ALL-HAZARD MITIGATION PLAN FOR

SWIFT COUNTY

A MULTI – JURISDICTIONAL PLAN

DRAFT

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CHAPTERS

SWIFT COUNTY
CHAPTER ONE: OVERVIEW

Introduction

Swift County is vulnerable to a number of different natural and man-made hazards that may threaten life and health, cause extensive property damage and have dramatic economic impacts to the county as a whole. In preparing this plan historical research was done to identify hazards that the county has experienced over time and some that the county has not experienced at one time or another. The impacts of these hazards on residents, public facilities, businesses, and private property can be minimized through hazard mitigation planning.

The Swift County Board spearheaded by the Swift County Emergency Management Office and Environmental Services Office jointly undertook the task of preparing an All-Hazard Mitigation Plan for the county. The plan identifies strategies that can be done by both government and the private sector to minimize the negative impacts caused by hazards and reduces the cycle of hazard – repair – hazard – repair. It will not reduce, control, or eliminate hazards from happening; this is unfortunately out of human control. It can however, improve preparedness and reaction to these hazards.

Disaster Mitigation Act of 2000
As a result of the Disaster Mitigation Act of 2000, FEMA requires in order to be eligible for Hazard Mitigation Grant Program (HMGP) funds, jurisdictions must first have in place a multi-hazard mitigation plan and update the plan within a five year time span. This became effective November 1, 2004. FEMA has provided states with funding to help local governments partially fund such plans.

This new legislation amended Stafford Act (42 U.S.C. 5121 et seq.) establishes a national program for pre-disaster mitigation. The program is meant to control Federal costs of disaster assistance and streamline administration of disaster relief.

Definitions

Hazard Mitigation
Hazard mitigation may be defined as any action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards. Potential types of hazard mitigation measures include the following:

- Structural hazard control or protection projects,
- Retrofitting of facilities,
- Acquisition and relocation of structures,
- Development of mitigation standards, regulations, policies, and programs,
- Public awareness and education programs,
- Development or improvement of warning systems.

Hazard Mitigation Plan
Hazard mitigation planning can break the cycle of disaster-repair-disaster in a community and prepare it for a more sustainable future. Developing and putting into place long-term strategies that reduce or alleviate loss of life, injuries and property resulting from natural or human caused hazards accomplish this goal. These long-term strategies must incorporate a range of community resources including planning, policies, programs and other activities that can make a community more resistant to disaster. Mitigation planning efforts should both protect people, structures, while minimizing costs of disaster response and recovery. Mitigation is the cornerstone for emergency management and should be viewed as a method for decreasing demand on scarce and valuable disaster response resources.

Hazard
Something that is potentially dangerous or harmful, often the root cause of an unwanted outcome.

Goal
The goal of hazard mitigation is to eliminate and reduce vulnerability to significant[1] damage and/or repetitive damage from one or more hazards.

Benefits
The benefits of hazard mitigation include the following:

- Saving lives, protecting public health, reducing injuries,
- Preventing or reducing property damage,
- Lessen economic losses,
- Minimizing social dislocation and stress,
- Decreasing agricultural losses,
- Maintaining critical facilities in functioning order,
- Protecting infrastructure from damage,
- Protecting mental health,
- Reducing legal liability of government and public officials.

[1] Defined as damage greater than 50% from one event.

Related Documents

The following documents have been used in compiling information into this All-Hazard Mitigation Plan:

