristics or impacts of hazards**

- Add additional stream gages along rivers within the county.
- Installing or upgrading storm sewer piping.
- Installing or enlarging drainage culverts.
- Installing or enlarging detention/retention ponds.
- Curbing and guttering of city streets to improve storm water flow.
- Clean out debris in drainage areas, tributaries, etc to improve water flow
- Waterproof lift stations.
- Install valves, plugs in sanitary and storm sewer system.

- Establish county, community, and township coalitions to pursue Acquisitions, raising and relocation of flood-prone structures and repetitive loss priorities.
- Preservation and expansion of open space along the river and enhancement of existing berm areas.
- Resolve and act upon Big Sioux River/Mahoney Creek Detention/Retention Structure.
- Work with property owners to implement deed restrictions for open lots/vacant properties along the Big Sioux River to prevent development.

➤ **Actions to reduce loss potential of infrastructure to hazards**

- Fortify existing levees
- Replace and raise bridges
- Elevating roads in flood-prone areas
- Making structural retrofits to facilities – Elevation, Rip-rap projects, etc.

Mitigation Activities for Severe Weather Hazards (summer and winter)

Goal #1: Increase public awareness and education on severe weather issues.

Goal #2: Improve public safety during severe weather.

Goal #3: Reduce the extent to which utility mishaps affect areas during severe weather situations.

Goal #4: Reduce crippling effects of winter storms, especially regarding smaller communities.

➤ **Actions/Projects to reduce risk through policy implementation**

- Public education. Disseminate information regarding how to deal with severe weather (summer/winter). Some of the issues that may be addressed within the information would include: safety issues on downed power lines, electrical and fire dangers, the necessity for generators and advice on using them, protecting property, survival strategies during storms, and purchasing of back-up power for various household and farming operations.
- Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible
- Gather data to create a more precise loss estimate for winter storms.
- Gather data to create a more precise loss estimate for summer storms.
- Improve hazard warning systems and notification to vulnerable populations.

➤ **Actions/Projects to change the characteristics or impacts of hazards**

- Construct tornado safe rooms or community shelters.
- Construct storm shelters at manufactured home parks
- Construct storm shelters at RV parks.
- Survey areas in need of snow shelterbelts and plant trees accordingly.
- Install backup generators
- Install or plant living snow fences
- Construct new or improve existing warning systems

➤ **Actions/Projects to reduce loss potential of infrastructure to hazards**

- Upgrading of utility lines.
- Burial of utility lines when needed.
- Require upgrading of overhead lines when age or disasters provide an opportunity.
- Removal of trees near power lines.
- Attachment of guy wires to dead-end poles.
- Utilization of T2 Conductors
- Testing integrity of poles
- Usage of anti galloping devices
- Making structural retrofits to facilities.

Mitigation Activities for Fire and Drought Hazards

Goal #1: Increase fire fighting capabilities.

Goal #2: Reduce the negative effects droughts have on Codington County.

Goal #3: Reduce the negative effects wildfires have on Codington County.

➤ **Actions/Projects to reduce risk through policy implementation**

- Find funding sources to pay for persons to fill positions while individuals are at training courses.
- Adoption and enforcement of property regulations in areas vulnerable to wildfire.
- Educate residents on the benefits of conserving water at all times, not just during a drought.

➤ **Actions/Projects to change the characteristics or impacts of hazards**

- Dredge reservoirs to improve water quality. Reservoirs silt in and dredging, water can flow to more places, more quickly, and more easily.
- Burn areas to ensure a fire break rather than ignition fuel.
- Improve fire protection capabilities by constructing additional water supply and improving infrastructure to allow hookups to hydrants.
- Minimize damage to local crops due to drought situations. Develop water rationing measures that will be implemented during a drought situation.
- Work with local farmers to investigate the use of more drought resistant crops.

➤ **Actions/Projects to reduce loss potential of infrastructure to hazards**

- Ensure that fire departments are adequately equipped to respond to wildfires
- Have rural fire departments locate dry fire hydrants.

General Mitigation Activities

Technological:

- Develop a working computer aided mapping project for the County. This would be model using overlays of GIS data, HazMat, and Roads.
- Enhance existing computer aided dispatch.
- Use HAZUS software to estimate losses in flooding situations. Information may also be able to be used for other hazard areas.

Planning:

- Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.
- Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.
- Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.
- Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).
- Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.
- Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.

Administration/Coordination:

- Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.
- Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of pre-disaster mitigation.
- Maintain and enhance working relationships with the utilities.

After meetings with the local jurisdictions and opportunities for public input, a series of mitigation goals were devised to best aid the County in reducing and lessening the effects of hazards. Projects previously identified in the 2004 PDM were carefully analyzed and discussed to determine which of the projects had enough merit to be included in the updated PDM and to determine if the projects meet the hazard mitigation needs of the county (Please see Appendix G). These projects were evaluated based on a cost/benefit ratio and priority. Although this PDM focuses on disaster mitigation rather than disaster preparedness, some communities discussed disaster preparedness projects as well. It was difficult for individual communities to recognize the difference between providing storm shelters and making sure the storm shelters function properly (for example). Actions considered in this category included the acquisition of emergency generators, and erecting or replacing warning sirens in areas that currently are not well served.

Most of the mitigation actions proposed by the jurisdictions were identified by city council members, public works personnel, or PDM Planning Team members from the jurisdiction. Some actions were also proposed by townships and utility providers do to the direct impact of disasters on infrastructure and services they provide. Once each jurisdiction had its list of proposed actions complete, it was submitted to the Emergency Management Director. At the third PDM Planning Team meeting, the actions were reviewed. At the fourth PDM Planning Team meeting a final opportunity was given for the jurisdictions to add any additional actions.

Although in some cases additional data will be necessary, a timeframe for completion, oversight, funding sources, and any other relevant issues were addressed. These implementation strategies are geared toward the specific goal and area. Often, these projects will not encounter any resistance from environmental agencies, legal authorities, and political entities. Table 5.1 is a presentation of the mitigation actions proposed by the PDM Planning Team. In addition to identifying the proposed actions, the table includes additional information about each action. Elected officials and staff of each municipality and the county were responsible for providing most of this information for actions in their community, but the other planning participants helped in this process. The following information is provided for each action:

- The local priority rating (discussed in the next section).
- The time frame to accomplish the action – “Short” means actions that are intended to be initiated within two years, “Medium” is for actions that should be started within five years, and “Long” is for actions that are not anticipated to be started for at least five years.
- The party(s) primarily responsible for implementing the action.
- The estimated cost - estimates for many of the actions were obtained from knowledgeable sources based on current information. Estimates are subject to change due to specific details of specific projects.
- Potential sources of funding (discussed below).
- The primary hazard being addressed.
- The goal corresponding to the action.

As mentioned above, jurisdictions and entities integrally involved in the planning for disasters due to wide ranging implications to them include townships and most utility providers (responses for Watertown Municipal Utilities were gathered with other departments of the City of Watertown Staff). Utility providers were represented on the PDM Planning Team. Each utility provider was asked individually to submit their own mitigation actions. The main mitigation activity proposed by utility providers was the burying of overhead lines in rural areas of the county.

In addition, a meeting in which all township supervisors was held on April 5, 2011. At that meeting the Township supervisors were asked to identify potential mitigation projects. The timing of the meeting caused some confusion and led to a narrow scope of projects since the townships were asked to provide detailed information regarding damage caused by spring flooding at the same time. Each individual township provided maps in varying detail regarding potential mitigation activities. Primarily these activities included replacing culverts with larger culverts, elevating or rip-rapping roads, and reconstructing roads. Appendix E includes maps of vulnerable sites and potential mitigation actions proposed by the townships in the County.

Particular attention needs to be paid to sources of funding for the actions. Given the existing financial reality of very tight county and municipal budgets, some of the proposed actions realistically cannot be implemented without substantial grant assistance. With such assistance, it is likely that many of the high priority projects can be undertaken without placing an onerous burden on local budgets. Resources for some of the actions available from FEMA through the South Dakota Office of Emergency Management include the Hazard Mitigation Grant Program, Pre-Disaster Mitigation grant program, and Flood Mitigation Assistance grant programs. Other possible sources of funding include:

Grant and loan programs/sources

- Community Development Block Grant program
- Economic Development Administration
- FEMA Assistance to Firefighters Grant program
- South Dakota Dept of Environment and Natural Resources
- South Dakota Dept of Transportation
- US Department of Agriculture Rural Development Office

Local resources

- General obligation bonds
- Revenue bonds
- Tax Increment Financing (TIF) districts

Table 5.1: Proposed Mitigation Activities

CODINGTON COUNTY ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Install 12" to 18" tile or dig trench to move water away from 442nd Ave between 166 and 167th St.	High	Short	Codington County Highway Superintendent	\$10,000.00	HMGP	Flooding	Protect Specific Areas of Codington County from floods.
Rip Rap Shoreline at Memorial Park	Medium	Medium	Codington County Maintenance Supervisor	\$200,000.00	HMGP/DENR	Flooding	Protect Specific Areas of Codington County from floods.
TOWN OF FLORENCE ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Purchase of Back-up Generator for emergency shelter.	High	Short	(Florence) Finance Officer	\$50,000.00	HMGP/OEM	Severe Weather Hazards (Summer and Winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Supplies for emergency shelter (cots, blankets, first aid, etc.)	High	Short	(Florence) Finance Officer	\$1,000.00	OEM	Severe Weather Hazards (Summer and Winter)	Improve public safety during severe weather.
Upgrade waterline size throughout the town.	Medium	Long	(Florence) Finance Officer	UNKNOWN	HMGP/CDBG	Fire	Increase fire fighting capabilities.
Construction of Tornado Shelter.	Medium	Short	(Florence) Finance Officer	\$50,000.00	HMGP	Tornado	Improve public safety during severe weather.
Construction of Water Tower/Tank.	Medium	Long	(Florence) Finance Officer	UNKNOWN	CDBG/RD	Fire	Increase fire fighting capabilities.

TOWN OF HENRY ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Purchase of Back-up Generator for Lift Station.	High	Medium	(Henry)Finance Officer	\$50,000.00	HMGP/OEM	Severe Weather Hazards (Summer and Winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Construction of Tornado Shelter.	High	Medium	(Henry)Finance Officer	\$50,000.00	HMGP	Tornado	Improve public safety during severe weather.
Rip Rap sanitary sewer lagoons (secondary cells).	Medium	Long	(Henry)Finance Officer	\$65,000.00	DENR	Flooding	Protect Specific Areas of Codington County from floods.
Additional hose and pump truck supplies for fire department.	High	Short	Henry Fire Dept	\$6,000.00	FIRE	Fire	Increase fire fighting capabilities.
TOWN OF KRANZBURG ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Upgrade Siren System	Low	Medium	Town Board President	\$30,000.00	HMGP	Severe Weather Hazards (Summer and Winter)	Improve public safety during severe weather.
Purchase of Back-up Generator for emergency shelter.	High	Short	Town Board President	\$50,000.00	HMGP	Severe Weather Hazards (Summer and Winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Drainage Tile NE corner of community	High	Short	Town Board President	\$50,000.00	HMGP	Flooding	Protect Specific Areas of Codington County from floods.

Construction of Tornado Shelter.	Medium	Short	Town Board President	\$50,000.00	HMGP	Tornado	Improve public safety during severe weather.
Zoning Regulations Update	Medium	Short	Town Board President	\$3,000.00	Local	Flooding	Improve public safety during severe weather.
TOWN OF SOUTH SHORE ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Raise E. Lake Front Drive (3 feet) near elevator	Medium	Medium	Town Board President	\$25,000.00	HMGP/DOT	Flooding	Protect Specific Areas of Codrington County from floods.
Purchase of Back-up Generator for Water System.	Medium	Medium	Town Board President	\$50,000.00	HMGP/OEM	Severe Weather Hazards (summer and winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Sanitary Sewer Shut-off Valves	Medium	Medium	Town Board President	\$20,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Zoning Regulations Update	Low	Short	Town Board President	\$3,000.00	Local	Flooding	Improve public safety during severe weather.

TOWN OF WALLACE ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Coordinated Drainage: Draining of slough on South Edge of Town/Increased culvert size on 437th Ave.	High	Short	(Wallace) Town Board	\$35,000.00	HMGP	Flooding	Protect Specific Areas of Codington County from floods.
Reconstructing/Raising Phelps St. and reconfiguring drainage associated with it.	Medium	Medium	(Wallace) Town Board	\$15,000.00	HMGP/DENR	Flooding	Protect Specific Areas of Codington County from floods.
Purchase of Back-up Generator for EOC (Wallace).	Low	Medium	(Wallace) Town Board	\$50,000.00	HMGP/OEM	Severe Weather Hazards (summer and winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Construction of Tornado Shelter.	Medium	Long	(Wallace) Town Board	\$50,000.00	HMGP	Tornado	Improve public safety during severe weather.
CITY OF WATERTOWN ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Mahoney Creek Dam	High	Long	City Engineer	\$40,000,000.00	USACE	Flooding	Protect Specific Areas of Codington County from floods.
Storm Sewer (11th St East) replace/upsized	High	Medium	City Engineer	\$1,200,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.
Broadway Bridge Replacement	High	Short	City Engineer	\$489,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.

3rd Avenue Bridge Replacement	High	Medium	City Engineer	\$500,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.
Watertight traffic doors for lift stations around Lake Kampeska (@ least 8)	High	Short	Wastewater Superintendent	\$125,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during flooding events
Raise lift stations (Sandy Shores, City Park and Memorial Park @ \$20,000/site)	High	Medium	Wastewater Superintendent	\$60,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during flooding events
Install Isolation Valves (Sanitary Sewer) (\$15,000/site) (Kampeska Lodge and Lunkers)	High	Medium	Wastewater Superintendent	\$30,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during flooding events
Tornado Shelter (trailer parks)	High	Medium	Fire Department	\$40,000.00	HMGP	Severe Weather Hazards (summer and winter)	Improve public safety during severe weather situations
Raise Vent pipes on gas meters above BFE approximately 500 around L. Kampeska (\$300/occurrence)	High	Medium	Watertown Municipal Utilities	\$150,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during flooding events

Mitigation (elevation, buyout, relocate) of repetitive loss residences (\$30,000 per site)	Low	Long	City Engineer	\$2,250,000.00	HMGP	Flooding	Reduce the extent to which utility mishaps affect areas during flooding events
Emergency Shelter (multi-purpose rec center)	Low	Long	Fire Department	\$50,000.00	HMGP	Severe Weather Hazards (summer and winter)	Improve public safety during severe weather situations
Generator for lift stations (3)	Low	Medium	Wastewater Superintendent	\$200,000.00	HMGP/OEM	Severe Weather Hazards (summer and winter)	Reduce the extent to which utility mishaps affect areas during flooding events
Contour Mapping (i.e. LIDAR)	Medium	Medium	City Engineer	\$30,000.00	HMGP	Flooding	Educate and inform Codington County residents regarding flooding safety
Roby Creek drainage improvements (Bank stabilization, clean out, definition, detention/conveyance)	Medium	Medium	City Engineer	\$500,000.00	DENR/HMGP	Flooding	Protect Specific Areas of Codington County from floods.
Big Sioux River Drainage Improvements (Box Culverts on Kemp, Cleanout of RR Tressel)	Medium	Medium	City Engineer	\$500,000.00	DENR/HMGP	Flooding	Protect Specific Areas of Codington County from floods.
19th Street Drainage improvement, curb)	Low	Medium	City Engineer	\$930,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.

10th Avenue N urban systems	Low	Medium	City Engineer	\$1,425,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.
14th Avenue N Drainage and curb	Low	Long	City Engineer	\$1,320,000.00	DOT	Flooding	Protect Specific Areas of Codington County from floods.
Upgraded Back - up generator for uptown fire station	Medium	Short	Fire Department	\$50,000.00	HMGP/OEM	Severe Weather Hazards (summer and winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Replacement of all weather sirens.	High	Short	Fire Department	\$325,000.00	HMGP	Severe Weather Hazards (summer and winter)	Improve public safety during severe weather situations
CODINGTON-CLARK ELECTRIC ACTIONS	RATING	TIMEFRAME	CONTACT	COST	FUNDING SOURCE	HAZARD	GOAL
Burial of Overhead Lines (Line E)	High	Short	Codington-Clark Electric	\$120,000.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of Overhead Lines (Line F)	High	Short	Codington-Clark Electric	\$156,800.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.

Burial of Overhead Lines (Line K)	High	Short	Codington-Clark Electric	\$134,600.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of Overhead Lines (Line L)	High	Short	Codington-Clark Electric	\$112,700.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of Overhead Lines (Line S)	High	Short	Codington-Clark Electric	\$110,000.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of Overhead Lines (Line in Sections 15 and 16 of Dexter Township)	Medium	Medium	Codington-Clark Electric	\$70,000.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of Overhead Lines (Line in Sections 14 and 23 Dexter Township)	Medium	Medium	Codington-Clark Electric	\$70,000.00	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during severe weather situations.
Burial of remaining overhead lines (typically serving 1 customer per mile)	Low	Medium	Codington-Clark Electric	UNKNOWN	HMGP	Severe Weather Hazards (winter)	Reduce the extent to which utility mishaps affect areas during flooding events