Table 1
Documents Applicable to Hazard Mitigation in Swift County

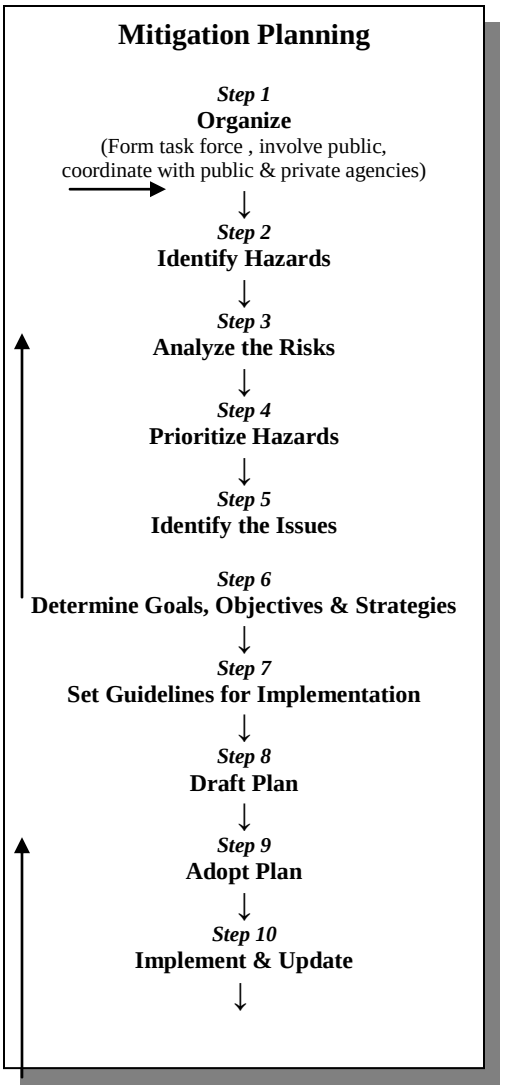
Name of Plan	Date Completed or Updated	Available at	Relevant Information
Minnesota State Hazard Mitigation Plan	2008	MN Department of Public Safety	Risk assessment, hazard profiles, county plan must conform to State Hazard Mitigation Plan
Swift County Comprehensive Plan	2007	County Environmental Services Office	Population profile, land statistics and use; ordinances and maps
Swift County Local Water Management Plan 2003-2012	2002	MN River Headwaters Joint Powers Board	Comprehensive County Water Plan
Swift County Emergency Operations Plan & Resource Guide	2004	County Sheriff Office	County Emergency Response Plan
Swift County Soil Survey	1973	County Environmental Services Office	County soil profile
Swift County Zoning Ordinances	2010	County Environmental Services Office	Land use, buildings
Benson: Comprehensive Plan, Wellhead Protection Plan; Open Space and Recreation Plan; Capitol Improvement Plan	2000 2002 2004	City Offices	Population profile, city land statistics and use; city ordinances and maps
Appleton Comprehensive Plan	1982	City Offices	Population profile, city land statistics and use; city ordinances and maps
MN River Basin Plan	2001	MN Pollution Control Agency	Pollution, ground water, and clarity

Planning Process

The Swift County All Hazard Mitigation Plan Update is a comprehensive revision to meet the 2008 Planning Requirements. Each chapter was reviewed, revised and expanded upon with current information and included new feedback from taskforce members with an emphasis on the updating the goals, objectives and strategies. Chapters with the most revisions included Chapter Four with all new survey assessments and new community assessments along with chapters five, six and seven with strong emphasis with the update of goals, objectives and strategies and the expansion of man-made and community specific goals, objectives and strategies.

The process to update the All-Hazard Mitigation Plan involved many steps. The steps used by the task force were based on a 10-step process recommended by FEMA that includes:

- Organize planning process. Involve key stakeholders and the public.
- Identify and screen major hazards for the county.
- Analyze the risks posed by those hazards.
- Review existing capabilities and resources and then identify the issues.
- Prioritize the hazards.
- Develop specific hazard mitigation measures. Include a timeline.
- Set implementation guidelines.
- Draft the plan.
- Adopt the plan.
- Implement, evaluate success and update regularly.
  See flow chart to right.



Although most mitigation measures are implemented on a continuous basis, the post-disaster period often presents special hazard mitigation opportunities. As such mitigation opportunities may be more apparent immediately following a disaster, both public officials and the general public may be more willing to consider them, and special funding may be available to assist in their implementation. Therefore the plan needs to be flexible and coordinate with other entities.

Public assistance may be approved if Swift County is included in a Presidential Disaster Declaration. The intent of FEMA's Public Assistance is to restor the function of local government after a disaster. The county, cities and townships will work directly with FEMA and the state to restore services and facilities. There may be opportunities to mitigate future damages using Public Assistance funding when rebuilding public infrastructure. The Hazard Mitigation Grant Program (HMGP) becomes available after a declared disaster if Public Assistance is approved. HMGP addresses long term mitigation projects and is approved for all

counties in the state. The Swift County Emergency Manager will monitor the planning strategies after a disaster then contact the State Hazard Mitigation Officer (SHMO) to discuss the eligibility of potential projects. This communication is encouraged any time there is a discussion about mitigation to get the latest program information or funding availability. Several post-disaster mitigation activities are implemented in the event of a Presidential Disaster Declaration.

One of the state's most notable activities involves the activation of the Minnesota Recovers Disaster Task Force. The task force is comprised of both state and federal agencies[2], and is chaired by the Department of Homeland Security and Emergency Management. In the event of a Presidential Disaster Declaration, all or part of the task force is activated and normally meets on a weekly or monthly basis. The meetings facilitate a coordinated and timely distribution of state/federal post-disaster recovery/mitigation funds by establishing mutually agreed upon (project) priorities, identifying eligible projects, and mixing and maximizing available funds in order to implement projects.

Another post-disaster mitigation activity involves the implementation of state and federal disaster recovery assistance and hazard mitigation programs, including the following:

1. Federal Emergency Management Agency (FEMA) Programs
For on-line program information, see http://www.fema.gov/.

2. Other Federal and State Programs

Swift County chose to engage in a comprehensive planning process to update its All-Hazard Mitigation Plan for several reasons: first, as a process, it helps the county determine its current state – social, economic and environmental trends in addition to the hazards that affect the county; second, it lays out a process that will guide the county on how it deals with both current and potential hazards; and third, it gives the public an opportunity to decide what projects they want the county and cities to enact in the future.

After passage of the Disaster Mitigation Act of 2000, the county board utilized the Upper Minnesota Valley Regional Development Commission to write the original grant and plan. Swift County wrote a ***multi-jurisdictional plan*** and extended invitations to all cities and townships within the county to participate in the process through adopted participation resolutions and task force delegates. Due to the relatively sparse population of the county, its rural proximity in the state, and the low risk of disasters occurring in the county it was deemed feasible to write a multi-jurisdictional plan. The county emergency manager was in charge of project coordination.

An additional requirement of the Disaster Mitigation Act of 2000 requires a complete All-Hazard Mitigation Plan update. To accomplish the update, Swift County created a Local Hazard Mitigation Task Force to foster coordination, provide direction to the planning process and ultimately develop the county's All-Hazard Mitigation Plan. Members appointed to the task force included the county emergency manager, planning and zoning director, and representatives

[2]The state and federal agencies requested to provide a representative for the Minnesota Recovers Disaster Task Force will generally include those that typically provide personnel to serve on an Interagency Hazard Mitigation Team/Hazard Mitigation Survey Team and/or a damage survey team. These members include Minnesota Department of Public Safety's Division of Emergency Management, FEMA, Department of Natural Resources, Department of Trade and Economic Development, Housing Finance Agency, Pollution Control Agency, and the state Historic Preservation Office. In addition, other agencies that have applicable programs, regulations, and/or funding may be asked to provide a representative. The specific agencies selected will be determined by the nature of the disaster.

from participating cities and townships. In order to solicit other potential task force members and special interested parties, a Hazard Mitigation Educational Campaign began in July 2009. The educational campaign consisted of multiple press releases through multiple medias including radio and county-wide newspapers, which discussed the upcoming All-Hazard Mitigation Plan update process and contact information for interested persons to utilize if they wanted to become task force members.

The table below shows task force meetings and although not all communities were able to be represented these meetings, all cities worked with the County Emergency Manager and UMVRDC staff to discuss the plan as well as community specific goals, objectives and strategies. Every community small and large participated in at least one in-person meeting. Additional participation and feedback was gathered from all communities by phone and email communications.