Figure 5.1: Codrington County Potential Mitigation Project Map

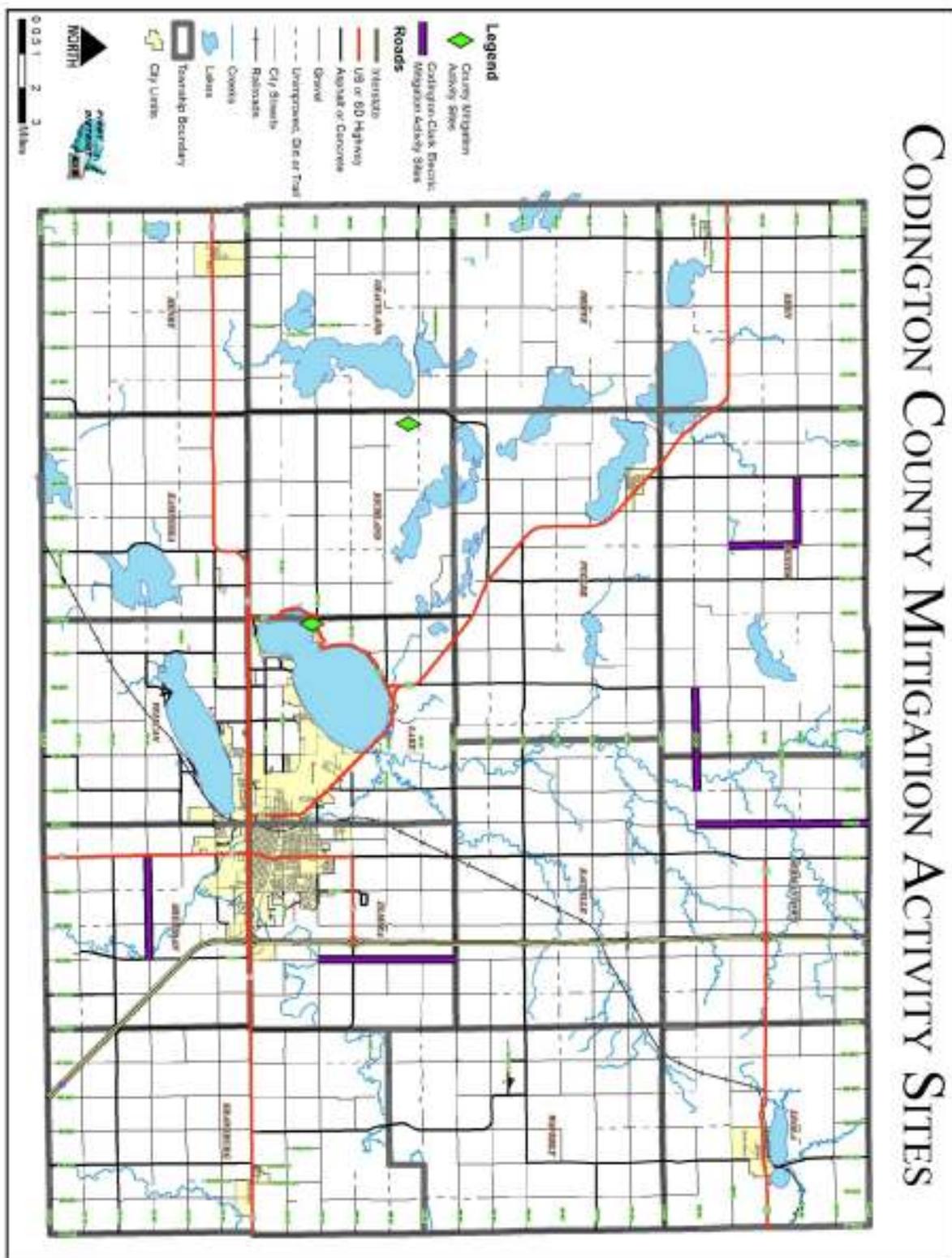


Figure 5.2: Town of Florence Potential Mitigation Project Map

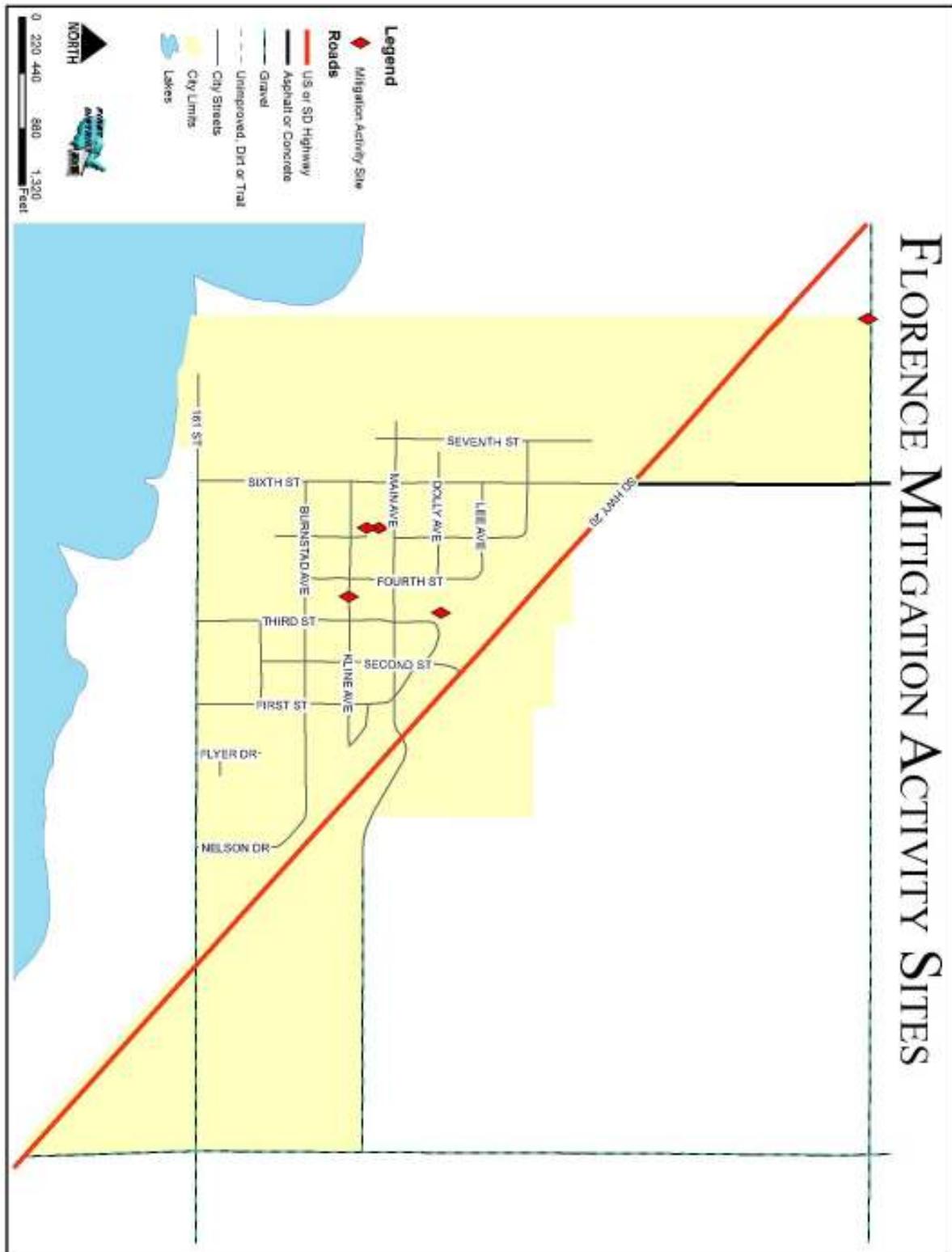


Figure 5.3: Town of Henry Potential Mitigation Project Map

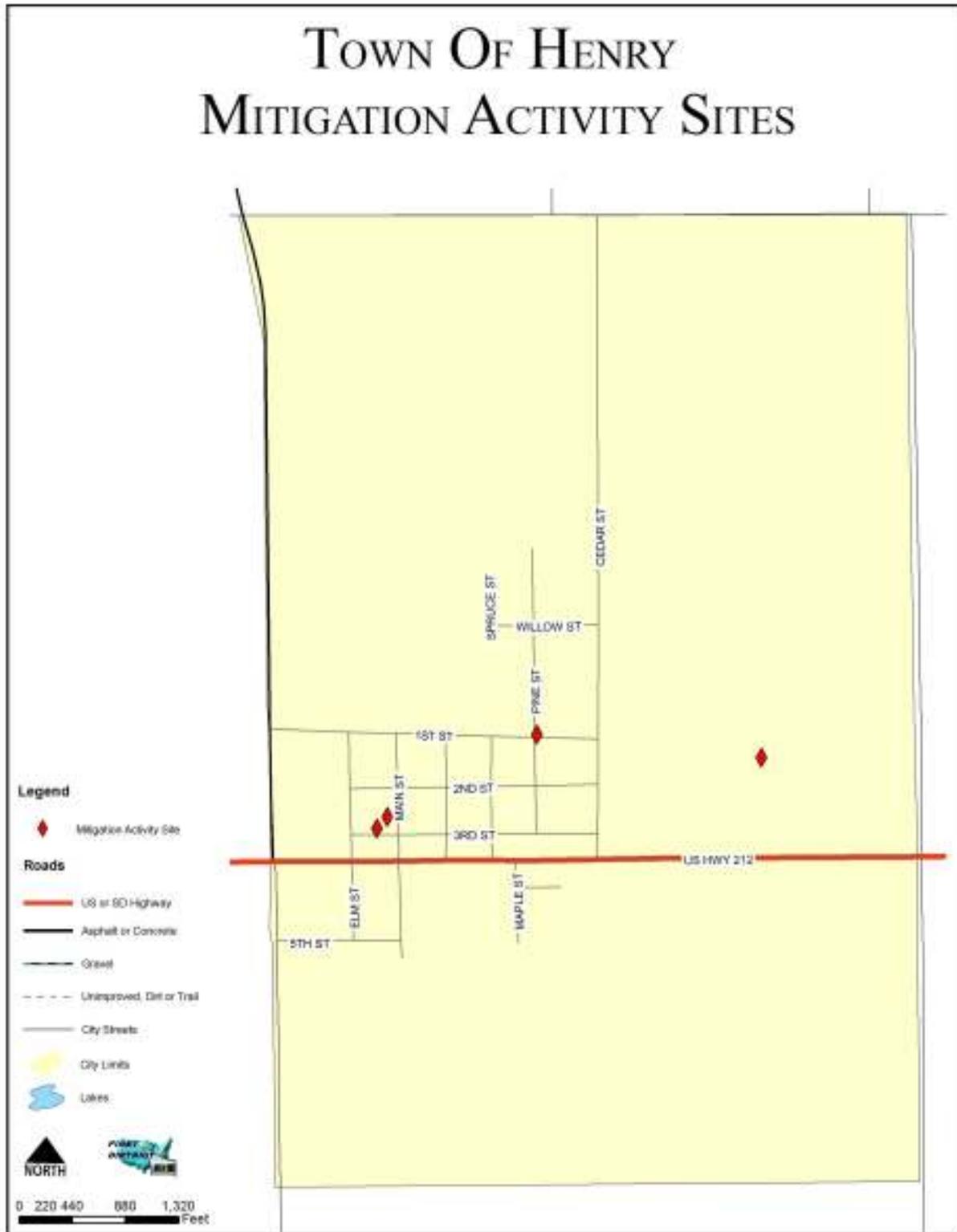


Figure 5.4: Town of Kranzburg Potential Mitigation Project Map

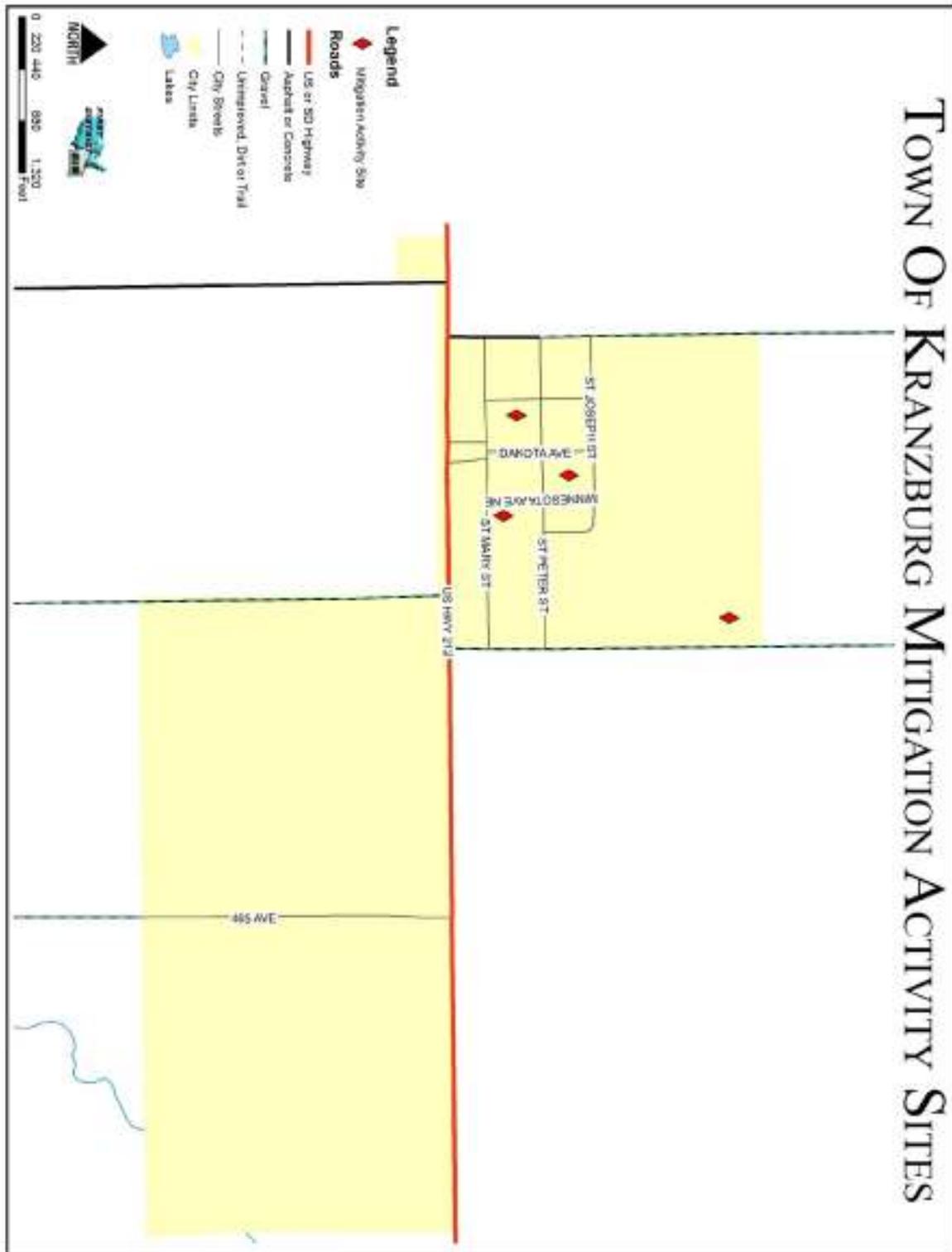


Figure 5.5: Town of South Shore Potential Mitigation Project Map

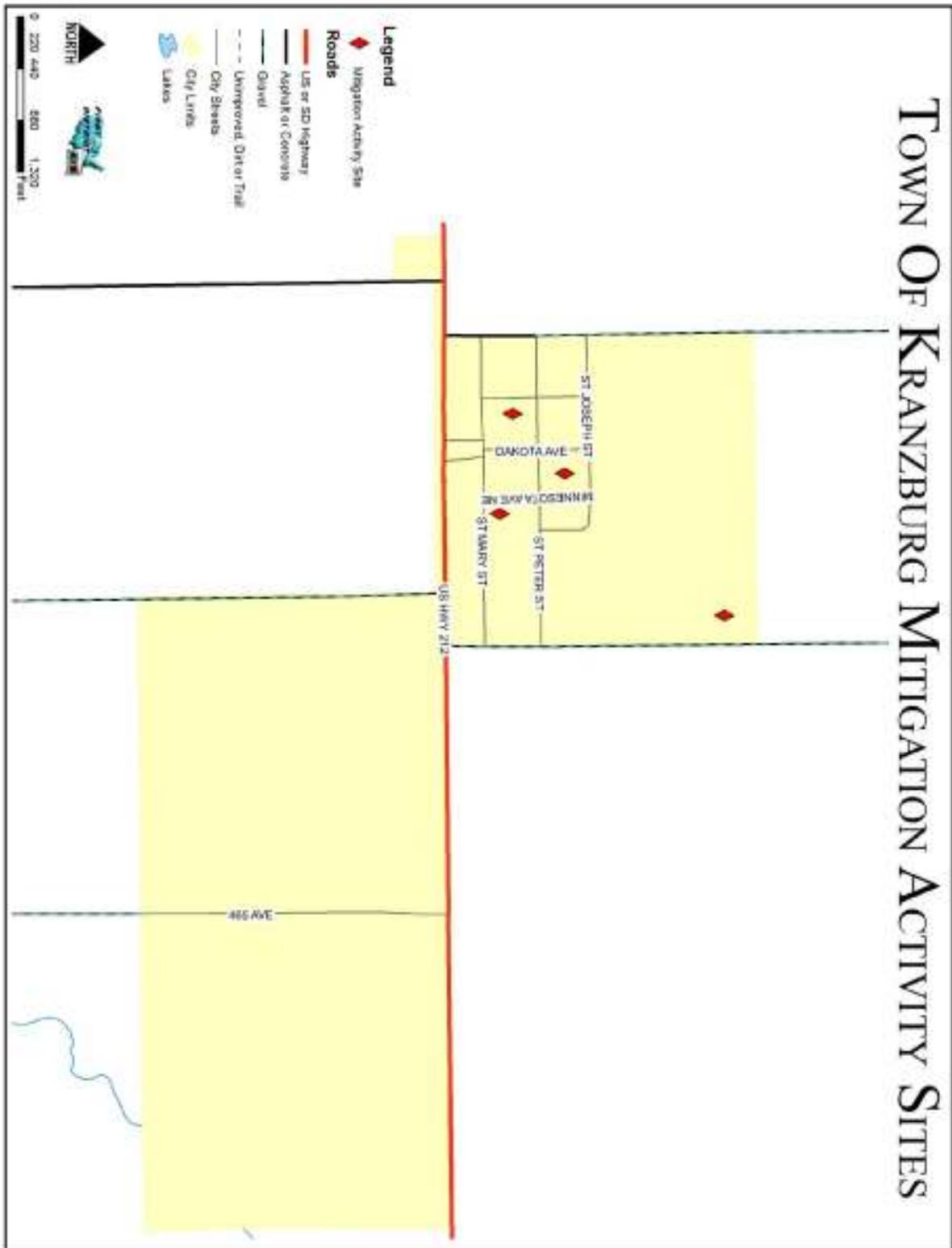


Figure 5.6: Town of Wallace Potential Mitigation Project Map

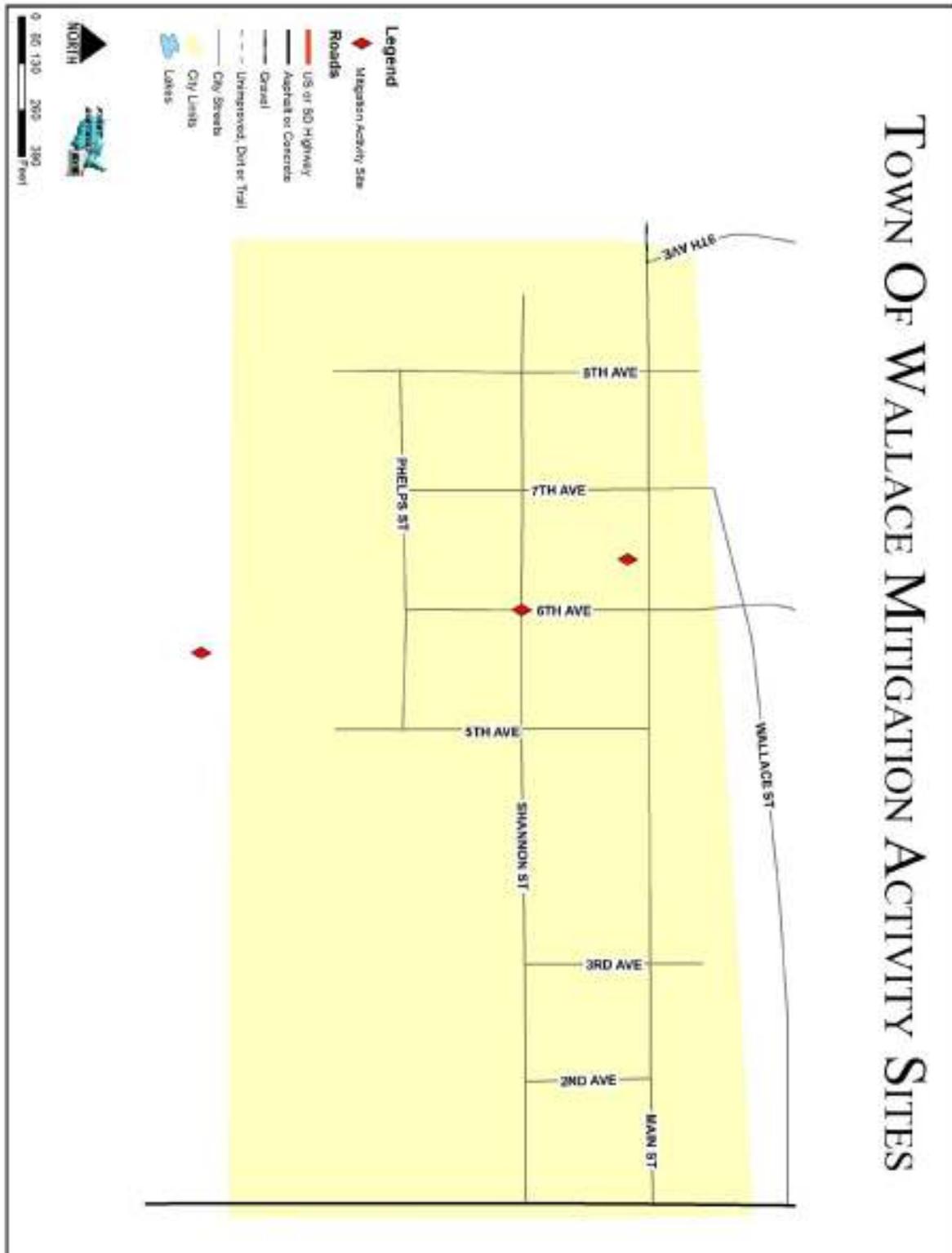
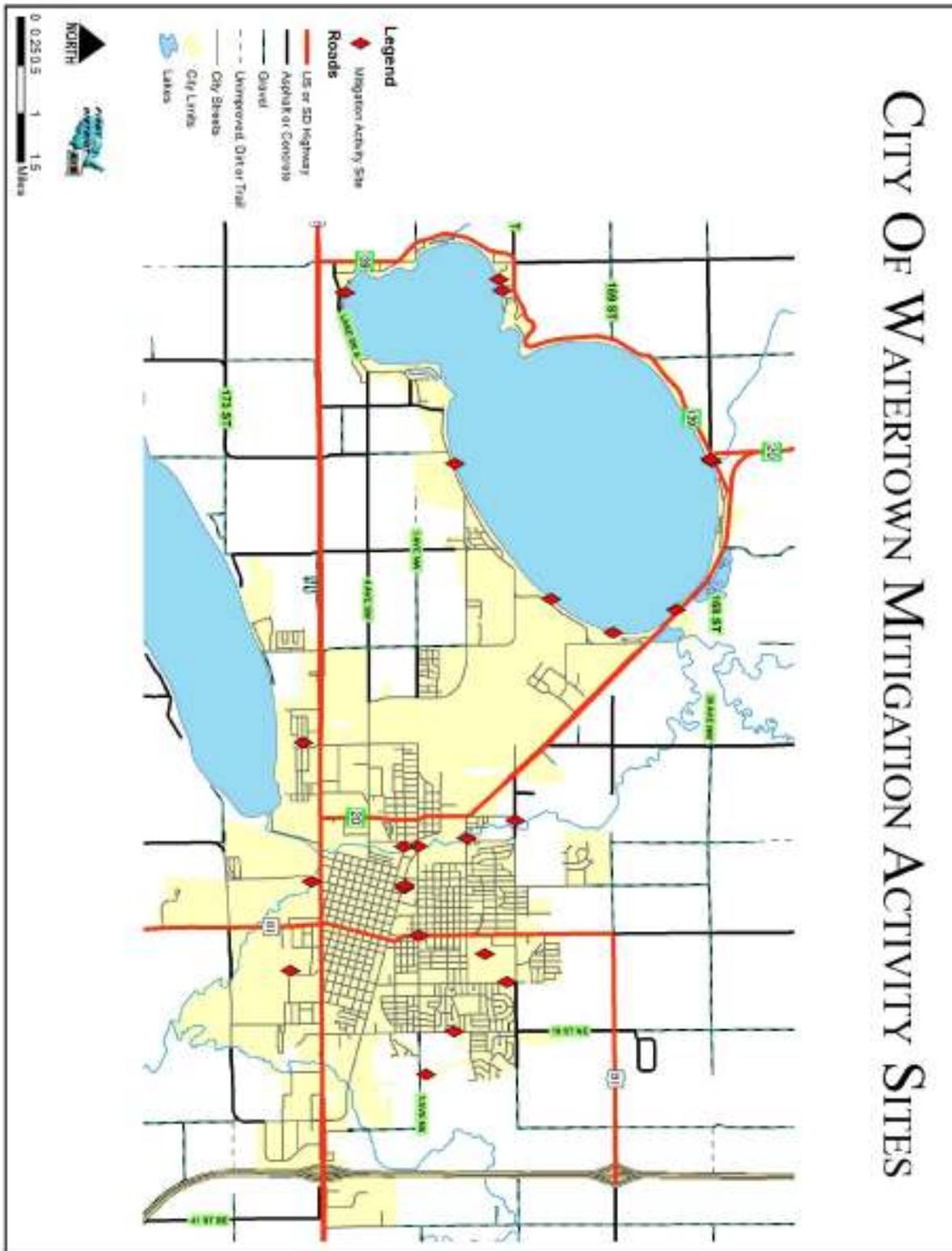


Figure 5.7: City of Watertown Potential Mitigation Project Map



NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION

Requirement: §201.6(c) (3) (ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

The County participates in the National Flood Insurance Program. There are three communities located in the County that do not participate in NFIP. Those communities are: Kranzburg, South Shore, and Henry. According to the FIRM published January 1, 2008, Kranzburg and Henry are located entirely in Zone X; portions of South Shore are located in Zones A, C, and X, but no residences are located within Zone A. The participating communities include: the City of Watertown, the Town of Florence, and Codington County. The county will continue to participate and ensure compliance of the participating local jurisdictions located within the flood plain.

**Table 5.2:
Communities Participating in the National Flood Program, Codington County, SD**

Community Name	Community ID	Current Map Effective Date
Codington County	#460260	1/16/2009
Florence	#430306	1/16/2009
Henry	NOT PARTICIPATING	
Kranzburg	NOT PARTICIPATING	
South Shore	NOT PARTICIPATING	
Watertown	#460016	1/16/2009

The Codington County Zoning Office maintains the flood zone maps and utilizes DFIRMS for all planning mechanisms occurring in the unincorporated areas of the county; specifically development of new structures. Each individual participating community has a designated floodplain administrator that requires elevation certificates and issues floodplain development permits for structures constructed within Zone A of the identified flood hazard areas. The DFIRMS are used to determine where the natural drainage occurs and ensures that new development will not interrupt the natural drainage. The Codington County Zoning Office and City of Watertown Engineering Department have the DFIRMS in electronic format and thus will utilize and maintain the maps in the electronic format.

IMPLEMENTATION OF MITIGATION ACTIONS

Requirement: §201.6(c) (3) (iii): [The mitigation strategy section shall include] an action plan describing how the actions identified in section (c) (3) (ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Upon adoption of the updated Codington County PDM, each jurisdiction will become responsible for implementing its own mitigation actions. The planning required for implementation is the sole responsibility of the local jurisdictions and private businesses that have participated in the PDM update. All of the municipalities have indicated that they do not have the financial capability to move forward with projects identified in the PDM at this time, however, all will consider applying for funds through the State and Federal Agencies once such funds become available. If and when the municipalities are able to secure funding for the mitigation projects, they will move forward with the projects identified. The City of Watertown and Codington-Clark Electric had several mitigation projects and thus, will prioritize those projects in a manner that will ensure benefit is maximized to the greatest extent possible. A benefit cost analysis will be conducted on an individual basis after the decision is made to move forward with a project.

The 2004 PDM was the first approved mitigation plan that the County has ever had on file. At the time the PDM was drafted the requirements for an approved mitigation plan were much different than the current July 1, 2008 crosswalk. Since disaster mitigation was a relatively new concept at that time, mitigation plans were approved with less scrutiny. The same depth of planning was not utilized in the 2004 PDM as was used for the 2011 PDM update. The 2004 PDM had the "bare minimum" to meet the FEMA requirements for a mitigation plan, thus the PDM lacked relevant information that could be utilized and easily integrated into the County's and Municipalities' existing planning mechanisms. Thus, the 2004 PDM was not used or incorporated into other planning documents or mechanisms. From a practical standpoint the 2011 PDM update required communities to reflect on past disasters, consider future disasters, and think about how or if future disasters would be handled differently, or better. It is anticipated with the amount of time, energy, and professional guidance involved during the drafting process of the updated PDM, that the County has created a document that has validity and a clear purpose which will be more likely to fit in the existing planning mechanisms that exist county-wide. Additionally, by involving all of the local jurisdictions and by bringing the PDM to the attention of neighboring communities, the planning process has brought more awareness of mitigation to the people residing in the County, which will encourage further involvement in the future.

CHAPTER 6 PLAN MAINTENANCE

CHANGES/REVISIONS TO PLAN MAINTENANCE:

- The entire Monitoring section in the 2004 Plan was replaced.

MONITORING, EVALUATING, AND UPDATING THE PLAN

Requirement §201.6(c) (4) (i): [the plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

The County and all of the participating local jurisdictions thereof will incorporate the findings and projects of the PDM in all planning areas as appropriate. Periodic monitoring and reporting of the PDM is required to ensure that the goals and objectives for the County PDM are kept current and that local mitigation efforts are being carried out.

During the process of implementing mitigation strategies, the county or communities within the county may experience lack of funding, budget cuts, staff turnover, and/or a general failure of projects. These scenarios are not in themselves a reason to discontinue and fail to update the PDM. A good plan needs to provide for periodic monitoring and evaluation of its successes and failures and allow for appropriate changes to be made.

CONTINUED PUBLIC PARTICIPATION/INVOLVEMENT

Requirement: §201.6(c) (4) (iii): [the plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

During interim periods between the five year re-write, efforts will be continued to encourage and facilitate public involvement and input. The PDM will be available for public view and comment at the Codington County Emergency Management Office located in the Codington County Courthouse and the First District Association of Local Governments office. The PDM will also be available for review on the web at the Codington County website www.Codington.org and at the First District Association of Local Governments homepage www.1stdistrict.org. Comments will always be received whether orally, written or by e-mail.

All ongoing workshops and trainings will be open to the public and appropriately advertised. Ongoing press releases and interviews will help disseminate information to the general public and encourage participation.

As implementation of the mitigation strategies continues in each local jurisdiction, the primary means of public involvement will be the jurisdiction's own public comment and hearing process. State law as it applies to municipalities and counties requires this as a minimum for many of the proposed implementation measures. Effort will be made to encourage cities, towns and counties to go beyond the minimum required to receive public input and engage stakeholders.

ANNUAL REPORTING PROCEDURES

The PDM shall be reviewed annually, as required by the County Emergency Management Director, or as the situation dictates such as following a disaster declaration. The Codington County Emergency Management Director will review the PDM annually in November and ensure the following:

1. The County Elected body will receive an annual report and/or presentation on the implementation status of the PDM;
2. The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the PDM; and
3. The report will recommend, as appropriate, any required changes or amendments to the PDM.

FIVE-YEAR PDM REVIEW

Every five years the PDM will be reviewed and a complete update will be initiated. All information in the PDM will be evaluated for completeness and accuracy based on new information or data sources. New property development activities will be added to the PDM and evaluated for impacts. New or improved sources of hazard related data will also be included.

In future years, if the County relies on grant dollars to hire a contractor to write the PDM update, the County will initiate the process of applying for and securing such funding in the third year of the PDM to ensure the funding is in place by the fourth year of the PDM. The fifth year will then be used to write the PDM update, which in turn will prevent any lapse in time where the county does not have a current approved PDM on file.

The goals, objectives, and mitigation strategies will be readdressed and amended as necessary based on new information, additional experience and the implementation progress of the PDM. The approach to this PDM update effort will be essentially the same as the one used for the original PDM development.

The Emergency Management Director will meet with the PDM Planning Team for review and approval prior to final submission of the updated PDM.

PLAN AMENDMENTS

PDM amendments will be considered by the Codington County Emergency Management Director, during the PDM's annual review to take place the end of each county fiscal year. All affected local jurisdictions (cities, towns, and counties) will be required to hold a public hearing and adopt the recommended amendment by resolution prior to considerations by the PDM Planning Team

INCORPORATION INTO EXISTING PLANNING MECHANISMS

Requirement: §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

All municipalities in the County, with the exception of the Town of Wallace have a comprehensive and/or capital improvements plan. The Watertown mitigation projects will be considered and prioritized in conjunction with non-mitigation projects, such as water and wastewater infrastructure improvements, new construction of schools, libraries, parks, etc. All other towns with existing comprehensive land use plans will review mitigation projects annually when reviewing their comprehensive land use plan, as is recommended in each of their plans. In addition all municipalities, including the Town of Wallace, will consider the mitigation requirements, goals, actions, and projects when it considers and reviews the budget and other existing planning documents. Preparation of the budget is an opportune time to review the plan since municipalities are required by state law to prepare budgets for the upcoming year and typically consider any expenditure for the upcoming year at that time.

The local jurisdictions will post a permanent memo to their files as a reminder for them to incorporate their annual review of the mitigation actions identified into the budget preparation process. This does not require the projects be included in the budget, it merely serves as a reminder to the City officials that they have identified mitigation projects in the PDM that should be considered if the budget allows for it.

POTENTIAL FUNDING SOURCES

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. None of the local jurisdictions have the funds available to move forward with mitigation projects at this time; thus, the Potential Funding Sources section was included so that the local jurisdictions can work towards securing funding for the projects. Inevitably, due to the small tax base and small population most of the local jurisdictions do not have the ability to generate enough revenue to support anything beyond the basic needs of the community. Thus mitigation projects will not be completed without a large amount of funding support from State or Federal programs.

The County jurisdictions will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. Primary Federal and State grant programs have been identified and briefly discussed, along with local and non-governmental funding sources, as a resource for the local jurisdictions

Federal

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

Title: Pre-Disaster Mitigation Program
Agency: Federal Emergency Management Agency
Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential Disaster Declaration. The Pre-Disaster Mitigation (PDM) program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage and destruction of property.
The funding is based upon a 75% Federal share and 25% non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for "small and impoverished communities", who will be eligible for 90% Federal share/10% non-Federal.
FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities: State and local hazard mitigation planning, Technical assistance (e.g. risk assessments, project development), Mitigation Projects, Acquisition or relocation of vulnerable properties, Hazard retrofits, Minor structural hazard control or protection projects Community outreach and education (up to 10% of State allocation)

Title: Flood Mitigation Assistance Program
Agency: Federal Emergency Management Agency
FEMA's Flood Mitigation Assistance program (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 USC 4101) with the goal of reducing or eliminating claims under the NFIP.
FMA is a pre-disaster grant program, and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only, and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.

Title: Repetitive Flood Claims Program

Agency: Federal Emergency Management Agency

FEMA's Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108-264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al).

Up to \$10 million is available annually for FEMA to provide RFC funds to assist States and communities reduce flood damages to insured properties that have had one or more claims to the National Flood Insurance Program (NFIP).

FEMA may contribute up to 100 percent of the total amount approved under the RFC grant award to implement approved activities, if the Applicant has demonstrated that the proposed activities cannot be funded under the Flood Mitigation Assistance (FMA) program.

Title: Hazard Mitigation Grant Program

Agency: Federal Emergency Management Agency

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

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

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

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

Title: Public Assistance (Infrastructure) Program, Section 406

Agency: Federal Emergency Management Agency

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

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

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

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

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

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

Title: SBA Disaster Assistance Program

Agency: US Small Business Administration

The SBA Disaster Assistance Program provides low-interest loans to businesses following a Presidential disaster declaration. The loans target businesses to repair or replace uninsured disaster damages to property owned by the business, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible; along with non-profit organizations. SBA loans can be utilized by their recipients to incorporate mitigation techniques into the repair and restoration of their business.

Title: Community Development Block Grants

Agency: US Department of Housing and Urban Development

The community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants for post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

Local

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds are used to match Federal or State grant programs when required for large-scale projects.

Non-Governmental

Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts and other non-profit organizations.

APPENDIX

Appendix A - PDM Planning Team Agendas, Sign-in Sheets, and Minutes

Appendix B – First Community Meeting Agendas and Sign-in Sheets

Appendix C – Second Community Meeting Agendas and Sign-in Sheets

Appendix D - Hazard Identification/Vulnerability Worksheets

Appendix E - Township Vulnerable and Potential Mitigation Project Site Maps

Appendix F – Comprehensive Land Use Maps

Appendix G - 2004 Mitigation Plan Action/Review

Appendix H - References

Appendix I - Resolution of Adoption by Jurisdiction

Appendix A
PDM Planning Team Agendas, Sign-in Sheets, and Minutes

**Codington County
Pre-disaster Mitigation Plan Kickoff Meeting
7:00 p.m. Tuesday, January 11, 2011
Codington County Extension Building**

Agenda

- Introduction of team members**
- What is mitigation planning**
- Why is Codington County updating the Pre-Disaster Mitigation Plan**
- Review plan components**
- Review timeline/scope**

2010 Pre-Disaster Mitigation (PDM) Plan Rewrite
Pre-Disaster Mitigation Planning Team Meeting - January 11, 2011 @ Codington County Extension Center

In Attendance	Last Name	First Name	Agency	Address	City	State	Zip	Phone
	Atkins	Craig	Focus Watertown	P. O. Box 332	Watertown	SD	57201	884-0340
X	Atyeo	Dave	SD Dept of Transportation	5000 E. Highway 212	Watertown	SD	57201	882-5166
X	Boehnke	Arlen	Henry School District	16654 - 440th Avenue	Henry	SD	57243	532-5514
	Callan	Pat	Town of Florence	P. O. Box 156	Florence	SD	57235	758-2156
✓	Dagel	Carol	Immaculate Conception	109 - 3rd Street SE	Watertown	SD	57201	
	Drake	Tom	City of Watertown	23 North 2nd Street	Watertown	SD	57201	882-6202
✓	Eide	Dave	Cod Clark Electric Co-op	3620 - 9th Avenue SW	Watertown	SD	57201	886-5848
	Falak	Bert	Great Plains Lutheran Schl	1200 Luther Lane	Watertown	SD	57201	
	Floney	David	Watertown Christian Schl	15 - 12th Avenue NE	Watertown	SD	57201	
	Footo	Roger	Upper Big Sioux Watershed	800 - 10th St NW Suite 3	Watertown	SD	57201	
	Goodall	Kelby	Henry Fire Dept.	303 - 4th Street	Henry	SD	57243	532-3138
X	Goodall	Toni	Henry Fire Dept.	303 - 4th Street	Henry	SD	57243	532-3138
	Grewing	Bob	Town of South Shore	203 Trailer Court Lane	South Shore	SD	57263	
X	Herbeck	Jason	Prairie Lakes Hospital	401 - 9th Avenue NW	Watertown	SD	57201	520-2389
	Hjermstad	Ray	Florens Fire Dept	605 Thorson Avenue	Florence	SD	57235	
✓	Howell	Brad	Codington Co. Sheriff	14 - 1st Avenue SE	Watertown	SD	57201	882-6280
✓	Johnson	Paul	SDSU Extension	1910 West Kemp	Watertown	SD	57201	882-6300
	Jones	Dean	Waverly/South Shore Schl	319 Mary Place	Waverly	SD	57201	
X	Karnopp	Marty	Codington County EM	P. O. Box 12	Watertown	SD	57201	882-6272
	Keller	Al	Town of Wallace	P. O. Box 52	Wallace	SD	57272	759-2497
	Keller	Ryan	Wallace Fire Dept.	P. O. Box 56	Wallace	SD	57272	758-2018

2010 Pre-Disaster Mitigation (PDM) Plan Rewrite
Pre-Disaster Mitigation Planning Team Meeting - January 11, 2011 @ Codington County Extension Center

In Attendance	Last Name	First Name	Agency	Address	City	State	Zip	Phone
✓	Kranz	Doug	Watertown Fire Dept.	129 - 1st Avenue NW	Watertown	SD	57201	881-8604
✓	Kranz	Kevin	Town of Kranzburg	P. O. Box 111	Kranzburg	SD	57245	886-6318
	Lehner	Steve	Municipal Utilities	901 - 4TH Avenue SW	Watertown	SD	57201	
	Leighton	Gary	Florence School District	P. O. Box 66	Florence	SD	57235	758-2412
X	Marquardt	Lavern	Co Commissioner/LPC	16269 - 448th Avenue	Florence	SD	57235	880-5373
✓	McMahon	Scott	Watertown Police Dept.	129 South Maple	Watertown	SD	57201	868-3748
✓	Meyer	Mark	Municipal Utilities	901 - 4th Avenue SW	Watertown	SD	57201	882-6233
X	Olson	Chuck	ITC	312 - 4th Street SW	Clear Lake	SD	57226	695-6626
✓	Small	Rick	Codington Co. Highway	1201 - 10th Street NW	Watertown	SD	57201	882-6271
✓	Stacey	Darnell	Watertown School District	P. O. Box 730	Watertown	SD	57201	882-6312
	Stokes	Duane	Clark Rural Water System	P. O. Box 162	Clark	SD	57225	881-0398
X	Sutton	Jim	Codington County EM	P. O. Box 12	Watertown	SD	57201	882-6272
X	Van Sickle	Gordon	Town of Henry	P. O. Box 116	Henry	SD	57243	532-5124
✓	Wall	Greg	South Shore Fire Dept.	16455 - 466th Avenue	Strandburg	SD	57265	881-2352
	Westby	Carolyn	Holy Rosary Catholic Schol	P. O. Box 137	Kranzburg	SD	57245	
	Williams	Gary	City of Watertown Mayor	P. O. Box 910	Watertown	SD	57201	
	Wishard	Toby	Codington County Sheriff	14 - 1st Avenue SE	Watertown	SD	57201	882-8280
✓	Zaug	Dave	Cod Clark Electric Co-op	3520 - 9th Avenue SW	Watertown	SD	57201	886-5848
			Grant Roberts Rural Water	1209 South Dakota St	Milbank	SD	57252	
			H-D Electric	P. O. Box 1007	Clear Lake	SD	57226	
			Knology	24 - 2nd Street SE	Watertown	SD	57201	

Minutes
Codington County Pre-Disaster Mitigation Plan Team Kick-Off Meeting
January 11, 2011
Codington County Extension Building
7:00 p.m.

24 individuals were in attendance:

- Dave Atyeo, SD Department of Transportation
- Pat Callan , Town of Florence
- Tom Drake, City of Watertown
- Dave Eide, Codington/Clark Electric
- Kelby Goodall, Henry Fire Department
- Tony Goodall, Henry Fire Department
- Jason Herbeck, Prairie Lakes Hospital
- Brad Howell, Codington County Sheriff
- Paul Johnson, SDSU Extension
- Marty Karnopp, Codington County Emergency Management
- Doug Krantz, Watertown Fire Deptment
- Kevin Kranz, Town of Kranzburg
- Lavern Marquardt, Codington County Commissioners/LEPC
- Scott McMahon, Watertown Police Department
- Mark Meier, Watertown Municipal Utilities
- Chuck Olson, ITC
- Rick Small, Codington County Highway Department
- Darrell Stacey, Watertown School District
- Jim Sutton, Codington County Emergency Management
- Gordon VanSickle, Town of Henry
- Greg Wall, South Shore Fire Department
- Dave Zaug, Codington/Clark Electric
- Todd Kays, First District Association of Local Governments
- Luke Muller, First District Association of Local Governments

Codington County Emergency Management Director Jim Sutton welcomed those in attendance and had Team members introduce themselves and what entity they represented. Sutton then introduced Executive Director Todd Kays and Planner Luke Muller of the First District Association of Local Governments.

Kays and Muller provided an overview of what is mitigation planning and why the county is required to update their Pre-Disaster Mitigation (PDM) Plan. Kays and Muller also provided a review of the components to be included within the plan (risk assessment, vulnerability, proposed mitigation actions).

Planning Team representatives provided information regarding mitigation activities within their own respective entities. A general review of the existing Pre-Disaster Mitigation Plan started by defining work responsibilities, having the First District doing background and research, and the PDM Team providing oversight and guidelines throughout the process. The timeline and scope of project were reviewed.

Meeting adjourned at 9:00 p.m. Date and time for the next meeting to be scheduled later in the spring or early summer.

Minutes recorded by Luke Muller.

Codington County Pre-disaster Mitigation Plan
Mitigation Planning Team Meeting
7:00 p.m. Thursday, June 23, 2011
First District Association of Local Governments
124 1st Avenue NW (Across the street from the Fire Department)

Agenda

- PDM Jurisdiction Risk Assessment Review
 - Hazard Identification
 - Hazard Profile
 - Vulnerability Assessment
- Mitigation Strategy
 - Review of Goals and Objectives
 - Project Identification

2010 Pre-Disaster Mitigation (PDM) Plan Rewrite
0000FFPre-Disaster Mitigation Planning Team Meeting - June 23, 2011 @ 1st District Association of Local Governments

Signature	Last Name	First Name	Agency	Address	City	State	Zip	Phone
	Atkins	Craig	Focus Watertown	P. O. Box 332	Watertown	SD	57201	884-0340
	Atyeo	Dave	SD Dept of Transportation	5000 E. Highway 212	Watertown	SD	57201	882-5166
	Boehmke	Arlen	Henry School District	1665A - 440th Avenue	Henry	SD	57243	532-5514
	Callan	Pat	Town of Florence	P. O. Box 156	Florence	SD	57235	758-2156
	Dagel	Carol	Inmaculate Conception	109 - 3rd Street SE	Watertown	SD	57201	
	Drake	Tom	City of Watertown	23 North 2nd Street	Watertown	SD	57201	882-6202
	Elide	Dave	Cod Clark Electric Co-op	3520 - 8th Avenue SW	Watertown	SD	57201	886-5648
	Falak	Bert	Great Plains Lutheran Schi	1200 Luther Lane	Watertown	SD	57201	
	Floroy	David	Watertown Christian Schi	15 - 12th Avenue NE	Watertown	SD	57201	
	Footte	Roger	Upper Big Sioux Watershed	800 - 10th St NW Suite 3	Watertown	SD	57201	
	Goodall	Kelby	Henry Fire Dept.	303 - 4th Street	Henry	SD	57243	532-3138
	Goodall	Tom	Henry Fire Dept.	303 - 4th Street	Henry	SD	57243	532-3138
	Grewing	Bob	Town of South Shore	203 Trailer Court Lane	South Shore	SD	57263	
	Herbeck	Jason	Prairie Lakes Hospital	401 - 9th Avenue NW	Watertown	SD	57201	520-2389
	Hjermstad	Ray	Florens Fire Dept	605 Thorson Avenue	Florence	SD	57235	
	Howell	Brad	Codington Co. Sheriff	14 - 1st Avenue SE	Watertown	SD	57201	882-6260
	Johnson	Paul	SDSU Extension	1910 West Kemp	Watertown	SD	57201	882-6300
	Jones	Dean	Waverly/South Shore Schi	319 Mary Place	Waverly	SD	57201	
	Karnopp	Marty	Codington County EM	P. O. Box 12	Watertown	SD	57201	882-6272
	Keller	Al	Town of Wallace	P. O. Box 52	Wallace	SD	57272	758-2497
	Keller	Ryan	Wallace Fire Dept.	P. O. Box 58	Wallace	SD	57272	758-2018

**2010 Pre-Disaster Mitigation (PDM) Plan Rewrite
 0000FFPre-Disaster Mitigation Planning Team Meeting - June 23, 2011 @ 1st District Association of Local Governments**

Signature	Last Name	First Name	Agency	Address	City	State	Zip	Phone
<i>Kewen Kranz</i>	Kranz	Doug	Watertown Fire Dept.	129 - 1st Avenue NW	Watertown	SD	57201	881-8504
	Kranz	Kewh	Town of Kranzburg	P. O. Box 111	Kranzburg	SD	57245	886-6318
	Lehner	Steve	Municipal Utilities	901 - 4TH Avenue SW	Watertown	SD	57201	
	Leighton	Gary	Florence School District	P. O. Box 66	Florence	SD	57235	758-2412
<i>Lynn Marquardt</i>	Marquardt	Lavern	Co Commissioner/LEPC	16269 - 448th Avenue	Florence	SD	57235	880-5373
<i>Scott McMahon</i>	McMahon	Scott	Watertown Police Dept.	129 South Maple	Watertown	SD	57201	868-3748
<i>Marc Meiser</i>	Meiser	Marc	Municipal Utilities	901 - 4th Avenue SW	Watertown	SD	57201	882-6233
<i>Chuck Olson</i>	Olson	Chuck	ITC	312 - 4th Street SW	Clear Lake	SD	57226	695-6826
<i>Rick Small</i>	Small	Rick	Codington Co. Highway	1201 - 10th Street NW	Watertown	SD	57201	882-6271
	Stacey	Daniel	Watertown School District	P. O. Box 730	Watertown	SD	57201	882-6312
	Stokes	Duane	Clark Rural Water System	P. O. Box 162	Clark	SD	57225	881-0398
	Sutton	Jim	Codington County EM	P. O. Box 12	Watertown	SD	57201	882-6272
<i>Greg Van Sickle</i>	Van Sickle	Gordon	Town of Henry	P. O. Box 116	Henry	SD	57243	532-5124
<i>Greg Wall</i>	Wall	Greg	South Shore Fire Dept.	16455 - 466th Avenue	Strandburg	SD	57265	881-2352
	Westby	Carolyn	Holy Rosary Catholic Schi	P. O. Box 137	Kranzburg	SD	57245	
	Williams	Gary	City of Watertown Mayor	P. O. Box 910	Watertown	SD	57201	
	Wishard	Toby	Codington County Sheriff	14 - 1st Avenue SE	Watertown	SD	57201	882-6260
	Zaug	Dave	Cod Clark Electric Co-op	3520 - 9th Avenue SW	Watertown	SD	57201	886-5848
<i>Dan Zaug</i>			Grant Roberts Rural Water	1209 South Dakota St	Mitbank	SD	57252	
			H-D Electric	P. O. Box 1007	Clear Lake	SD	57228	
			Knology	24 - 2nd Street SE	Watertown	SD	57201	

Minutes
Codington County Pre-Disaster Mitigation Team
June 23, 2011
Offices of First District Association of Local Governments
7:00 p.m.

18 people were in attendance:

- Dave Atyeo, SD Department of Transportation
- Arlen Boehnke, Henry School District
- Pat Callan, Town of Florence
- Brad Howell, Codington County Sheriff
- Marty Karnopp, Codington County Emergency Management
- Kevin Kranz, Town of Kranzburg
- Lavern Marquardt, Codington County Commissioner/LEPC
- Scott McMahon, Watertown Police Department
- Mark Meier, Watertown Municipal Utilities
- Chuck Olson, ITC
- Rick Small, Codington County Highway Department
- Gordon VanSickle, Town of Henry
- Greg Wall, South Shore Fire Department
- Dave Zaug, Codington/Clark Electric
- Randy Froke, Henry Town Board of Fire Department
- Dave Fuller, Henry Fire Department
- Todd Kays, First District Association of Local Governments
- Luke Muller, First District Association of Local Governments

Todd Kays and Luke Muller of the First District provided a review of research and background activities conducted since the last Team meeting January 23, 2011.

Kays and Muller also provided an overview of the risk assessment conducted with the communities of Florence, Henry, Kranzburg, South Shore, Wallace, and the township supervisors. The risk assessment review with those entities dealt with identification of potential hazards, generating a hazard profile, and vulnerability assessment. After reviewing the individual entities' risk assessments, Kays and Muller provided an overview of historical hazard events in Codington County since 2001.

The Team also reviewed and revised goals and objectives of the previous PDM Plan and discussed potential mitigation projects throughout the county.

First District staff was then charged to meet with participating entities to identify and prioritize potential projects and prepare a draft of the Plan prior to the third meeting of the group.

Meeting adjourned at 9:00 p.m. The date for the next meeting was left open.

Codington County Pre-disaster Mitigation Plan
Mitigation Planning Team Meeting
6:00 p.m. Thursday, January 23, 2012
First District Association of Local Governments
124 1st Avenue NW (Across the street from the Fire Department)

Agenda

- Review of PDM Preliminary Draft
 - Risk Assessment/critical infrastructure
 - Mitigation Strategies/projects

- Set date of final review

**CODINGTON COUNTY PRE-DISASTER MITIGATION PLAN
PDM TEAM MEETING
JANUARY 23, 2012**

Name	Representing
Loren Marquardt	Cod. Co. Commission
Chuck Olson	ITC telephone
Kelby Goodall	Henry Fire
Toni Goodall	Henry Fire
Joyce Hallauer	PLHS
Jim Outtor	Cod Co. E.M.
Allen Bachhe	Henry School
Greg Wall	South Shore Fire
Bob Howell	Codington Sheriff's office
David Zaig	Coxington State Electric
Scott McMahon	Watertown Police
Marti Karpopp	Cod Co EM
Danell Stacy	Watertown School District
Bob Johnson	Codington-Clark Electric
Tom Drake	City of Watertown
PATRICK CALLAN	FLORENCE
Paula De Sable	Henry City
Dave Eide	Codington-Clark Electric

Minutes
Codington County Pre-Disaster Mitigation Team
January 23, 2012
Offices of First District Association of Local Governments
6:00 p.m.