Table 2. SC Co & Cities Participation in All-Hazard Mitigation Plan Update

Jurisdiction	Participation in Update Process	Risk Assessment Surveys	Task Force Mtg. 1 (06/17/09)	Task Force Mtg. 2 (1/20/2011)	Task Force Mtg. 3 (5/25/2011)	Task Force Mtg. 4 (8/11/2011)	Mitigation Surveys
Swift County	Continuing from Previous Plan	Fall 2009	x	x	x	x	Fall 2010
Appleton	Continuing	Fall 2009	x	x			Fall 2010
Benson	Continuing	Fall 2009	x	x	x	x	Fall 2010
Clontarf	Continuing	Fall 2009					Fall 2010
Danvers	Continuing	Fall 2009					Fall 2010
De Graff	Continuing	Fall 2009					Fall 2010
Holloway	Continuing	Fall 2009					Fall 2010
Kerkhoven	Continuing	Fall 2009	x				Fall 2010
Murdock	Continuing	Fall 2009					Fall 2010
Townships	Continuing	Fall 2009	x				Fall 2010

The Swift County task force members were:

Dick Hanson, **Swift County Board Chair**
Bill McGeary, **Swift County Emergency Manager**
Scott Collins, **Swift County Environmental Services Director**
Scott Mattison, **County Sheriff**
Mike Johnson, **County Parks, Drainage and Wetlands Supervisor**
Dennis Beyer**, County Assistant Highway Engineer**
Miriam Lindblad, **Swift County Public Health**
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Doug Kavanaugh, **City of Murdock**
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Warren Rau, **Townships**

All local governments in the county were sent meeting notices and agendas of all task force meetings. Also, the county shared drafts of plan elements and a final plan draft with the county's local governments and libraries in order to further allow public comment on the draft plan. The comments received were addressed and discussed at the final task force meetings. Suggestions the task force felt pertinent were incorporated into the draft plan.

A technical team was created to review the plan from a more technical perspective – availability of resources; feasibility of the plan; collaborative efforts with other entities and plans; costs; and expertise in their field of knowledge. They were asked to consider the links to other community studies or plans such as comprehensive plans and land regulatory controls such as zoning – the "bigger picture". This group of individuals was also asked to consider duplication of efforts and the fact that many hazards do not stop at geographical boundaries. Many of them served on technical teams for other county all-hazard mitigation plan updates in the five-county region and compared Swift County's plan to other county-wide plans. They were valuable technical assistants in developing the plan. Members of the technical team included:

Ethan Jenzen, **DNR**
Mark Jacobs, **MN Pollution Control Agency**
Thomas Orr, **SWCD**
Randy Nelson**, Prairie RCD**
Jamie Thomazin, **USDA NRCS**
Gloria Tobias, **Countryside Public Health**
Linda Norland, **Countryside Public Health**
Dave Berryman**, Rodeberg and Berryman, Inc.**

While required by the Disaster Mitigation Act of 2000, the county emphasizes public participation in the plan update as it is a key way to ensure ongoing support for the plan and there should be ample opportunity for all county residents to decide what the plan will include. The general public was invited to three meetings and notified through press releases published prior to all meetings. At these meetings, the public was invited to review and provide comments on the draft plan chapters. An identified group of interested persons and technical resources were sent meeting notices and electronic versions of the draft plans to collect public comments. Persons on this mailing lists represented local, state, and federal agency representatives, community representatives, local business leaders and educators in both private and public sectors. Many of these members are in positions to influence regulation development or are potential funding sources for projects included in the strategies.

Individuals on the interested parties' mailing list included:

Jason Carlson, **Administrator Appleton Hospital**
Daren Swenson**, CCA Warden**
Joel James**, Glacial Plains Coop**
Peg Schmaucher**, Clara City Clinic**
Lee Westrum**, Superintendent Benson Schools**
Brad Madsen, **Superintendent LqPV Public Schools**
Frank Lawatch**, Swift County Benson Hospital**
Martin Heidelberger**, Superintendent KMS Schools**
Dorothy Rosemeier**, West Central Sustainable Partnership**

The planning process was over a 26-month period. During that timeframe the task force met four times - all four meetings were open to the public. Individuals involved in the public meetings had two primary responsibilities: 1) to comment on draft stages of the plan and 2) provide input on the next stages of the plan. It was important to include long time residents of the county in the process for a historical perspective. As noted, press releases were sent out for all of our public meetings to local and neighboring newspapers and local radio stations. The RDC's toll-free telephone number was offered up as a point of contact for the public if they had questions on how or why to get involved in the mitigation process, or could not attend the meetings in person but still had input for the plan. Copies of the draft plan stages were available through the RDC office, County Emergency Manager Office, and through the Local Task Force for review.

All of the meetings used small group discussion formats with facilitators who led the discussions and recorded comments (Steps 2-7). Feedback in the small group discussions proved valuable in writing the plan. Several comments were made around the most recent hazards in the county and drove the strategies such as the recent flooding in 1997 and 2001.

Public Involvement

A critical component to the all-hazard mitigation plan was to include the public in the planning process and obtain input (step two of the planning process – page 2). Residents and businesses that have been affected by hazards were encouraged to attend the planning meetings. Appendix 9 of the plan includes meeting information and agendas for all four meetings and other materials used for public input.

Other means of gathering public input for the plan included:

- Direct discussions with staff responsible for the writing of the plan,
- Conversations with Task Force Members,
- Standing invitation to participate in the planning process and attend meetings,
- Press releases and media,
- Completing surveys/questionnaires,
- County website access,
- Contact with UMVRDC Office and/or County Emergency Manager Office.

Each of the four meetings assisted in the completion of the planning process.

Meeting #1: Identifying Past and Potential Hazards (Step 2)

Meeting #2: Complete Risk Assessments for Hazards & Prioritize (Step 3,4)
Meeting #3: Identify Issues (Step 5)
Set Goals, Objectives & Strategies (Step 6)
Meeting #4: Set Guidelines for Implementation (Step 7)
Review First Draft (Step 8)
County Board Public Hearing & Adoption (Step 9 – after FEMA approval)

Community Profile (Summary)

Chapter 2

Swift County encompasses 744 square miles. The county is located in west central Minnesota, approximately 120 miles west of the Minneapolis-St. Paul and 30 miles west of Willmar. The Chippewa River and its tributaries, public and private drainage systems, lakes and wetlands, define the Swift County drainage network. The Minnesota River forms the county's southwestern border. In addition, the county shares borders with Stevens and Pope Counties to the north, Kandiyohi County to the east, Chippewa County to the south, and Big Stone County to the west. Cities within the County are also included as jurisdictions represented in the plan including: Appleton, Benson, Clontarf, Danvers, DeGraff, Holloway, Kerkhoven and Murdock. Swift County and all of the cities within the county are continuing their participating in the hazard mitigation planning process.

Agricultural land is the dominant land use in every township. Swift County soils were formed from deposits originally left by glaciers more than 10,000 years ago. Of the 481,439 acres in the county, about 38,736.4 acres are enrolled in CRP, CREP, RIM and the Wetland Reserve Program, approximately 8% of the total county acreage. Swift County has 15 State Wildlife Management Areas that occupy about 9,842 acres and the U.S. Fish and Wildlife occupies 7,609 acres in the county.

Swift County lies within the Minnesota River Basin and is drained by three watersheds: the Pomme de Terre, Chippewa River and the Upper MN River. As of 2003, Swift County has 280 miles of open ditches and 500 miles of tiled ditches.

Swift County has lost residents over almost every decade since 1940, although the 2000 census shows an increase in population, which is in part reflective of the Prairie Correctional Facility in Appleton, built in 1996. In the year 2007, the county's estimated population was 11,370 residents living in 4,304 households (Minnesota State Demographic Center and Metropolitan Council 2007). The city of Benson is the county's largest city, with approximately 3,393 residents. The major employer in the county was Prairie Correctional Facility, Appleton with 350 employees. The facility closed in February 2010. Opportunities are being sought to reopen the facility as soon as possible. Other large private employers are Case-New Holland, Benson Public Schools, and Appleton Area Health Services. In the public arena the schools and the health care facilities are the large employers.