20 people were in attendance:

- Lavern Marquardt, Codington County Commissioners/LEPC
- Chuck Olson, ITC
- Kelby Goodall, Henry Fire Department
- Tony Goodall, Henry Fire Department
- Joyce Hallauer, Prairie Lakes Hospital
- Jim Sutton, Codington County Emergency Management
- Arlen Boehnke, Henry School District
- Greg Wall, South Shore Fire Department
- Brad Howell, Codington County Sheriff
- Dave Zaug, Codington/Clark Electric
- Scott McMahon, Watertown Police Department
- Marty Karnopp, Codington County Emergency Management
- Darrell Stacey, Watertown School District
- Bob Johnson, Codington/Clark Electric
- Tom Drake, City of Watertown
- Pat Callan , Town of Florence
- Gordon VanSickle, Town of Henry
- Dave Eide, Codington/Clark Electric
- Todd Kays, First District Association of Local Governments
- Luke Muller, First District Association of Local Governments

Kays and Muller of First District provided an overview of the preliminary draft of the Pre-Disaster Mitigation Plan, which was sent out to the Team members two weeks prior to the PDM meeting. Comments were received from those in attendance. Each section of the plan was reviewed, including introduction, purpose, process involved, risk assessment, mitigation strategy, and plan maintenance.

Mitigation Strategy: Kays and Muller reviewed mitigation projects developed from meetings with participating entities since the June 2011 meeting of the PDM Team and reviewed goals and objectives of those projects.

Risk Assessment: Muller provided information regarding hazard vulnerability and critical infrastructure identified by the participating entities.

Consensus of the Team was to spend more time on individual review of the document and to provide First District staff with any corrections/updates.

Meeting adjourned at 8:00 p.m., with a date of the next meeting to be in March 2012.

Codington County Pre-disaster Mitigation Plan
Mitigation Planning Team Meeting
6:00 p.m. Tuesday, March 20, 2012
First District Association of Local Governments
124 1st Avenue NW (Across the street from the Fire Department)

Agenda

- Final Review of PDM Plan
- Recommendation of Approval and Submission to FEMA

Sign In
 Codington County Pre-Disaster Mitigation Team
 March 20, 2012
 Offices of First District Association of Local Governments
 6:00 p.m.

CODINGTON COUNTY PRE-DISASTER MITIGATION PLANNING MEETING

PLANNING TEAM

MARCH 20, 2012

Name	Organization
John A. Kiss	1 st District
Luke Muller	↓
Mary M. Poirer	W. M. M. U. C.
Brad Howell	Cod. Sheriff
Jim Sutton	Cod. Co. EM
Gordon Van Sickle	Henry
Kelby Goodall	Henry Fire
Tom Goodall	Henry Fire
Randy Froke	Henry Fire - city Henry
PATRICK CALLAN	FLORENCE
Scott McMahon	Watertown PD
Marty Karmopp	Cod. Co. EM
Bob Johnson	Codington Clark Election
Kevin Kranz	Kranzburg
Rick Small	Codington Co. Hwy
Greg Wall	South Shore Fire
Arlen Bochnick	Henry School District
David Zaley	Codington Clark Etc.
Laverne Margusardt	Cod. Co. Commission

Minutes
Codington County Pre-Disaster Mitigation Team
March 20, 2012
Offices of First District Association of Local Governments
6:00 p.m.

19 people were in attendance:

- Lavern Marquardt, Codington County Commissioners/LEPC
- Kelby Goodall, Henry Fire Department
- Tony Goodall, Henry Fire Department
- Jim Sutton, Codington County Emergency Management
- Arlen Boehnke, Henry School District
- Greg Wall, South Shore Fire Department
- Brad Howell, Codington County Sheriff
- Dave Zaug, Codington/Clark Electric
- Scott McMahon, Watertown Police Department
- Marty Karnopp, Codington County Emergency Management
- Bob Johnson, Codington/Clark Electric
- Pat Callan , Town of Florence
- Gordon VanSickle, Town of Henry
- Dave Eide, Codington/Clark Electric
- Todd Kays, First District Association of Local Governments
- Luke Muller, First District Association of Local Governments
- Kevin Kranz, Town of Kranzburg
- Randy Froke, Henry Fire Department
- Rick Small, Codington County Highway Superintendent

Kays and Muller of First District provided an overview of the changes to the Pre-Disaster Mitigation Plan since the last meeting, which was sent out to the Team members two weeks prior to the PDM meeting. Comments were received from those in attendance.

Motion by Rick Small to approve the final draft of the plan and submit to State of South Dakota and FEMA for their review. Motion passed unanimous.

Kays and Muller reviewed the community and county adoption process after approval by FEMA.

Meeting adjourned at 7:00 p.m.

Appendix B

First Community Meeting Agendas and Sign-in Sheets

Appendix B includes Agendas and “Sign-in Sheets” from the initial meetings held at the community level for the Codington County Pre-Disaster Mitigation Plan. Meetings were held at the regular monthly meetings for the following Towns:

Town	Date
Florence	February 4, 2011
Henry	February 4, 2011
Kranzburg	April 4, 2011
South Shore	March 7, 2011
Wallace	April 4, 2011

At all of the previously described meetings each individual in attendance was asked to identify the probability of each specific hazard’s occurrence. Following discussion on each individual hazard, Board members categorized these hazards as high probability to occur, low probability to occur, or unlikely to occur. The result was recorded on a master sheet for each town. Next, each individual in attendance was asked to identify the town’s vulnerability to each specific hazard. Following discussion on each individual hazard, Board members classified the town’s vulnerability to each hazard as high vulnerability, low vulnerability, or noted that the hazard was not a hazard in the jurisdiction. The result was recorded on a master sheet for each town. Following the hazard identification and vulnerability exercises the governing body was asked to rate the level to which they agree with the goals of the Pre-Disaster Mitigation Plan. The result was recorded on a master sheet for each town. Finally, the Town Board was asked to identify critical infrastructure within the community. All master sheets and infrastructure lists compiled at those meetings can be found in Appendix D. A master infrastructure list was compiled for each town Table 4.16.

The City of Watertown sent numerous department heads to a meeting to identify hazards and critical infrastructure at the offices of First District Association of Local Governments on May 9, 2011. Some departments completed the above described exercises prior to the meeting. As with the data gathered from the smaller towns, all responses gathered at that meeting are included within Appendix D.

The Codington County Association of Townships’ annual meeting on April 5, 2011 was attended by Luke Muller, Planner, with First District Association of Local Governments. At that meeting Mr. Muller described what the Pre-Disaster Mitigation Plan was and why it needed to be updated. The members present then identified what hazards posed risks to townships’ infrastructure in Codington County. Each individual township was then asked to identify areas most vulnerable to these hazards (on a map) and return them to the Emergency Management Director or First District. Data gleaned varied in level of detail because some townships used the same data submitted to the county as a result of the 2011 Spring Flooding. Those maps are included in Appendix E.

Attendance sign-in sheets and Agendas for each of the above described meetings are included below.

**TOWN OF HENRY
TOWN BOARD
AGENDA**

February 7, 2011

7:00 P.M.

Call the meeting to order

Reading of the minutes

Review and approve the claims

Old Business

New Business:

Pre-Disaster Mitigation Plan
Jim Sutton, Codington County EMD
First District Planning

Consider date of next meeting

Adjourn

AGENDA FOR THE TOWN BOARD
TOWN OF FLORENCE
February 7, 2011 7:00 p.m.

CALL MEETING TO ORDER

ROLL CALL

APPROVE AGENDA

READING OF MINUTES

OLD BUSINESS

US West Bldg Roof

NEW BUSINESS

VOLUNTEER FIRE DEPT REPORT

MAINTENANCE REPORT

FINANCE REPORT

TRUSTEE'S REPORTS

FINANCE OFFICER REPORT

PRE-DISASTER MITIGATION PLAN

Luke Muller

Jim Sutton, Codington County Emergency Management

APPROVE CLAIMS

SCHEDULE NEXT MEETING

ADJOURN

Codington County Pre-Disaster Mitigation Planning Meeting

Town of Florence

February 7, 2011

Name	Organization
<i>David Eschert</i>	<i>Town Board</i>
<i>Greg Lydale</i>	<i>Finance Officer Town of Florence</i>
PATRICK S. CALLAN	MAYOR
<i>Paul Paulson</i>	Trustee
JIM SUTTON	Codington County Emergency Management
CART LINDAHL	FLORENCE DISTRICT
LUKE MULLER	1st District
JIM SUTTON	Codington County EMO

**Town of South Shore
Board Meeting
Monday, March 7, 2011 7:00 pm**

Call meeting to order

Old Business:

1. School Property
2. Other
 - A.
 - B.

New Business:

1. Codington County Pre-Disaster Mitigation Planning Meeting – Luke Muller
2. Equalization Meeting Set for Monday, March 21, 2011 at 7:00pm, Community Center
3. Dept. of Game, Fish and Parks Inspection Report (need signatures)
4. Motion to Transfer from Contingency Fund to Snow Removal Budget (\$1,500)
5. 2010 Annual Report
6. 2011 Municipal Liquor Store Lease – Rhonda Boyle
7. Request for Commercial Grade Metal Detector
8. GFP Project Inspection Reports
9. Other
 - A.
 - B.
 - C.

Set next Regular Meeting – Monday, April 11, 2011 7:00pm

Motion to Adjourn

CODINGTON COUNTY PRE-DISASTER MITIGATION PLANNING MEETING

TOWN OF SOUTH SHORE

MARCH 7, 2011

Name	Organization
Jim Sutton	Cod Co E.M.
Dwane Dolen	Resident
Donna Dolen	Resident
Ken Nelson	Resident
Tom Nelson	Resident
Maime Reelin	Resident
Gary Reelin	RESIDENT
Charles Werner	Resident
Rolana Small	RESIDENT
Rhonda Boyle	Resident
Rich Schanck	Resident
Ona / E Mathies	"
Bob Grewing	Resident
Jodi Strong	Resident
Jan Meyer	SS Town Council
Kathy Meyer	Finance Officer

**TOWN OF WALLACE
TOWN BOARD
AGENDA**

April 4, 2011

7:00 P.M.

Call the meeting to order

Approval of minutes

Old Business

New Business:

 Pre-Disaster Mitigation Plan

 Luke Muller - First District Planning

Consider date of next meeting

Adjourn

**Town of Kranzburg
Town Board
Agenda**

**April 4, 2011
7:00 P.M.**

Call the meeting to order

Approval of Minutes

Old Business

New Business:

Pre-Disaster Mitigation Plan
Jim Sutton, Codington County EMD
First District Planning

Consider date of next meeting

Adjourn

CODINGTON COUNTY PRE-DISASTER MITIGATION PLANNING MEETING

TOWN OF KRANZBURG

APRIL 4, 2011

Name	Organization
Tade Kass	1st District
Dale Pinkett	
James Cones	
Ray [unclear]	Town of Kranz
Kim [unclear]	"
Lee [unclear]	"
[unclear]	"
[unclear]	
Jim Sutton	cod co. EM
Mike Ramo	

City of Watertown Department Heads Meeting:
(City Engineer, Fire Department, Police Department, Municipal Utilities)

May 9, 2011

1:30 P.M.

Introduction

Review/complete Hazard Probability Sheets

Review/complete Hazard Vulnerability Sheets

Review/complete Critical Infrastructure Sheets

Review/complete Goal Ranking Sheet

Review/discuss potential mitigation projects

Appendix C – Second Community Meeting Agendas, Sign-in Sheets

Appendix C includes Agendas and “Sign-in Sheets” from the second phase of meetings held at the community level for the Codington County Pre-Disaster Mitigation Plan. Meetings were held at the regular monthly meetings for the following Towns:

Town	Date
Florence	September 12, 2011
Henry	September 12, 2011
Kranzburg	September 12, 2011
South Shore	September 5, 2011
Wallace	September 6, 2011

At the previously described meetings Town Board members were first asked to identify potential hazard mitigation projects for their towns. Members then discussed among themselves and staff before determining a timeframe for these projects to be completed in (short-term, medium-term, long-term). Finally, members assigned a priority level (high, medium, low) to each project. The Town Board Presidents and Finance Officers were asked to work with First District Staff to identify who would be in charge of the potential projects and what a projected cost would be. All projects identified at those meetings are included in Table 5.1.

The City of Watertown sent numerous department heads to a meeting to identify and prioritize potential mitigation projects at the offices of First District Association of Local Governments on September 7, 2011. As with the data gathered from the smaller towns, all responses gathered at that meeting are included in Table 5.1.

Attendance sign-in sheets and Agendas for each of the above described meetings are included below.

**TOWN OF WALLACE
TOWN BOARD
AGENDA**

September 6, 2011

7:00 P.M.

Call the meeting to order

Approval of minutes

Review and approve claims

Old Business

New Business:

Pre-Disaster Mitigation Plan

Luke Muller - First District Planning

Consider date of next meeting

Adjourn

City of Watertown Department Heads Meeting:

(City Engineer, Sanitary Sewer, Fire Department, Police Department, Municipal Utilities)

September 7, 2011

1:00 P.M.

Review/complete Critical Infrastructure Sheets

Review/identify potential mitigation projects

**Town of South Shore
Board Meeting**
Monday, September 5, 2011 7:00pm

Call meeting to order

Old Business:

1. Rezoning of school property
2. Other
 - A.
 - B.

New Business:

1. Codington County Pre –Disaster Mitigation Planning Meeting – Todd Kays
2. Other
 - A.
 - B.

Set next Regular Meeting – Monday, October 3, 2011

Motion to Adjourn

Codington County - Pre-disaster
Mitigation
Plan Meeting

Sept 5, 2011
7 pm

South Shore Community Bldg
Town of South Shore
Mitigation Project Identification / Priorities

- 1) Todd Kays - 1st District
- 2) Jerome Jensen
- 3) Jean Elshelm
Mikel Grear
Dennis Grear
Cetra E. Jaquet
Robert Small
Dana E. Mott
Robert Dewing
Codi Strong
Jay Meyer
Kathy Meyer
Chubert Jern

**Town of Kranzburg
Town Board
Agenda**

**September 12, 2011
7:00 P.M.**

Call the meeting to order

Approval of Minutes

Old Business

New Business:

 Zoning Ordinance Discussion
 First District Planning
 Pre-Disaster Mitigation Plan
 Jim Sutton, Codington County EMD
 First District Planning

Consider date of next meeting

Adjourn

**TOWN OF HENRY
TOWN BOARD
AGENDA**

September 12, 2011

6:30 P.M.

Call the meeting to order

Reading of the minutes

Review and approve the claims

Old Business:

- Second Reading of Apportionments
- Luke Muller – Pre-Disaster Mitigation Plan
- Propane for Winter Season

New Business:

- Special Assessments
- Declare tractor-mower for surplus
- Budget for resurfacing Main Street – 2012
- Open Burning Ordinance

Consider date of next meeting

Adjourn

Town of Henry
Pre Disaster Mitigation Plan Meeting
September 12, 2011
8:30 PM
Sign-in Sheet

Name

Don LARSON
Randy Froke
Cam Peutele
Gordon Van Sickle
Mike Muller

AGENDA FOR THE TOWN BOARD
TOWN OF FLORENCE
September 12, 2011 7:00 p.m.

CALL MEETING TO ORDER

ROLL CALL

APPROVE AGENDA

READING OF MINUTES

OLD BUSINESS

Luke Muller - Codington Emergency Management
WIA

NEW BUSINESS

VOLUNTEER FIRE DEPT REPORT

MAINTENANCE REPORT

FINANCE REPORT

TRUSTEE'S REPORTS

FINANCE OFFICER REPORT

APPROVE CLAIMS

SCHEDULE NEXT MEETING

ADJOURN

Town of Florence
Pre-Disaster Mitigation Plan meeting
September 12, 2011
Sign-in Sheet

Name

Pat Nuhlich
PATRICK S. CALLAN
Peggy Lindahl
Curt Jendall
Don Schobert
Jude Miller

Appendix D - Hazard Identification/Vulnerability Worksheets

Appendix D includes master worksheets for Hazard Identification and Vulnerability for jurisdictions. Lists were gathered at meetings as described below:

Entity	Date
Town of Florence	February 4, 2011
Town of Henry	February 4, 2011
Town of Kranzburg	April 4, 2011
Town of South Shore	March 7, 2011
Town of Wallace	April 4, 2011
City of Watertown (Department Heads)	May 9, 2011

Master worksheets for Hazard Identification and Vulnerability for jurisdictions (multiple were submitted for the City of Watertown) below.

Florence

Codrington County PDM Worksheet #1 Risk Assessment Worksheet – Hazard Identification *Florence*

What is the probability of occurrence of the following natural hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident			X
Avalanche			X
Biological		X	
Civil Disorder			X
Coastal Storm			X
Communication Disruption		X	
Dam Failure			X
Drought		X	
Earthquake			X
Extreme Cold	X		
Extreme Heat	X		
Flood		X	
Freezing Rain/Sleet/Ice	X		
Hail		X	
Hazardous Material		X	
Heavy Rain	X		
Heavy Snow	X		
Hurricane			X
Ice Jam			X
Landslide			X
Lightning		X	
National Emergency			X
Radiological			X
Rapid Snow Melt		X	
Strong Winds	X		
Subsidence			X
Thunderstorm	X		
Tomado		X	
Transportation			X
Urban Fire		X	
Utility Interruption	X		
Volcanic Ash			X
Volcanic Explosion			X
Wild Fire			X

Florence

Codington County PDM Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

Florence
How vulnerable is the community from the following natural hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident			X	
Avalanche				X
Biological				X
Civil Disorder				X
Coastal Storm				X
Communication Disruption		X		
Dam Failure				X
Drought			X	
Earthquake				X
Extreme Cold	X			
Extreme Heat	X			
Flood			X	
Freezing Rain/Sleet/Ice	X			
Hail			X	
Hazardous Material			X	
Heavy Rain	X			
Heavy Snow	X			
Hurricane				X
Ice Jam				X
Landslide				X
Lightning			X	
National Emergency			X	
Radiological			X	
Rapid Snow Melt	X			
Strong Winds	X			
Subsidence				X
Thunderstorm		X		
Tornado	X			
Transportation			X	
Urban Fire		X		
Utility Interruption	X			
Volcanic Ash				X
Volcanic Explosion				X
Wild Fire				X

Florence

Codrington County PDM Worksheet #3 Goal and Objective Statements

Florence
Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					X
Goal - Improve public safety during severe weather, flooding and other natural disasters.					X
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.					X
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					X
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					X
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					X
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					X
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.					X
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					X
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					X
Education #1: Increase public awareness of natural hazards.					X
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					X
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					X
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					X
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans -- Master Plans, land use, transportation, open space, and capital programming.					X
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					X
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					X
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					X

Henry

Codrington County PDM Worksheet #1 Risk Assessment Worksheet – Hazard Identification

Henry
What is the probability of occurrence of the following natural hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident			X
Avalanche			X
Biological			X
Civil Disorder			X
Coastal Storm			X
Communication Disruption		X	
Dam Failure		X	✓
Drought		X	
Earthquake			X
Extreme Cold	X		
Extreme Heat	X		
Flood		X	X
Freezing Rain/Sleet/Ice	X		
Hail	X		
Hazardous Material		X	
Heavy Rain	X		
Heavy Snow	X		
Hurricane			X
Ice Jam			X
Landslide			X
Lightning	X		
National Emergency			X
Radiological			X
Rapid Snow Melt		X	
Strong Winds	X		
Subsidence			X
Thunderstorm	X		
Tornado		X	
Transportation		X	
Urban Fire		X	
Utility Interruption	X		
Volcanic Ash			X
Volcanic Explosion			X
Wild Fire			X

Henry

Codington County PDM Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

Henry
How vulnerable is the community from the following natural hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident			X	
Avalanche				X
Biological			X	
Civil Disorder			X	
Coastal Storm				X
Communication Disruption			X	
Dam Failure				X
Drought	X			
Earthquake				
Extreme Cold	X			
Extreme Heat	X			
Flood			X	
Freezing Rain/Sleet/Ice	X			
Hail	X		X	
Hazardous Material			X	
Heavy Rain	X			
Heavy Snow	X			
Hurricane				X
Ice Jam				X
Landslide				X
Lightning			X	
National Emergency			X	
Radiological			X	
Rapid Snow Melt			X	
Strong Winds	X			
Subsidence				X
Thunderstorm	X			
Tornado	X			
Transportation			X	
Urban Fire			X	
Utility Interruption		X		
Volcanic Ash				X
Volcanic Explosion				X
Wild Fire				X

Henry

Codington County PDM Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.				x	
Goal - Improve public safety during severe weather, flooding and other natural disasters.				x	
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.				x	
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.				x	
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible				x	
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.				x	
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.				x	
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.				x	
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.				x	
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.				x	
Education #1: Increase public awareness of natural hazards.				x	
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.				x	
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.				x	
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.				x	
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.				x	
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).				x	
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.				x	
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.				x	

Kranzburg

Codington County PDM Worksheet #1 Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following natural hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident			/
Avalanche			/
Biological			/
Civil Disorder			/
Coastal Storm			/
Communication Disruption		/	
Dam Failure			/
Drought		/	
Earthquake			/
Extreme Cold	/		
Extreme Heat	/		
Flood		/	
Freezing Rain/Sleet/Ice	/		
Hail	/		
Hazardous Material			/
Heavy Rain	/		
Heavy Snow	/		
Hurricane			/
Ice Jam			/
Landslide			
Lightning	/		
National Emergency			/
Radiological			/
Rapid Snow Melt	/		
Strong Winds	/		
- Subsidence			
Thunderstorm	/		
Tornado		/	
- Transportation			/
Urban Fire		/	
Utility Interruption	/		
Volcanic Ash			/
Volcanic Explosion			/
Wild Fire			//

Kranzburg

Codington County PDM Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following natural hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident				/
Avalanche				/
Biological				/
Civil Disorder				/
Coastal Storm				/
Communication Disruption		/		
Dam Failure				#
Drought	/	#		
Earthquake				/
Extreme Cold	/			
Extreme Heat	/			
Flood		/		
Freezing Rain/Sleet/Ice	/			
Hail	/			
Hazardous Material	/			#
Heavy Rain	/			
Heavy Snow	/			
Hurricane				#
Ice Jam				/
Landslide				
Lightning	/			
National Emergency				/
Radiological				/
Rapid Snow Melt	/			
Strong Winds	/			
Subsidence				
Thunderstorm	/			
Tornado	/			
Transportation	/			
Urban Fire	/			
Utility Interruption	/			
Volcanic Ash				#
Volcanic Explosion				/
Wild Fire				/

per the hand

Kranzburg

Codrington County PDM Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					1
Goal - Improve public safety during severe weather, flooding and other natural disasters.					1
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.					1
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					1
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					1
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					1
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					1
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.					1
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					1
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					1
Education #1: Increase public awareness of natural hazards.					1
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					1
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					1
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					1
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.					1
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					1
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					1
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					1

South Shore

Codington County PDM Worksheet #1 Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following natural hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident		X	
Avalanche			X
Biological			X
Civil Disorder			X
Coastal Storm			X
Communication Disruption	X	●	
Dam Failure			X
Drought		X	
Earthquake		X	●
Extreme Cold	X		
Extreme Heat		X	
Flood		X	
Freezing Rain/Sleet/Ice	X		
Hail	X		
Hazardous Material		X	
Heavy Rain	X		
Heavy Snow	X		
Hurricane			X
Ice Jam			X
Landslide			X
Lightning	X		
National Emergency			X
Radiological			X
Rapid Snow Melt		X	
Strong Winds	X		
Subsidence			X
Thunderstorm	X		
Tornado		X	
Transportation		X	
Urban Fire		X	
Utility Interruption	X		
Volcanic Ash			X
Volcanic Explosion			X
Wild Fire			X

South Shore

Codrington County PDM Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following natural hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident			X	
Avalanche			X	
Biological		X		
Civil Disorder			X	
Coastal Storm				X
Communication Disruption	X			
Dam Failure			X	
Drought	X	X		
Earthquake	X		X	
Extreme Cold			X	
Extreme Heat			X	
Flood			X	
Freezing Rain/Sleet/Ice	X			
Hail		X		
Hazardous Material	X			
Heavy Rain			X	
Heavy Snow		X		X
Hurricane				X
Ice Jam				X
Landslide				X
Lightning			X	
National Emergency			X	
Radiological				X
Rapid Snow Melt			X	
Strong Winds	X			
Subsidence				X
Thunderstorm		X		
Tornado	X		X	
Transportation			X	
Urban Fire		X		
Utility Interruption	X			
Volcanic Ash			X	X
Volcanic Explosion				X
Wild Fire			X	

South Shore

Codrington County PDM Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					X
Goal - Improve public safety during severe weather, flooding and other natural disasters.					X
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.					X
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					X
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					X
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					X
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					X
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.					X
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					X
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					X
Education #1: Increase public awareness of natural hazards.					X
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					X
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					X
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					X
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.					X
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					X
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					X
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					X

Wallace

Codrington County PDM Worksheet #1 Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following natural hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident			X
Avalanche			X
Biological			X
Civil Disorder			X
Coastal Storm			X
Communication Disruption		X	
Dam Failure			X
Drought		X	
Earthquake			X
Extreme Cold	X		
Extreme Heat	X		
Flood	X		
Freezing	X		
Rain/Sleet/Ice	X		
Hail	X		
Hazardous Material		X	
Heavy Rain	X		
Heavy Snow	X		
Hurricane			X
Ice Jam			X
Landslide			X
Lightning	X		
National Emergency			X
Radiological			X
Rapid Snow Melt	X		
Strong Winds		X	
Subsidence			X
Thunderstorm	X		
Tornado		X	
Transportation			X
Urban Fire		X	
Utility Interruption	X		
Volcanic Ash			X
Volcanic Explosion			X
Wild Fire			X

Wallace

Codington County PDM Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following natural hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident			X	
Avalanche				X
Biological				X
Civil Disorder				X
Coastal Storm				X
Communication Disruption	X			
Dam Failure				X
Drought	X			
Earthquake			X	
Extreme Cold	X			
Extreme Heat	X			
Flood	X			
Freezing Rain/Sleet/Ice	X			
Hail	X			
Hazardous Material	X		X	
Heavy Rain	X			
Heavy Snow	X			
Hurricane				X
Ice Jam				X
Landslide				X
Lightning			X	
National Emergency			X	
Radiological				X
Rapid Snow Melt	X			
Strong Winds		X		
Subsidence				X
Thunderstorm		X		
Tornado	X			
Transportation				X
Urban Fire			X	
Utility Interruption	X - Not much damage			
Volcanic Ash				X
Volcanic Explosion				X
Wild Fire			X	

Wallace

Codrington County PDM Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					X
Goal - Improve public safety during severe weather, flooding and other natural disasters.					X
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.					X
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					X
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					X
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					X
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					X
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.					X
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					X
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					X
Education #1: Increase public awareness of natural hazards.					X
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					X
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					X
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					X
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.					X
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					X
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					X
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					X

Watertown PD

Plc

Codington County PDM Watertown - Worksheet #1 Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident		XX	
Avalanche			XX
Biological			XX
Civil Disorder			XX
Coastal Storm			XX
Communication Disruption		XX	
Dam Failure			XX
Drought		XX	
Earthquake			XX
Extreme Cold	XX		
Extreme Heat	Xx		
Flood	XX		
Freezing Rain/Sleet/Ice	XX		
Hail	XX		
Hazardous Material		XX	
Heavy Rain	XX		
Heavy Snow	XX		
Hurricane			XX
Ice Jam	XX		
Landslide			XX
Lightning	XX		
National Emergency			XX
Radiological			XX
Rapid Snow Melt		XX	
Strong Winds	XX		
Subsidence			XX
Thunderstorm	XX		
Tornado		XX	
Transportation		XX	
Urban Fire		XX	
Utility Interruption		XX	
Volcanic Ash			XX
Volcanic Explosion			XX
Wild Fire		XX	

Watertown PD

Codington County PDM Watertown - Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident			XX	
Avalanche				XX
Biological				XX
Civil Disorder				XX
Coastal Storm				XX
Communication Disruption		XX		
Dam Failure				XX
Drought		XX		
Earthquake				XX
Extreme Cold	XX			
Extreme Heat	XX			
Flood	XX			
Freezing Rain/Sleet/Ice	XX			
Hail	XX			
Hazardous Material			XX	
Heavy Rain		XX		
Heavy Snow		XX		
Hurricane				XX
Ice Jam	XX			
Landslide				XX
Lightning		XX		
National Emergency				XX
Radiological				XX
Rapid Snow Melt		XX		
Strong Winds	XX			
Subsidence				XX
Thunderstorm		XX		
Tornado			XX	
Transportation			XX	
Urban Fire			XX	
Utility Interruption		XX		
Volcanic Ash				XX
Volcanic Explosion				XX
Wild Fire			XX	

Watertown PD

Codington County PDM Watertown - Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					XX
Goal - Improve public safety during severe weather, flooding and other natural disasters.					XX
Goal – Improve the County’s Emergency Preparedness and Disaster Response and Recovery capabilities.					XX
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					XX
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					XX
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					XX
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					XX
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.					XX
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					XX
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					XX
Education #1: Increase public awareness of natural hazards.					XX
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					XX
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					XX
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					XX
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.					XX
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					XX
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					XX
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					XX

Watertown Municipal Utilities

Watertown Municipal Utilities

Codington County PDM Watertown - Worksheet #1 Risk Assessment Worksheet – Hazard Identification

What is the probability of occurrence of the following hazards?

Hazard	High Probability to Occur (At least once in a year)	Low Probability to Occur (Hazards that may have occurred in the past or could occur in the future but do not occur on a yearly basis)	Unlikely to Occur (Hazards or disasters that have never occurred in the area before and are unlikely to occur)
Aircraft Accident		✓	
Avalanche			✓
Biological <i>Chlorine</i>		✓	
Civil Disorder		✓	
Coastal Storm			✓
Communication Disruption		✓	
Dam Failure			✓
Drought		✓	
Earthquake			✓
Extreme Cold	✓		
Extreme Heat	✓		
Flood	✓		
Freezing Rain/Sleet/Ice	✓		
Hail	✓		
Hazardous Material	✓		
Heavy Rain	✓		
Heavy Snow	✓		
Hurricane			✓
Ice Jam	✓		
Landslide		✓	
Lightning	✓		
National Emergency	✓		
Radiological		✓	
Rapid Snow Melt	✓		
Strong Winds	✓		
Subsidence <i>sink of land</i>	✓		
Thunderstorm	✓		
Tornado	✓		
Transportation	✓		
Urban Fire	✓		
Utility Interruption	✓		
Volcanic Ash			✓
Volcanic Explosion			✓
Wild Fire		✓	

Watertown Municipal Utilities

Codington County PDM Watertown - Worksheet #2 Risk Assessment Worksheet – Hazard Vulnerability

How vulnerable is the community from the following hazard? In other words if the hazard occurs is there a potential to impact the community? If so, what would be impacted?

Hazard	High Vulnerability Significant risk/major damage potential (for example, destructive, damage to more than 10% of the jurisdiction and/or regular occurrence)	Medium Vulnerability Moderate damage potential (causing partial damage to 5-10% of the jurisdiction, and irregular occurrence)	Low Vulnerability Little damage potential (minor damage to less than 5% of the jurisdiction)	NA Not a hazard to the jurisdiction
Aircraft Accident	✓			
Avalanche				
Biological	✓			
Civil Disorder				
Coastal Storm				
Communication Disruption				
Dam Failure				
Drought				
Earthquake				
Extreme Cold				
Extreme Heat				
Flood				
Freezing Rain/Sleet/Ice	✓			
Hail				
Hazardous Material				
Heavy Rain				
Heavy Snow				
Hurricane				
Ice Jam				
Landslide				
Lightning	✓			
National Emergency				
Radiological				
Rapid Snow Melt				
Strong Winds	<i>Cause off line prob</i>			
Subsidence				
Thunderstorm				
Tomado				
Transportation				
Urban Fire		✓		
Utility Interruption	✓			
Volcanic Ash				
Volcanic Explosion				✓
Wild Fire				✓

Watertown Municipal Utilities

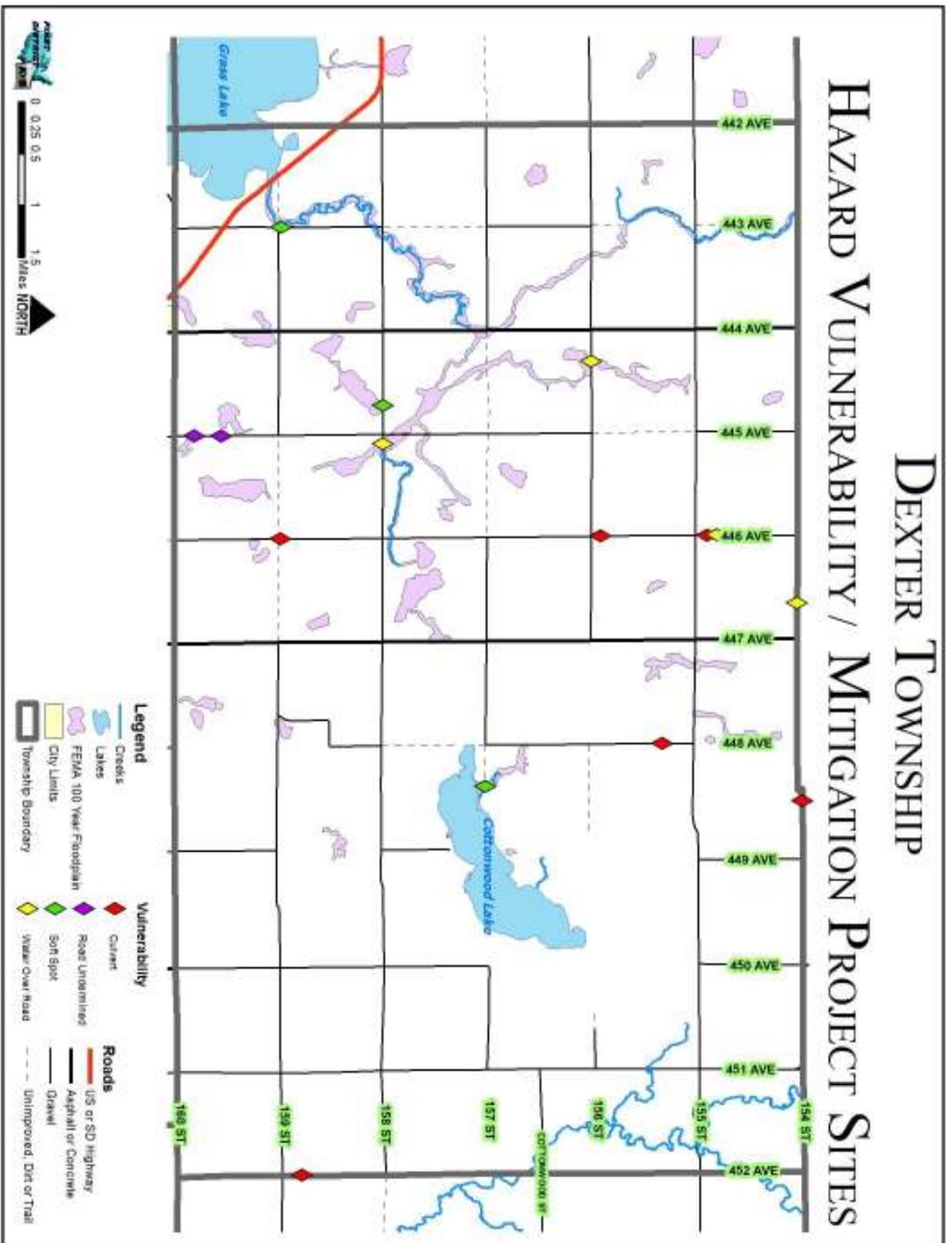
Codington County PDM Watertown - Worksheet #3 Goal and Objective Statements

Please evaluate the level of agreement of the proposed goal/objective statements.

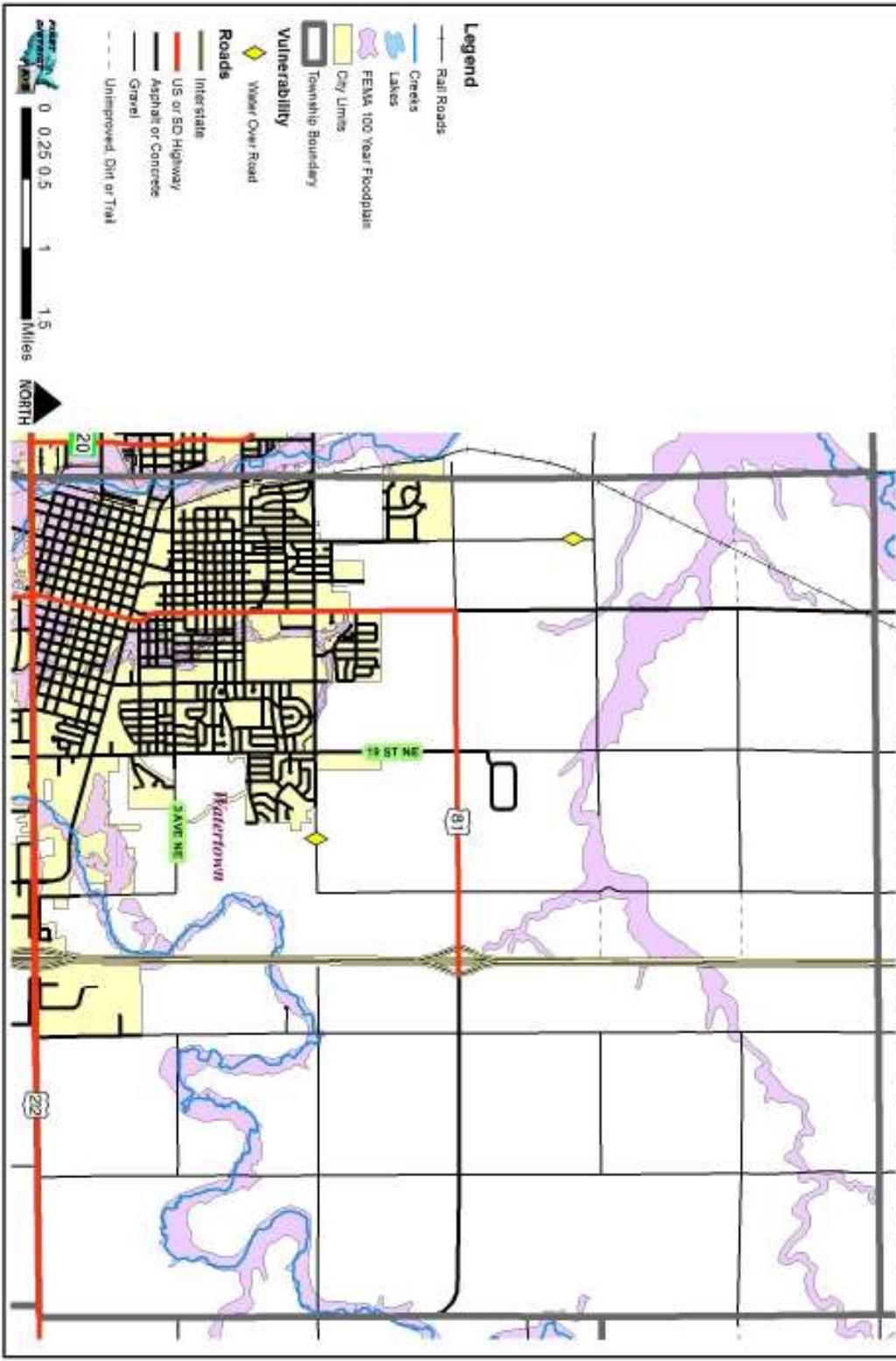
Goal/Objective	1 Disagree	2 Generally Disagree	3 No Opinion	4 Generally Agree	5 Agree
Goal - Reduce the loss of life, property, infrastructure, critical facilities, cultural resources and impacts from severe weather, flooding and other natural disasters.					X
Goal - Improve public safety during severe weather, flooding and other natural disasters.					X
Goal - Improve the County's Emergency Preparedness and Disaster Response and Recovery capabilities.					X
Goal - Reduce the extent to which utility mishaps affect areas during severe weather flooding and other natural disasters.					X
Capital/Structural Objective #1: Identify and prioritize capital/structural mitigation projects that are cost effective and technically feasible					X
Capital/Structural Objective #2: Utilize Hazard Mitigation Grant or Pre-Disaster Mitigation Grant funds.					X
Administration/Enforcement/Coordination Objective #1: Identify and pursue funding that builds local capacity and supports grant-writing for mitigation actions identified in the PDM.					X
Administration/Enforcement/Coordination Objective #2: Increase communication /coordination between federal, state, regional, county, municipal, private, and non-profit agencies in the area of predisaster mitigation.				X	
Administration/Enforcement/Coordination Objective #3: Maintain and enhance working relationships with the utilities.					X
Administration/Enforcement/Coordination Objective #3: Improve hazard warning systems and notification to vulnerable populations.					X
Education #1: Increase public awareness of natural hazards.					X
Education #2: Promote use of full range of federal and state resources related to disaster mitigation such as educational materials, training, and National Weather Service forecasts.					X
Education #3: Develop a means for sharing information on a regional basis about successful disaster mitigation planning and programs.					X
Planning #1: Find funding to review and update the regional and local disaster mitigation plans on a five-year cycle.					X
Planning #2: Incorporate disaster mitigation actions into appropriate local and regional plans – Master Plans, land use, transportation, open space, and capital programming.					X
Planning #3: Integrate disaster mitigation concerns into transportation projects (e.g. drainage improvements, underground utilities, etc.).					X
Planning #4: Improve the information available on at-risk properties and repetitive loss structures, in order to refine strategies.					X
Regulatory #1: Integrate disaster mitigation concerns into subdivision, site plan review, and other zoning reviews. In particular require the consideration of downstream flooding impacts caused by new projects.					X

Appendix E
Township Vulnerable and Potential Mitigation Project Site Maps

DEXTER TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES

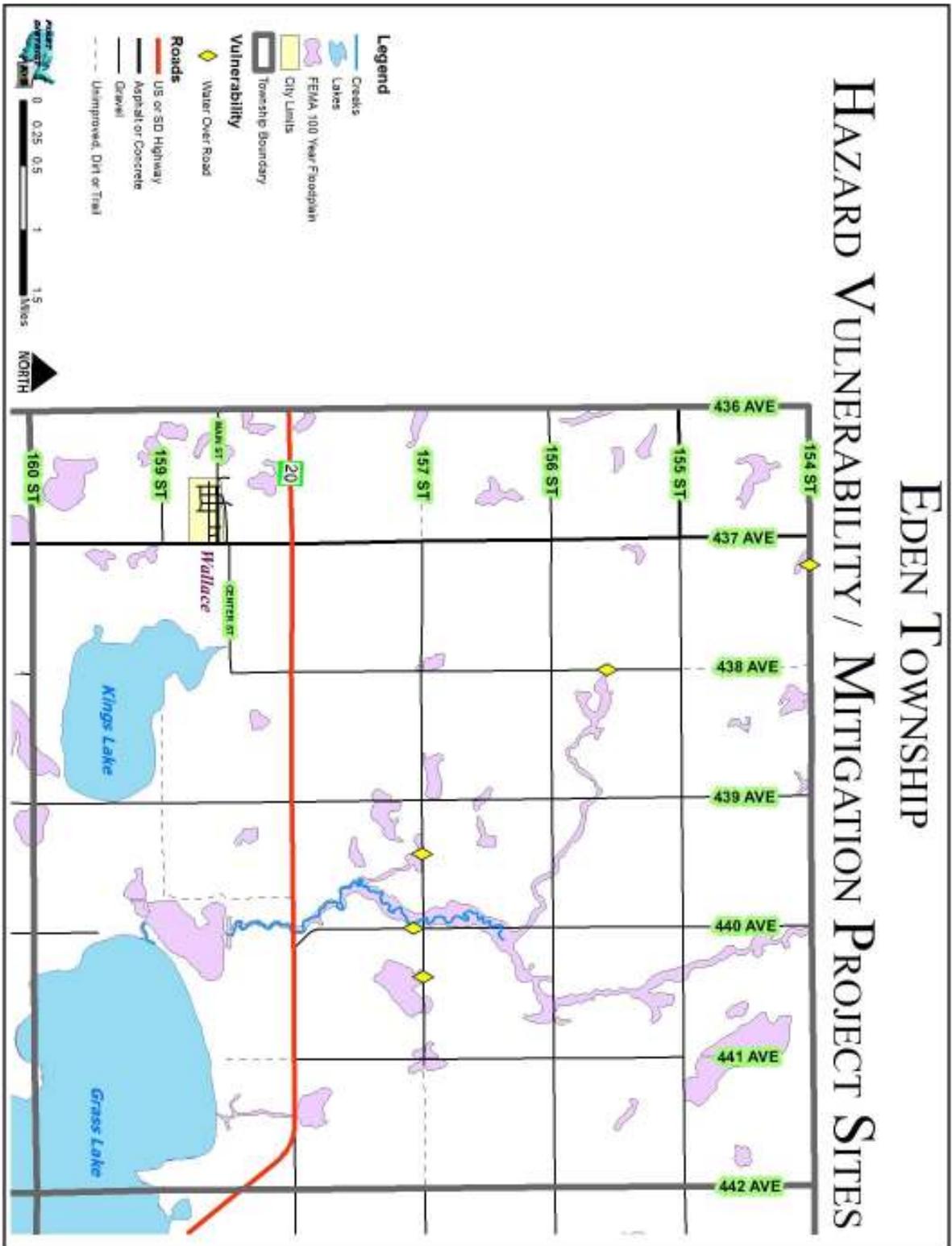


ELMIRA TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES



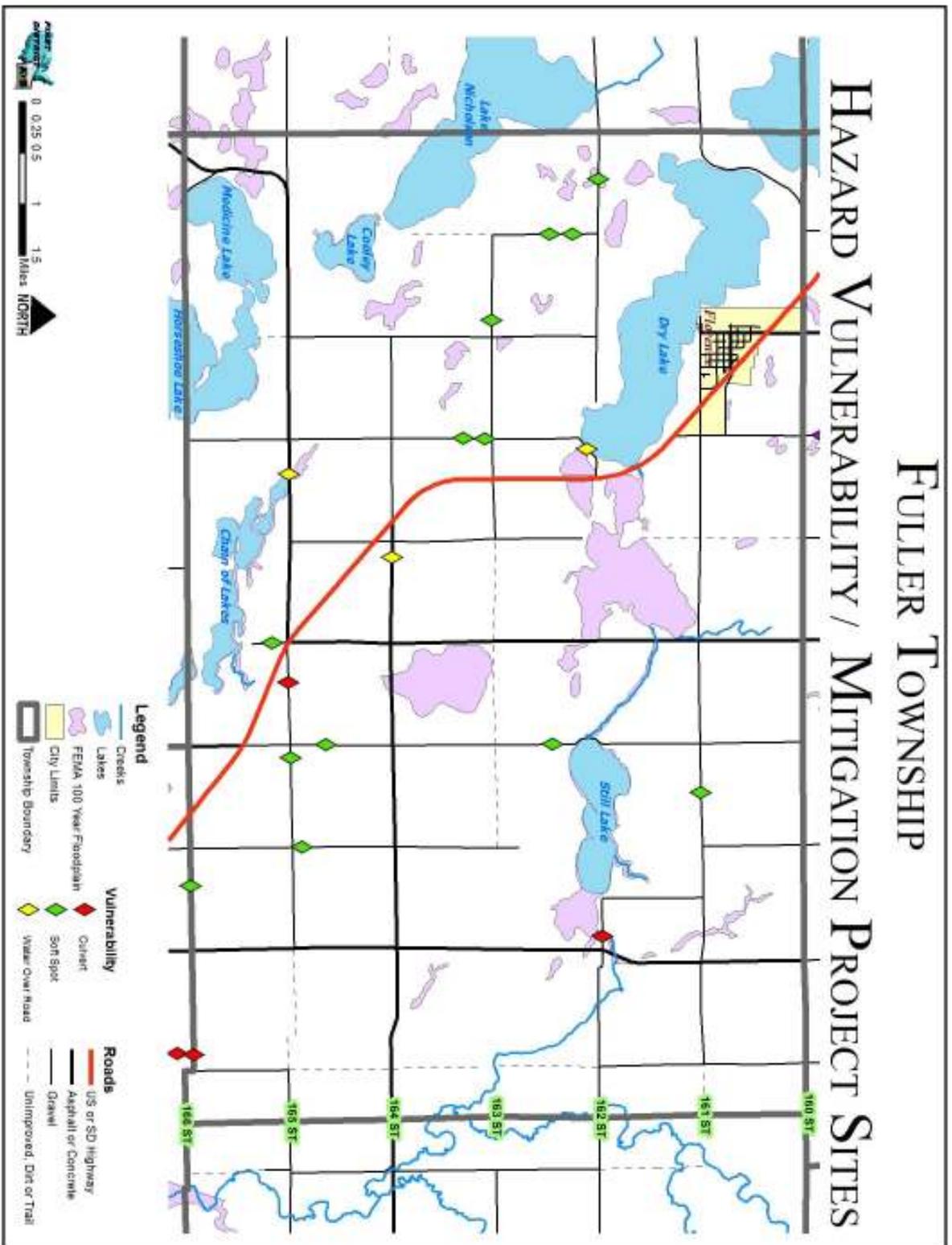
EDEN TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

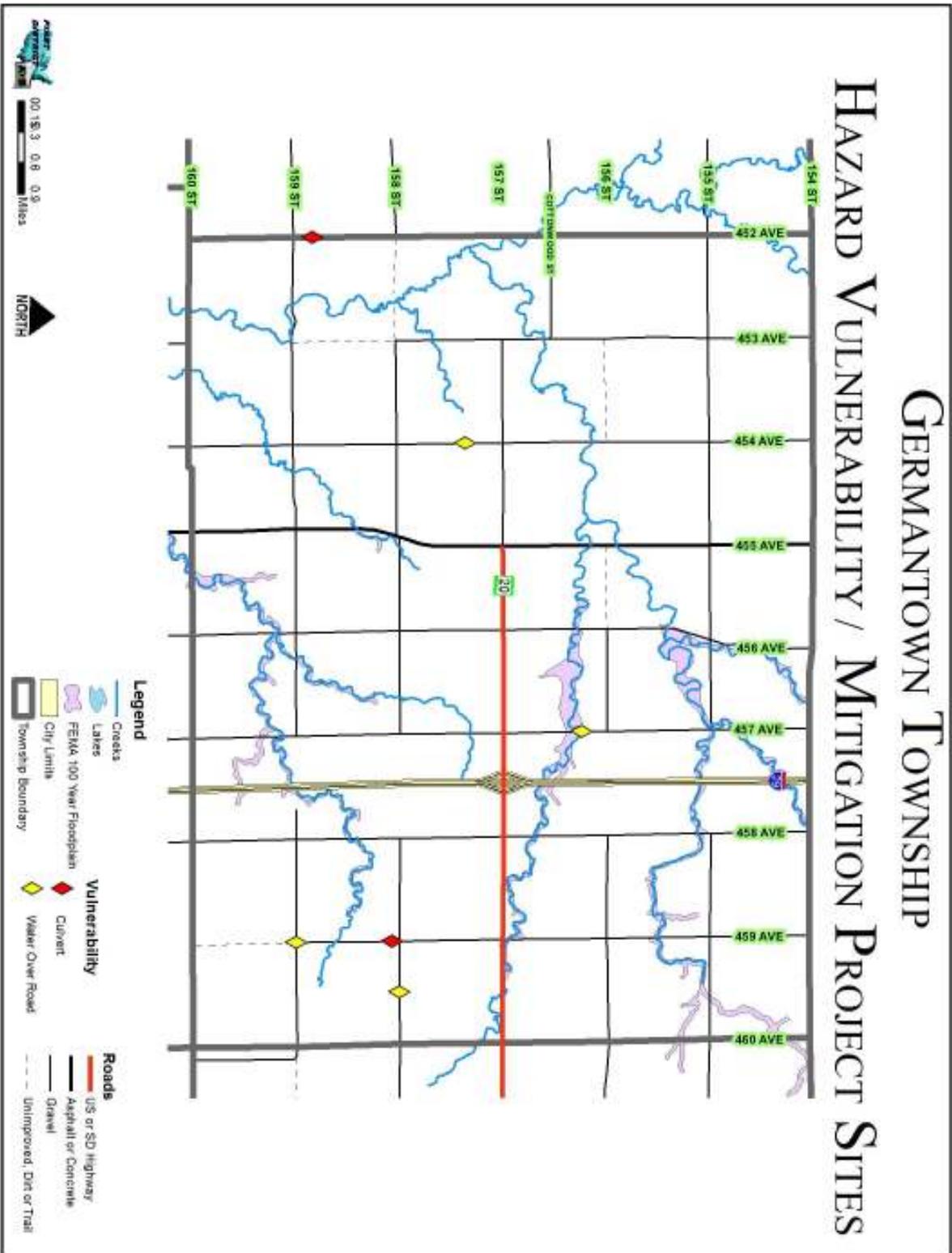


FULLER TOWNSHIP

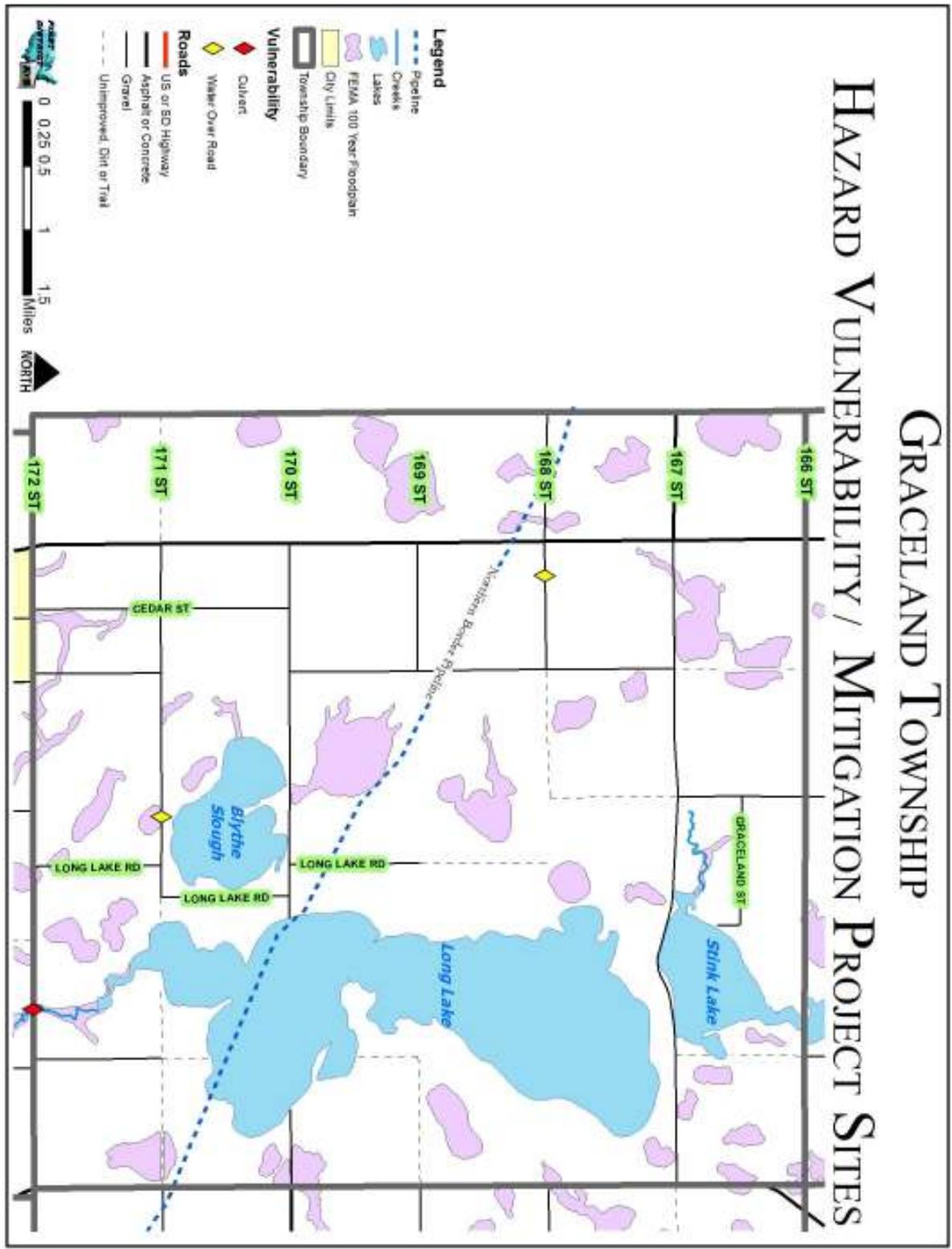
HAZARD VULNERABILITY / MITIGATION PROJECT SITES



GERMANTOWN TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES

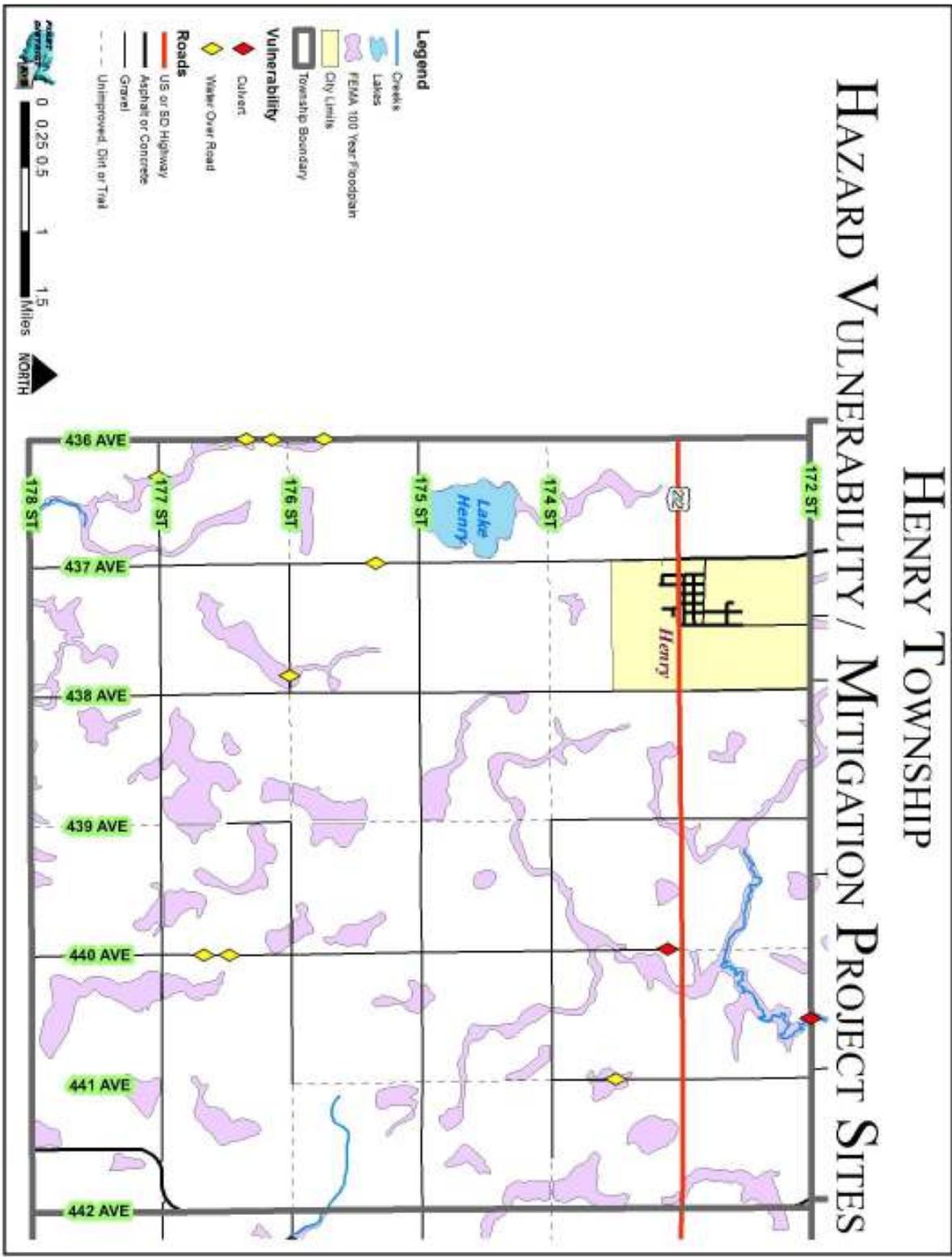


GRACELAND TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES



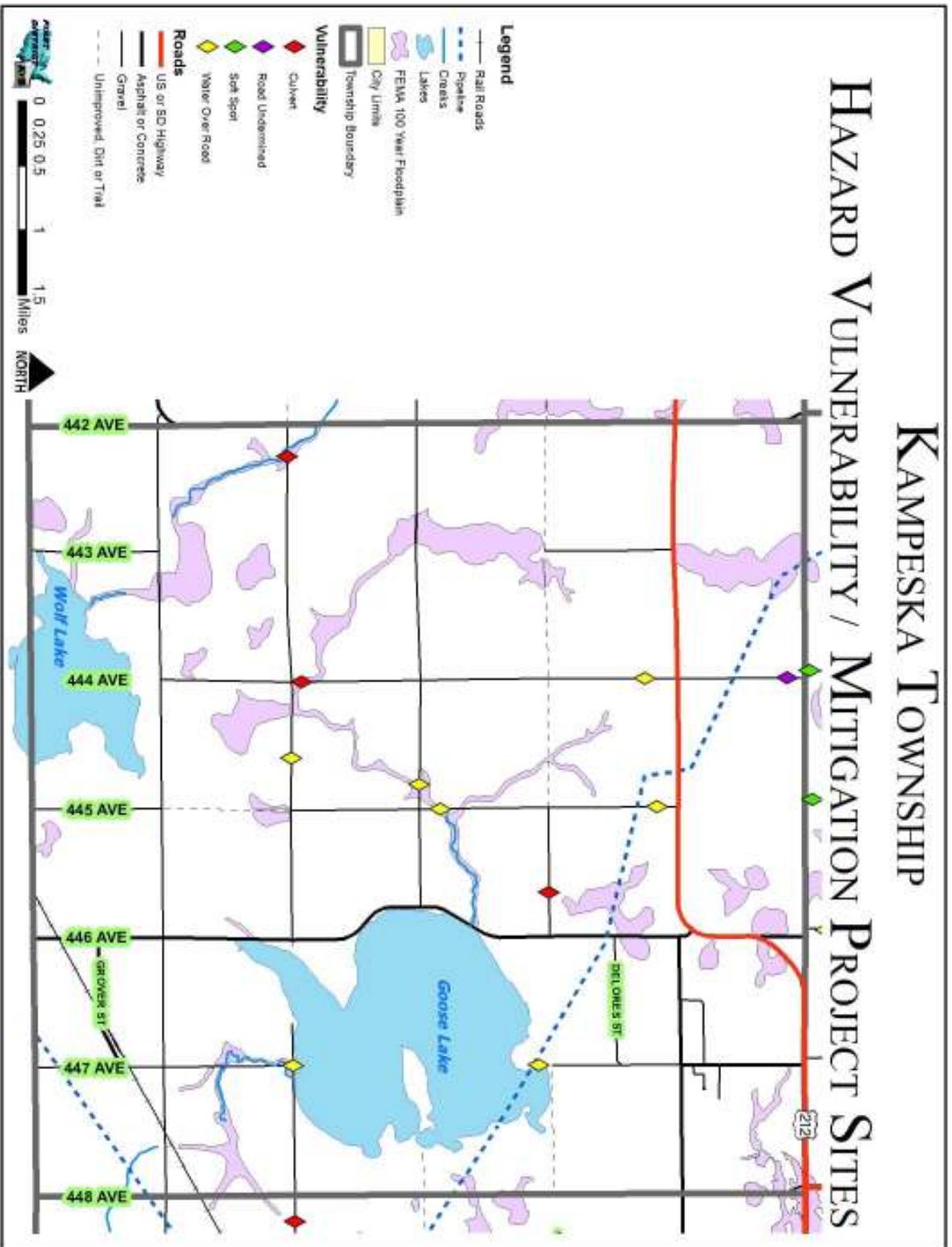
HENRY TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES



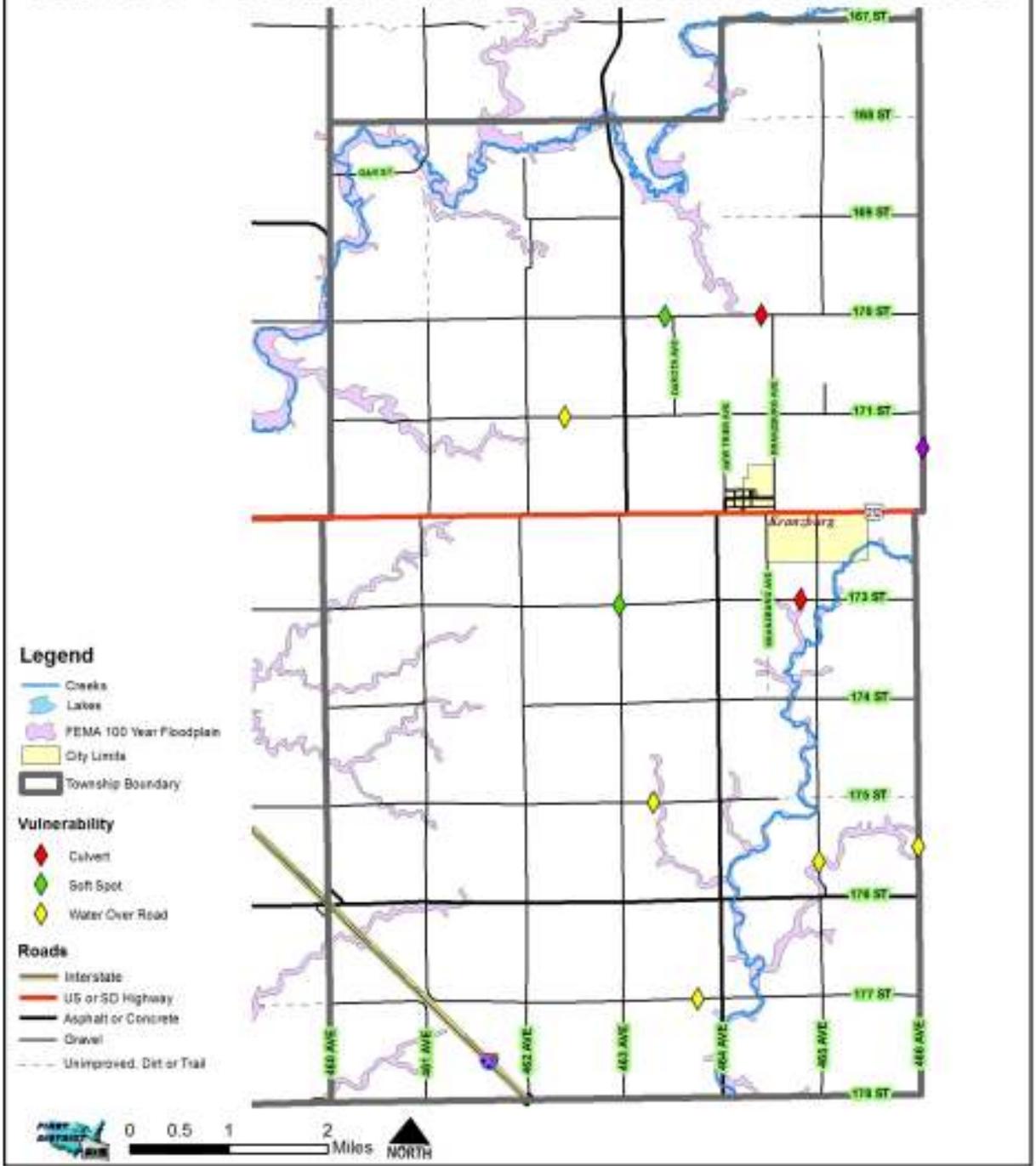
KAMPESKA TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES



KRANZBURG TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

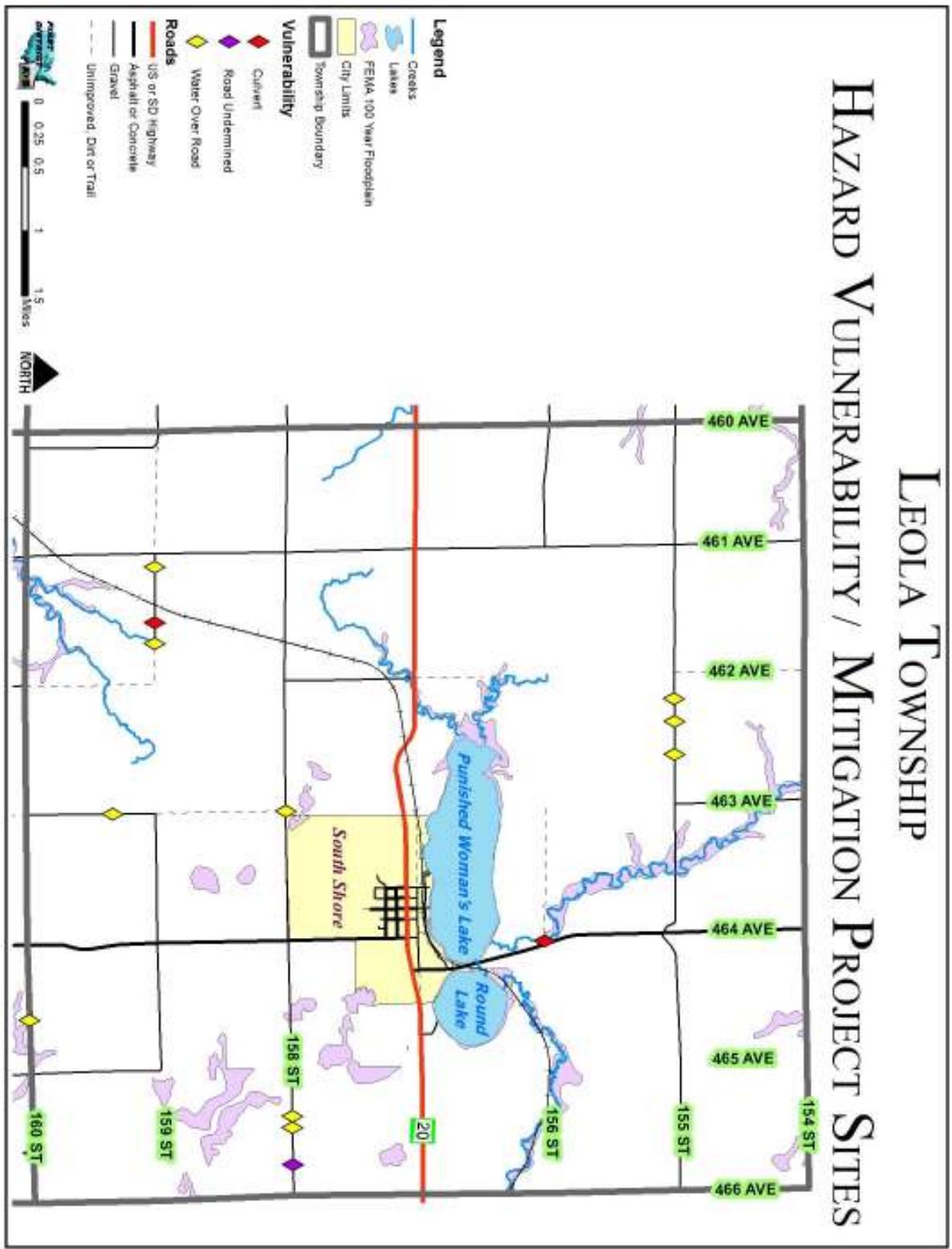


LAKE TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

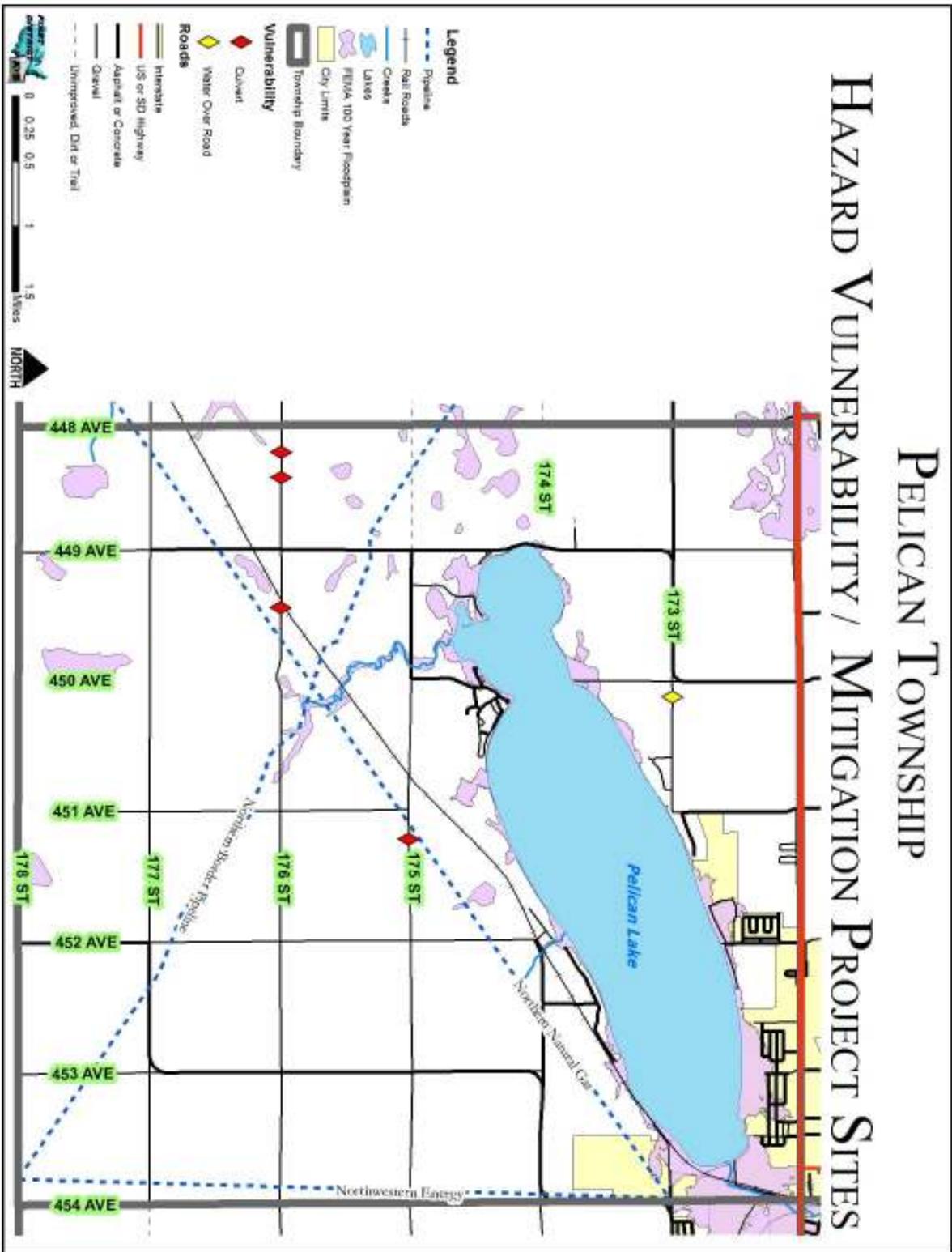


LEOLA TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES



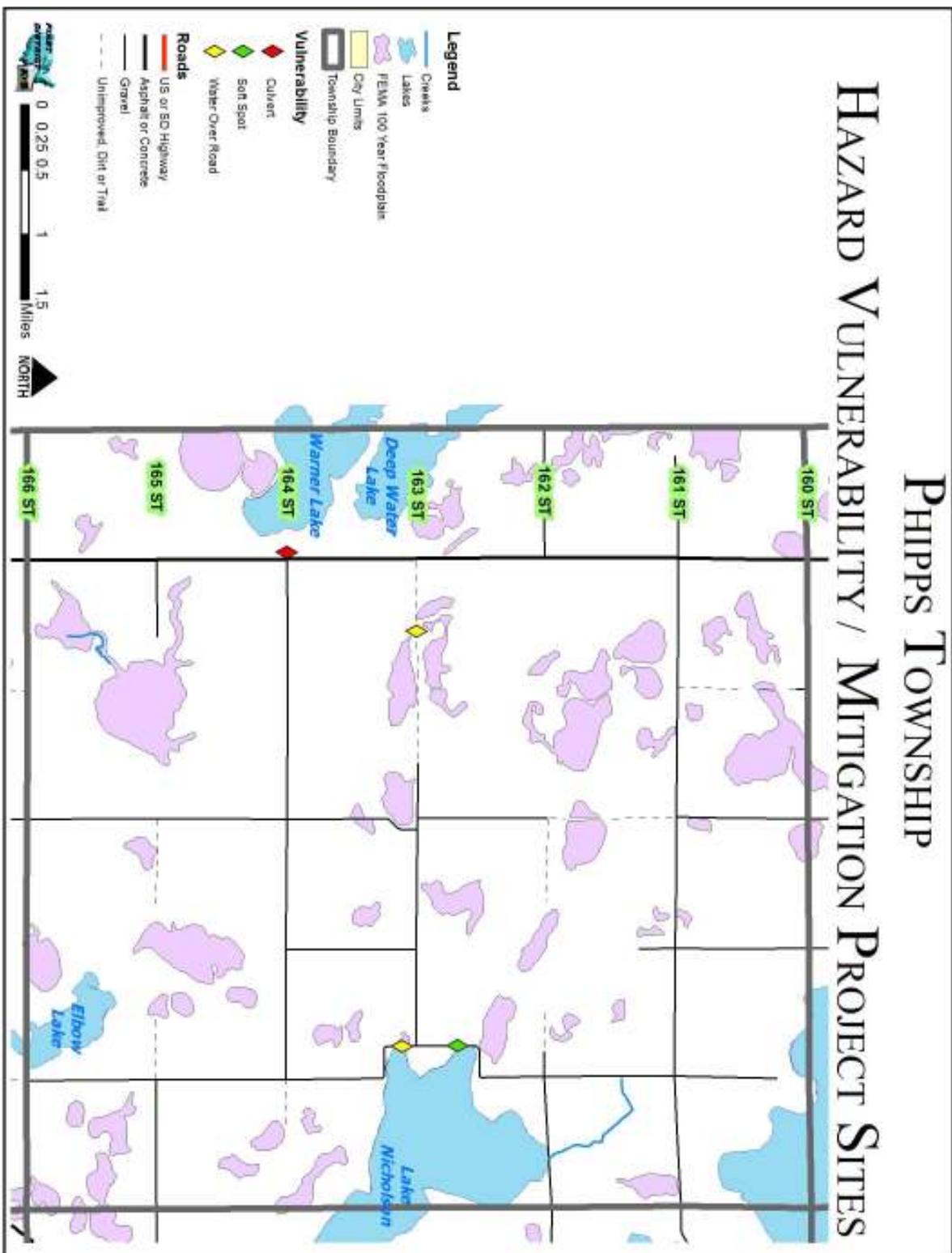
PELICAN TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

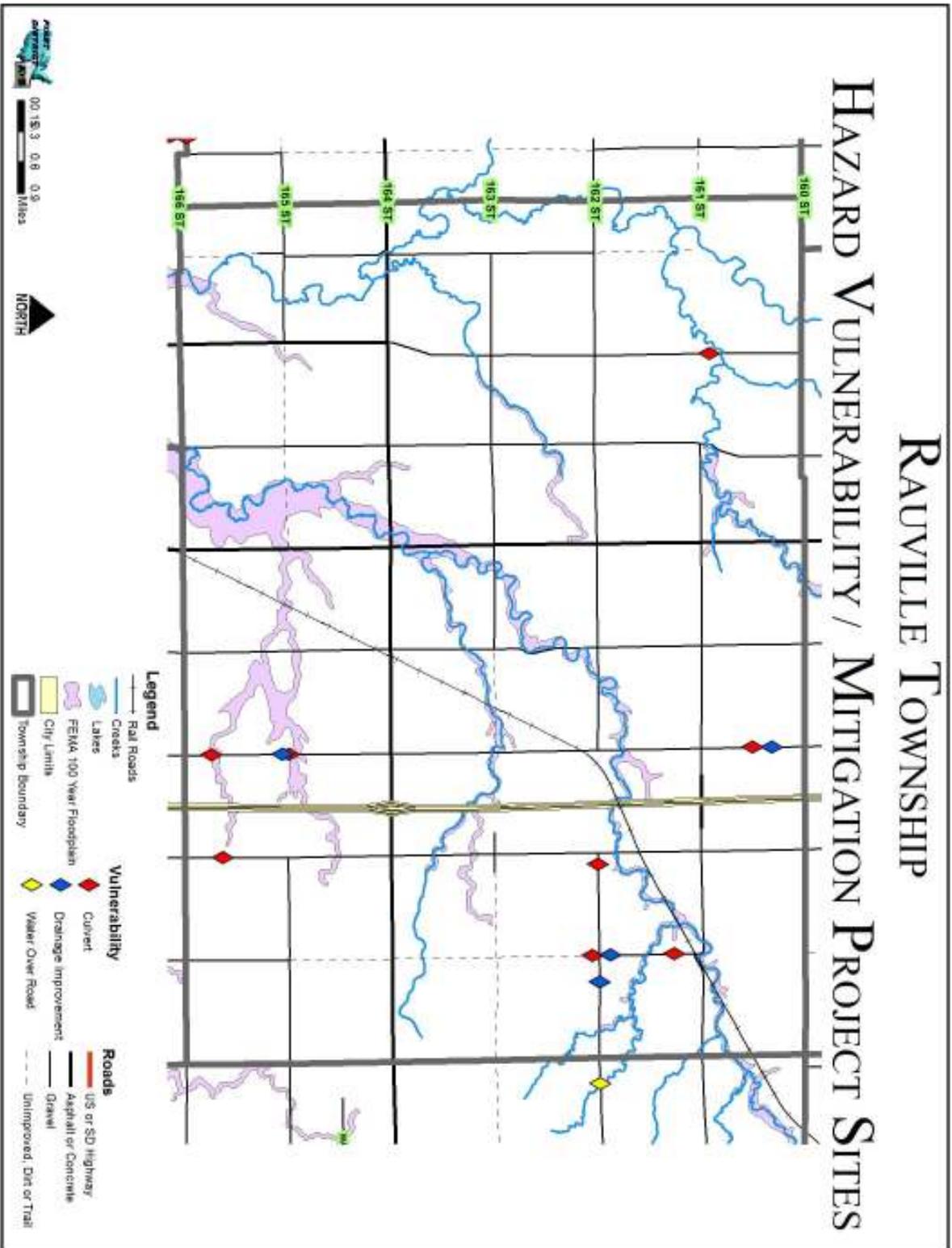


PHIPPS TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

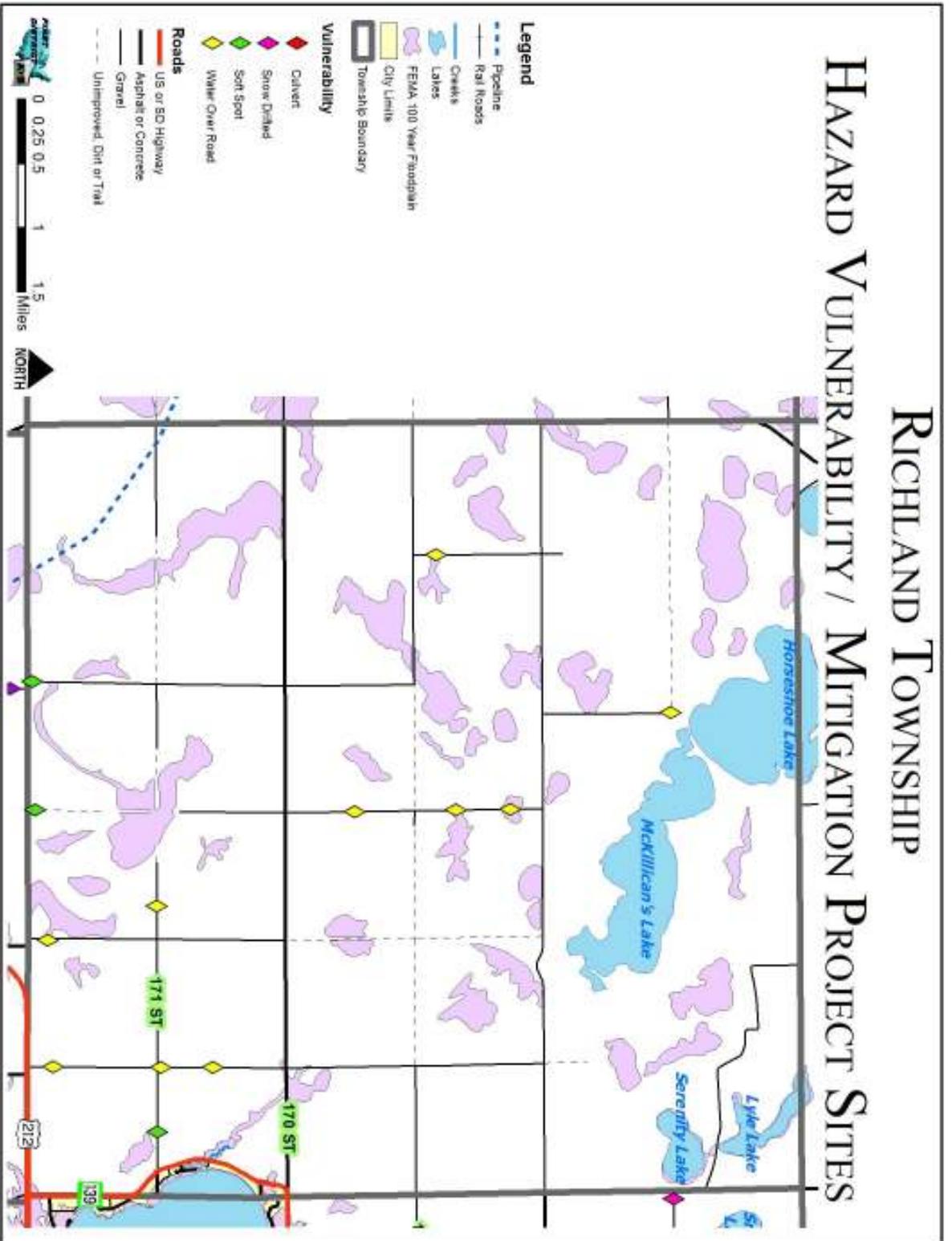


RAUVILLE TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES

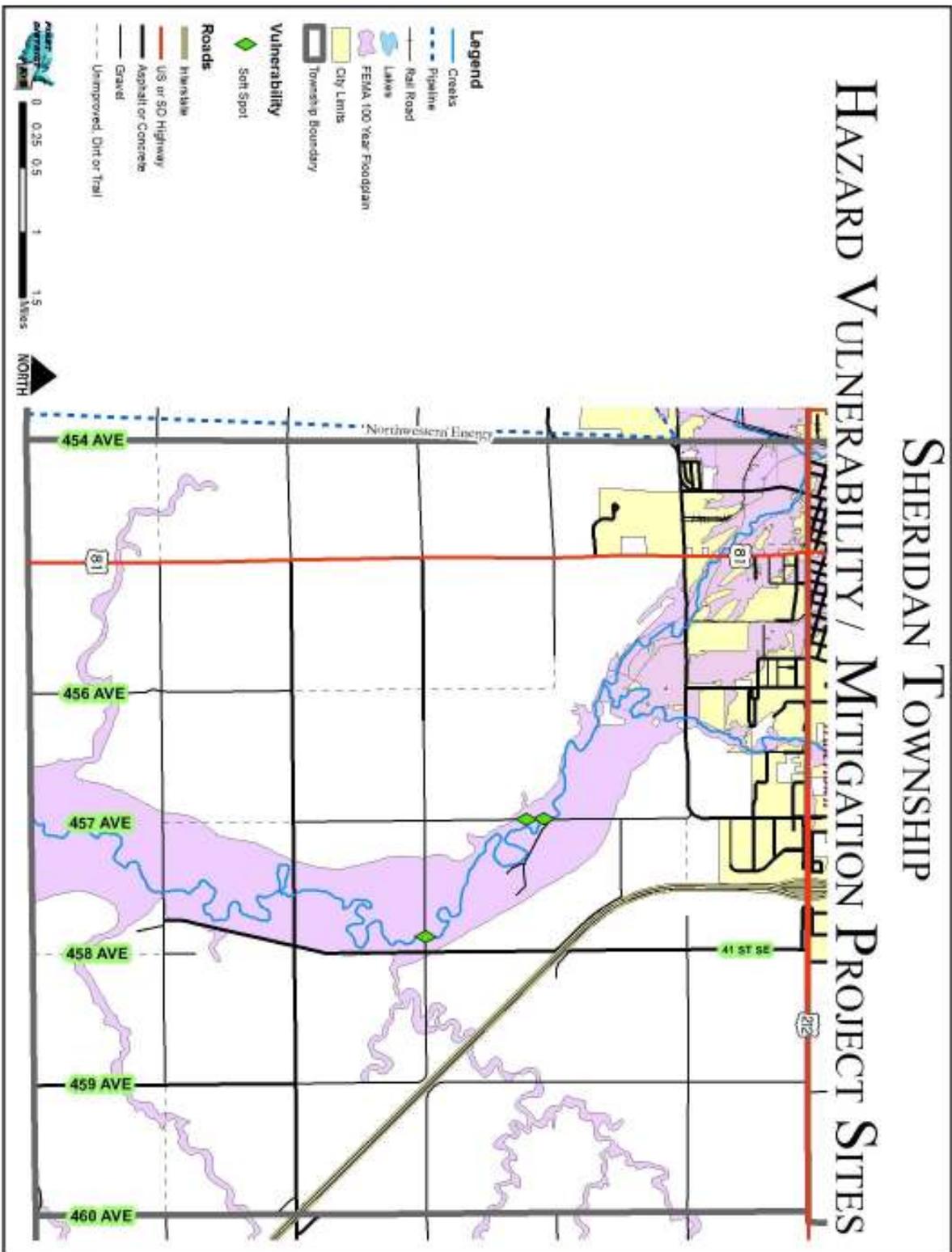


RICHLAND TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

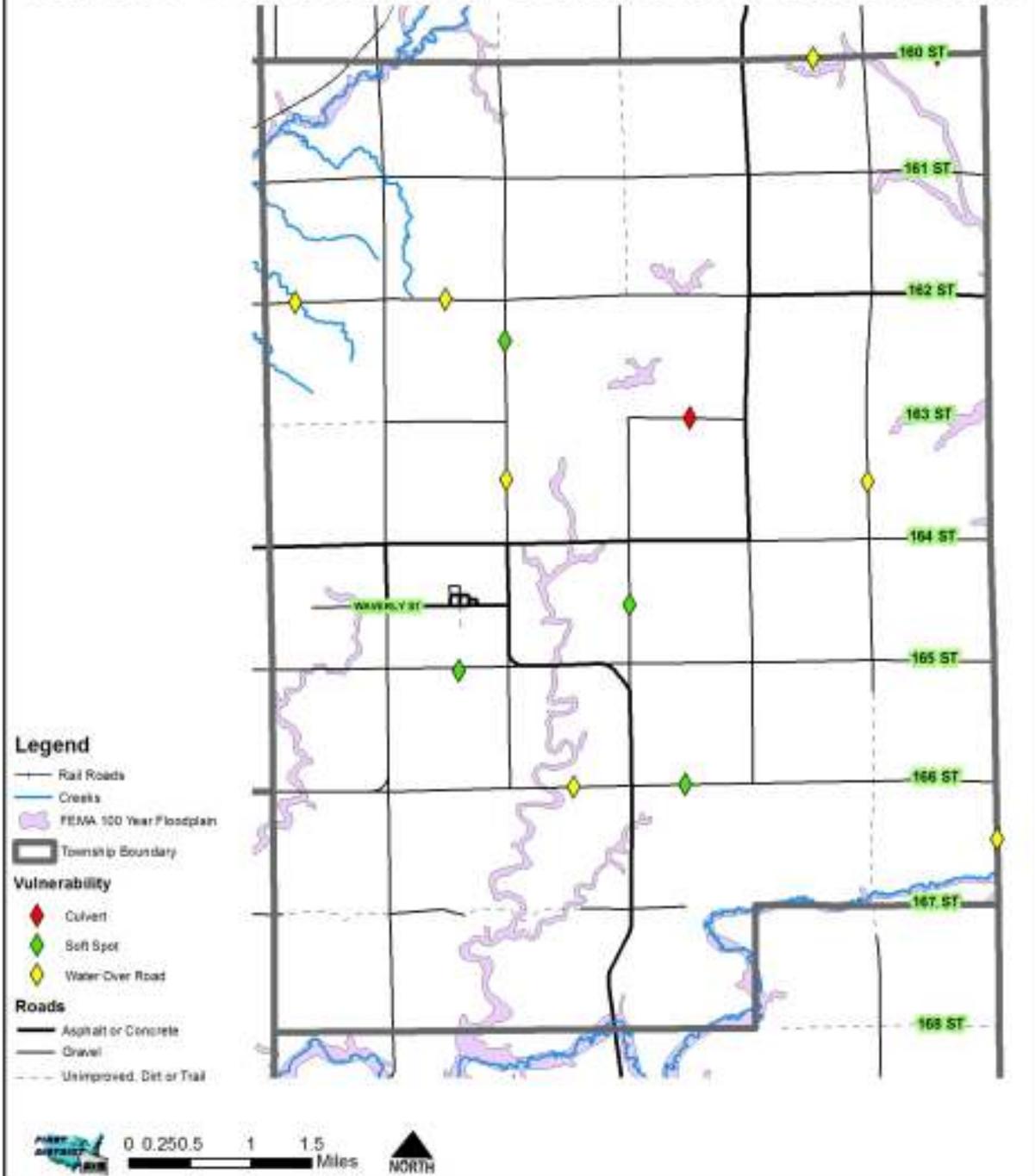


SHERIDAN TOWNSHIP HAZARD VULNERABILITY / MITIGATION PROJECT SITES



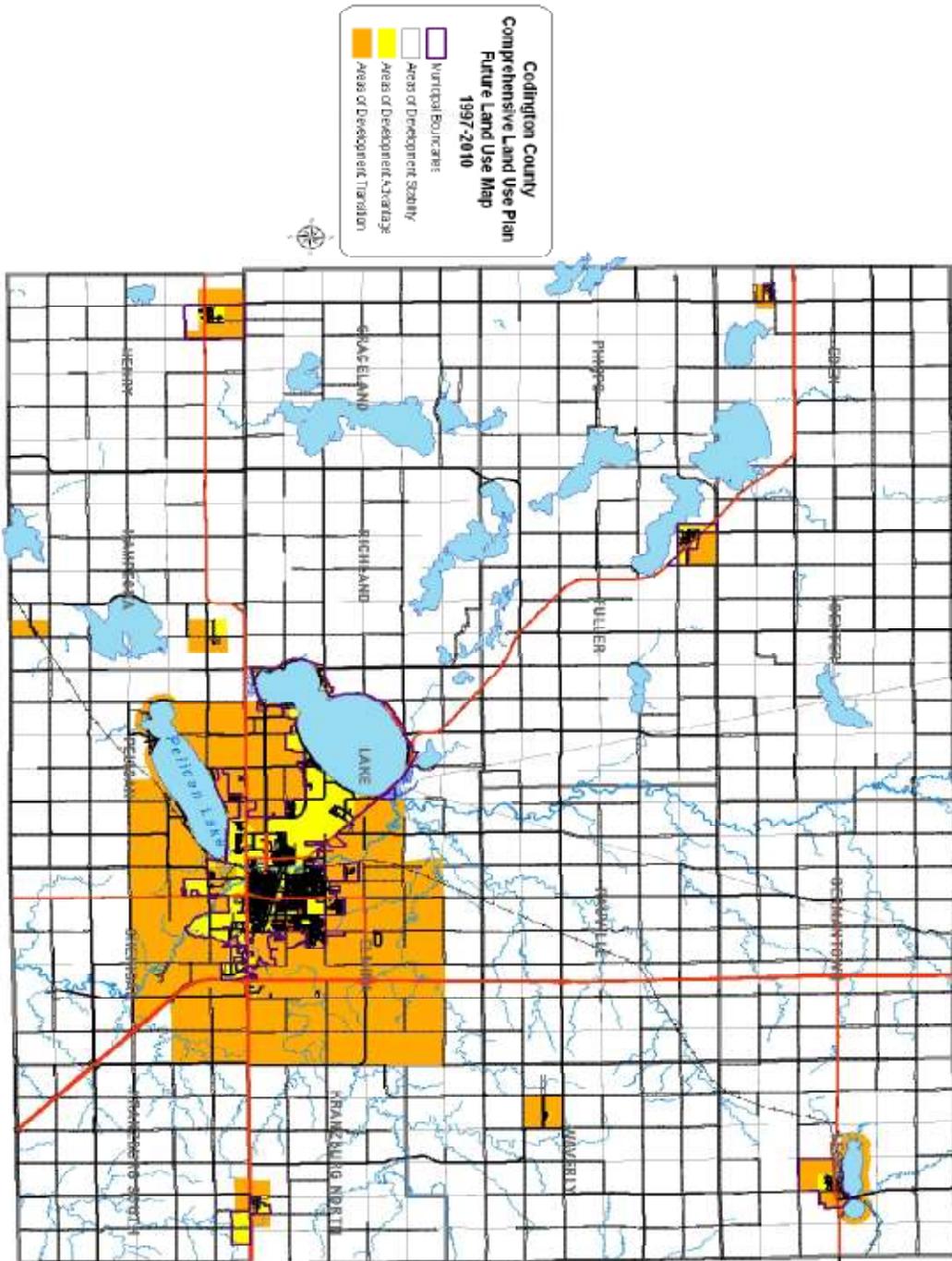
WAVERLY TOWNSHIP

HAZARD VULNERABILITY / MITIGATION PROJECT SITES

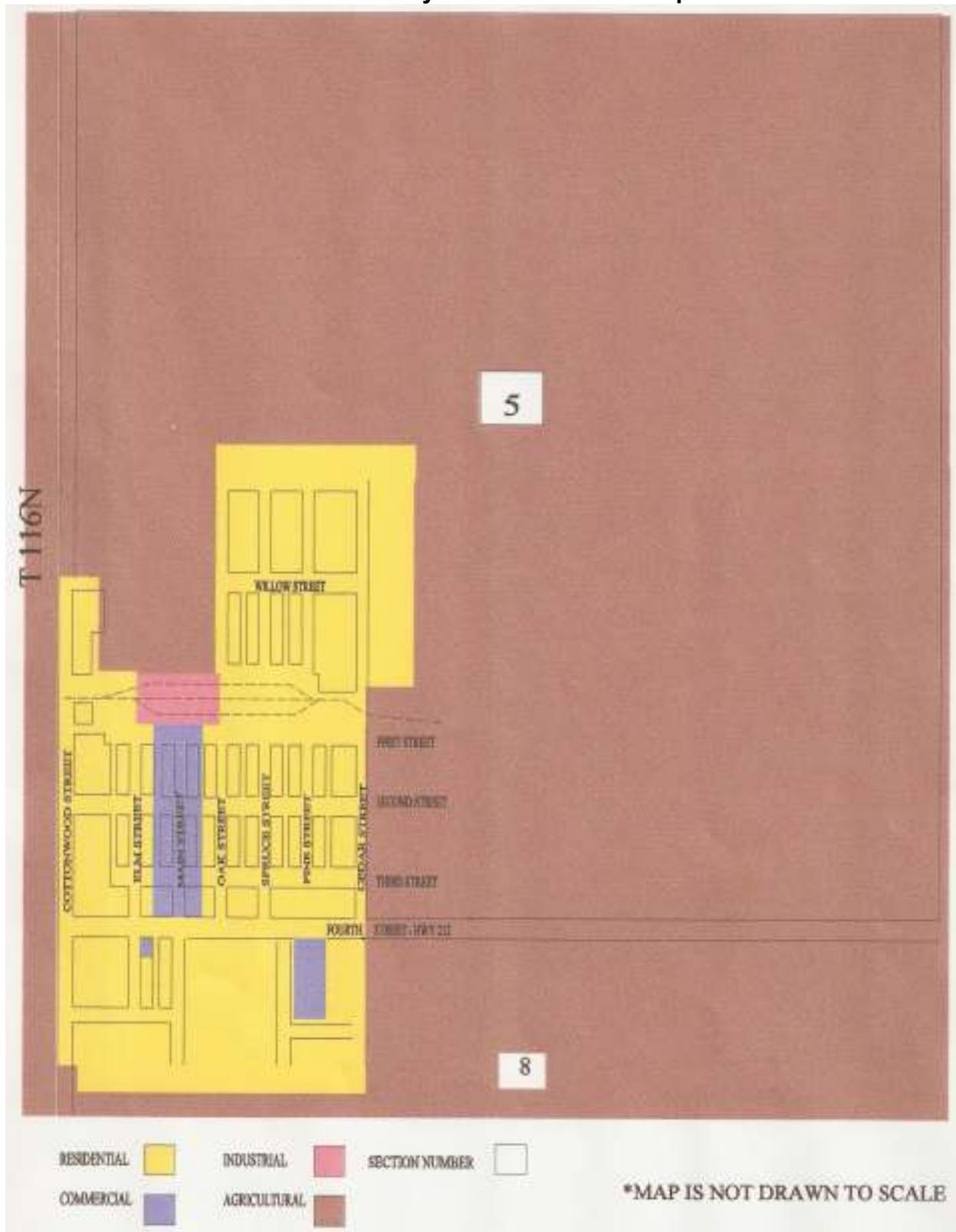


Appendix F – Comprehensive Land Use Maps

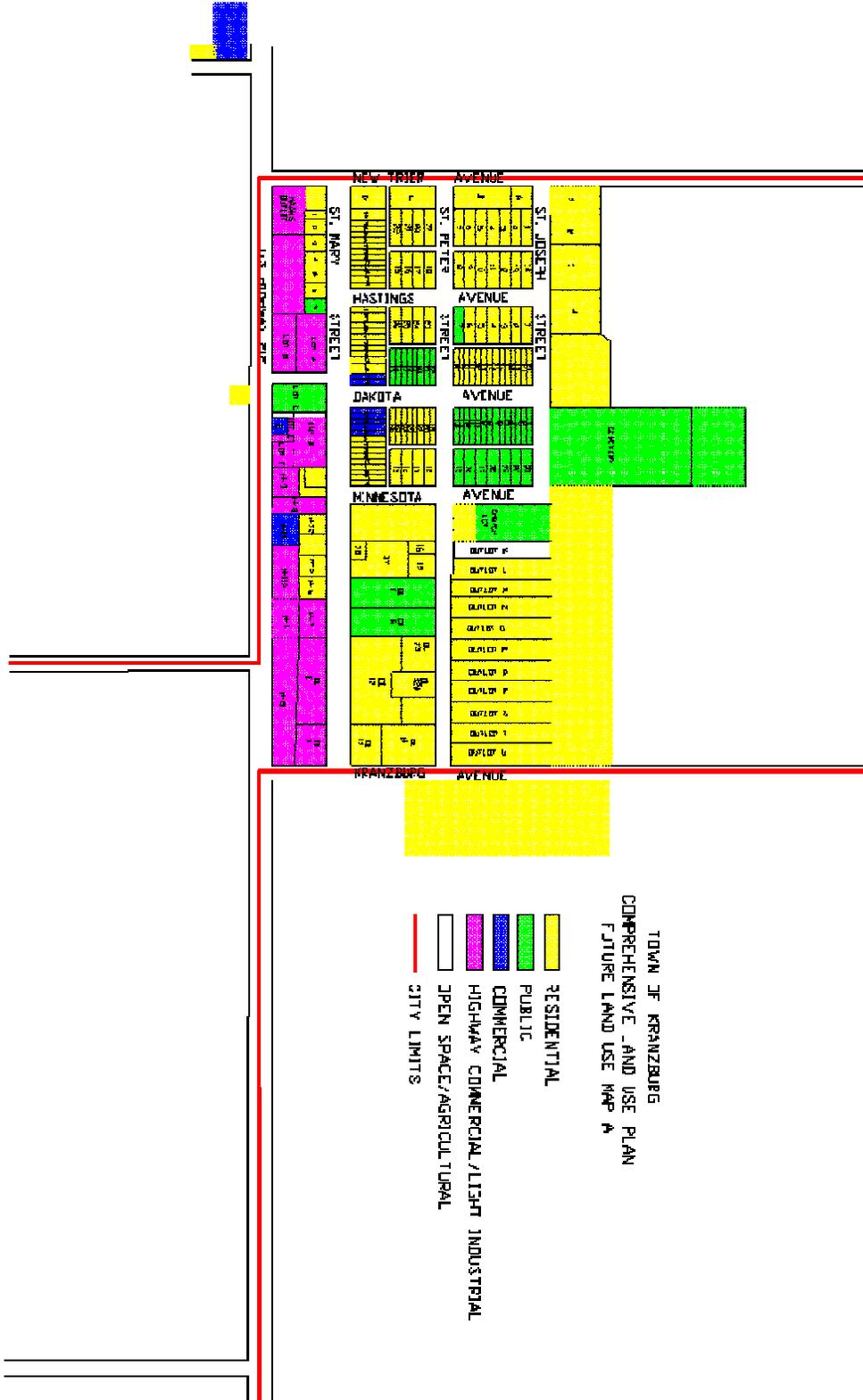
Codrigton County Future Land Use Map



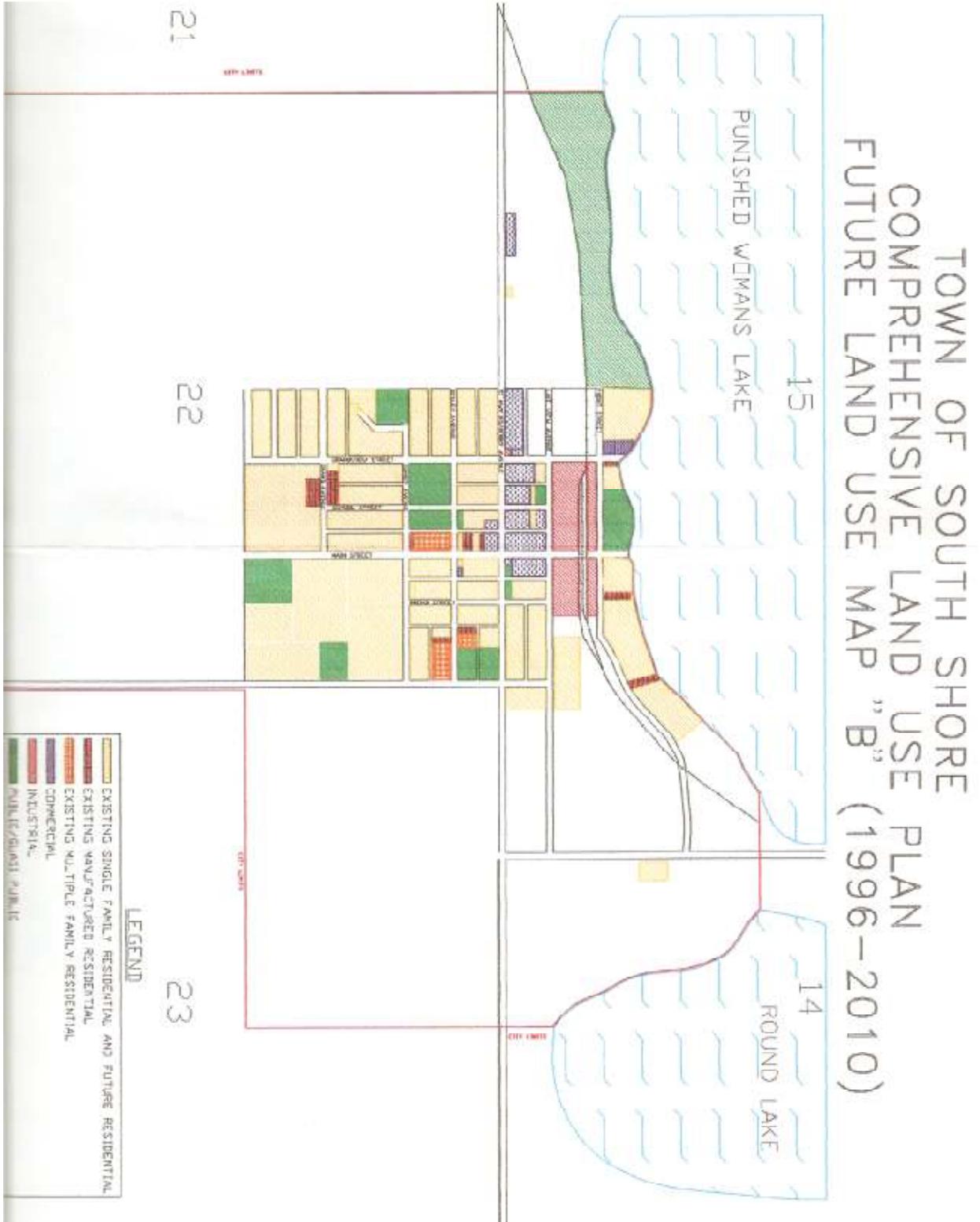
Town of Henry Future Land Use Map



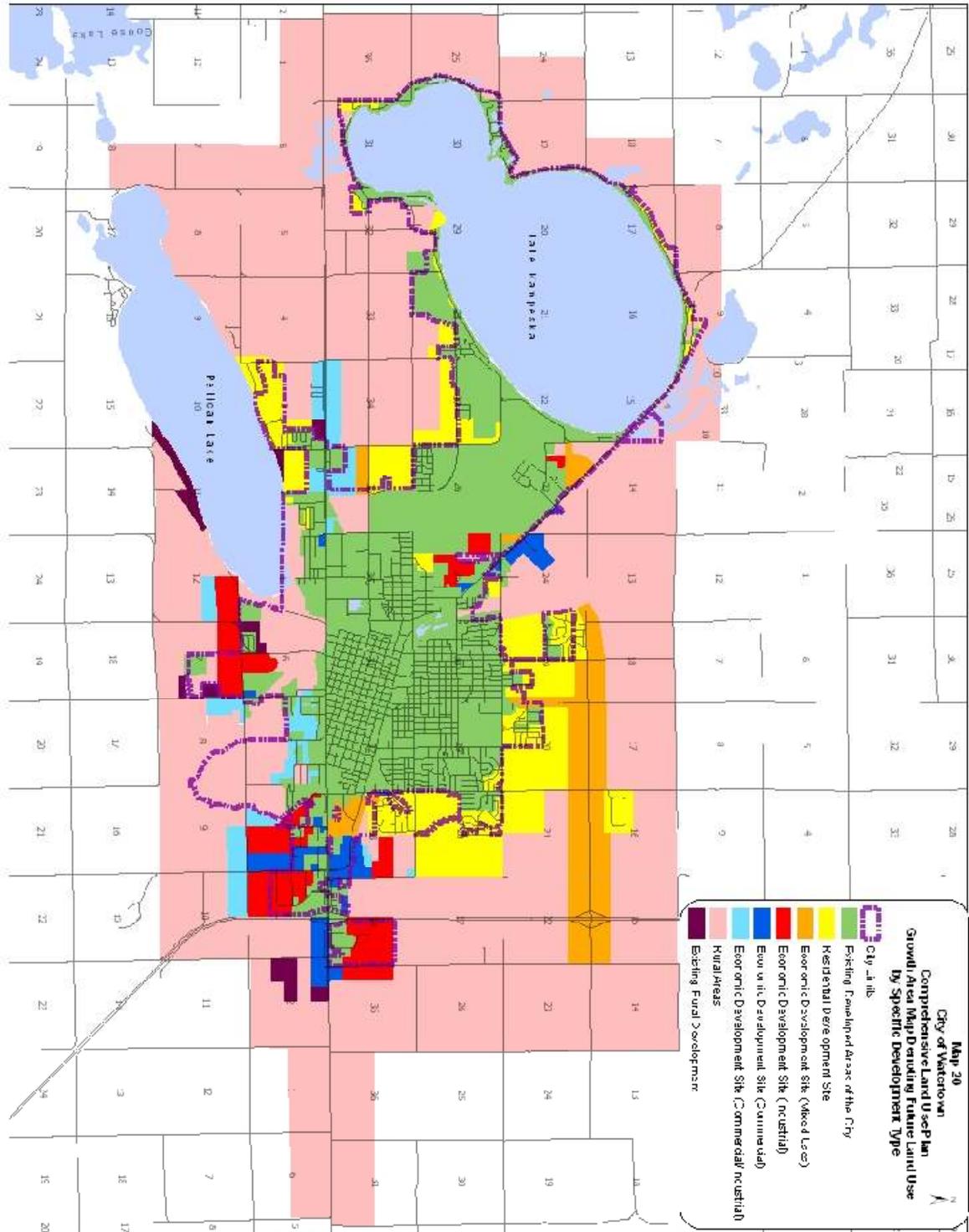
Town of Kranzburg Future Land Use Map



Town of South Shore Future Land Use Map



City of Watertown Future Land Use Map



Appendix G
2004 Mitigation Plan Action/Review

Project	Entity	Hazard Addressed	Priority	Time Frame	Funding	Staff	Progress	Incorporated into 2012-2016 PDM
Acquisitions, raising and relocation of Flood Prone Structures - Work with existing floodplain residents to elevate or flood-proof their structures, including obtaining funding assistance and technical guidance.	County and Municipalities	Flooding	High	2004 to 2008	HMGP/FEMA	County and Municipal Officials	Florence, Watertown, and Codington County have adopted flood plain ordinances which require raising of structures in the flood plain with building permit for new structures or substantial improvement	Yes
Preservation and expansion of open space along the river and enhancement of existing berm areas	Watertown	Flooding	Medium	Ongoing	Not Detailed in Plan	Watertown Planning Department	No Action	No
Incorporation of shelter design into proposed \$6 million convention center	Watertown	Tornado	High	Ongoing	Not Detailed in Plan	Watertown Planning Department	No Action	No
Disseminate information to residents	County and Municipalities	Tornado	Medium	Ongoing	Not Detailed in Plan	Local and State Emergency Management Staff	Codington County Director of Emergency Management provides education and outreach. City of Watertown and Codington County have Flood Plain Information available to the public via hard copy and internet	yes
Require townhome developments without basements to provide common shelter that can be used by association members	Watertown	Violent Storms and Extreme Temperatures	Medium	Ongoing	Not Detailed in Plan	Watertown Planning Department	No Action	No
Require all manufactured home parks to provide safe shelter to park residents either through on-site or a plan of evacuation to safe shelter off-site	County and Municipalities	Violent Storms and Extreme Temperatures	Medium	Ongoing	Not Detailed in Plan	County and Municipal Officials	Codington County, Kranzburg, Florence and Watertown have adopted zoning ordinances which require shelters or shelter plans to be incorporated with manufactured home parks	yes
Insure that all hospital, school and nursing home facilities have a severe storm plan in place to protect patients and students	County and Municipalities	Violent Storms and Extreme Temperatures	Medium	Ongoing	Not Detailed in Plan	Local and State Emergency Management Staff	Codington County Emergency Management Director works with schools, nursing homes and hospitals in the development of severe Storm Plans	yes

Project	Entity	Hazard Addressed	Priority	Time Frame	Funding	Staff	Progress	Incorporated into 2012-2016 PDM
Encumber building inspector to identify unpermitted development in the floodplain.	Watertown	Flooding	Not Provided	Ongoing	Not Detailed in Plan	Watertown Planning Department	Florence, Watertown, and Codington County have adopted flood plain ordinances which require to identify unpermitted structures in the flood plain	Yes
Pursue buyouts for the NFIP Repetitive Loss Properties located within its boundaries.	Watertown	Flooding	Not Provided	Ongoing	Not Detailed in Plan	Watertown Planning Department	No Action	Yes
Explore grant and funding opportunities available to "raise" appropriate historically identified dwellings on the floodplain fringe.	Watertown	Flooding	Not Provided	Ongoing	Not Detailed in Plan	Watertown Planning Department	City of Watertown and Codington County explored buyout of repetitive loss structures in 2012	Yes
Minimize future damage due to flooding of the Big Sioux River, its tributaries and the Big Sioux watershed area. Analyze the effectiveness of specific watershed control criteria. For example, the Mahoney Dam project or the multiple dams intrusion project.	Watertown	Flooding	Not Provided	2008 to 2010	Not Detailed in Plan	Watertown, Codington County, FEMA, Corps of Engineers	Watertown and Corps of Engineers in the process of updating benefit-cost analysis for Mahoney Creek Dam	Yes
Maintain early warning network	County and Municipalities	Violent Storms and Extreme Temperatures	Not Provided	Ongoing	Not Detailed in Plan	Local and State Emergency Management Staff	Codington County Emergency Management Director encourages the use of homeland security funds for county and municipal siren networks	Yes
Develop Water rationing measures that will be implemented during drought situation	County and Municipalities	Drought	Not Provided	Ongoing	None Needed	Codington County Extension	No Action	No
Educate residents on the benefits of conserving water at all times, not just during a drought	County and Municipalities	Drought	Not Provided	Ongoing	None Needed	Codington County Extension Department of Ag	No Action	No
Work with local farmers to investigate the use of more drought resistant crops.	County and Municipalities	Drought	Not Provided	Ongoing	None Needed	Codington County Extension Department of Ag	No Action	No

Project	Entity	Hazard Addressed	Priority	Time Frame	Funding	Staff	Progress	Incorporated into 2012-2016 PDM
Work with property owners to implement deed restrictions for open lots/vacant properties along the Big Sioux River to prevent development	Watertown	Flooding	Not Provided	Ongoing	State Grants	Watertown Planning Department	No Action	Yes
Conduct a local public service program to educate residents about the tornadic weather events.	County and Municipalities	Tornado	Not Provided	Ongoing	None Needed	Local and State Emergency Management Staff	Codington County Emergency Management Director provides weather spotter training and other education/outreach activities regarding inclement weather preparedness i.e. PSAs, Local Community Access TV and local media\	Yes

Appendix H - References

City of Watertown Comprehensive Land Use Plan - First District Association of Local Governments, 2010

City of Watertown Zoning and Subdivision Ordinance – City of Watertown 2011

Codington County Mitigation Plan, 2004

Codington County Hazardous Materials Plan – 2011

Federal Emergency Management Agency. 2008. Local Multi-Hazard Mitigation Planning Guidance.

NFIP Flood Insurance Rate Maps

State of South Dakota Hazard Mitigation Plan. South Dakota Office of Emergency Management. 2011.

Town of Florence Comprehensive Land Use Plan, Zoning and Subdivision Ordinances – First District Association of Local Governments, 2010

Town of Henry Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 1995

Town of Kranzburg Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 2002

Town of South Shore Comprehensive Land Use Plan and Zoning Ordinance – First District Association of Local Governments, 1996

**Appendix I
Resolution of Adoption by Jurisdiction**

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