To meet the medical and health needs of the county Swift County is served by two hospitals (Appleton Municipal and Swift County Benson), two clinics (Appleton and Benson), two ambulance services (Appleton and Benson), two rescue squads (Kerkhoven and Murdock) and four more community First Responders groups (DeGraff, Danvers, Clontarf, and the Boondockers). There are no full-time fire departments in Swift County. Fire protection is

provided by seven local fire departments in Benson, Appleton, Clontarf, Danvers, DeGraff, Kerkhoven, and Murdock. The Department of Natural Resources is responsible for fire protection on state forest and parkland. Law enforcement is provided by two police stations in Appleton and Benson and the Swift County Sheriff Department. Countryside Public Health Service is the County Department of Health for Big Stone, Chippewa, Lac qui Parle, Swift and Yellow Medicine Counties with administrative offices in Benson.

Land uses are regulated in Swift County through the county zoning ordinances. Cities in Swift County have zoning ordinances that regulate the building, construction and location of new homes and commercial businesses. Benson and Appleton have adopted the Universal Building Code.

Highly vulnerable populations are located in the two nursing homes (Appleton and Benson), five elderly group homes (four in Benson and one in Murdock), one female teenage group home (Benson), five schools located in Benson (two-Christian and public schools), Kerkhoven, Murdock and Appleton and the Prairie Correctional Facility in Appleton.

Prioritized Risk Assessment (Summary)

Chapter 4

Table 55. Swift County Overall Hazard Priority Levels

Hazard	Swift County	Special Areas of Concern
Hazardous Materials	High	Countywide, Benson
Tornado	Low	Countywide
Winter Weather	Low	Countywide
Summer Weather	Low	Countywide
Structure Fire	Low	Countywide
Wild Fire	Low	Countywide
Water Supply Contamination	Low	Countywide
Flooding	Low	Countywide
Civil Disturbance / Terrorism	Low	Countywide
Wastewater Treatment System Failure	Low	Countywide
Flash Flooding	Low	Countywide
Infectious Diseases	Very Low	Countywide
Drought	Very Low	Countywide
Dam Failure	Very Low	Countywide

Vulnerable Areas of the County (Summary)

Chapter 4

Agriculture

The climate, soil, topography and vegetation of the county make for a productive agricultural environment. Land use is predominately agricultural and makes for excellent prime farmland. There are a large number of livestock producers in the county as well. Agriculture in Swift County is more than just the farm it is an important industry. Any disasters that would impact the agricultural community would be devastating for the county and have huge economic impacts. Concerns were beyond the direct impact on the economy. Agriculture could be used as a terrorist tool by contaminating agricultural products, the water and the soil with biological or chemical agents that may be disease borne or life threatening for man or animal.

Wildfire

During a dry year, wildfires have the ability to spread quickly. Many homes located near river valleys are surrounded by grasslands and have a higher potential for fire damage. Grasslands are all along the floodplain in Appleton. Since the county has approximately 9,800 acres in the

wildlife management program, 7,600 U.S. Fish and Wildlife acres, 28,633 acres of CRP land, and there are two major rivers flowing throughout the county, many rural areas are at risk for wildfires.

Hazardous Materials
All cities with transportation routes are at risk for this hazard. Cities with major gathering places such as schools and hospitals near transportation routes are most vulnerable. The prison is located on MN State Highway 119, KMS school is along Highway 12 and the Heartland Girls Ranch is along Highway 9. The city of Benson is highly vulnerable with the ethanol plant, close proximity to three pipelines, convergence of three major trunk highways in the heart of the city, main street that is divided by the rail system, and several hazardous material facilities located within city limits or near proximity. Meth issues are rapidly spreading in our rural areas due to easy access to materials, deserted or abandoned property, and isolated populations to easily go unnoticed.

Flooding
Appleton and Benson are in 100 and 500-year floodplains. Other communities affected by 100 year flooding could be DeGraff, Holloway, and Kerkhoven that surround ditches. Many townships have flooding due to seasonal backup like West Bank and Swenoda Townships and the Village of Swift Falls.

Repetitive Flood Structures
Repetitive loss structures are "those structures which have sustained damages on two separate occasions within a ten-year time span for which the cost of repairs at the time of the flood meets or exceeds 25 percent of the market value of the structure before the damage occurred." There are two repetitive flood structures located in the city of Appleton. The address, ownership and location of all repetitive structures are identified by the Swift County Planning and Zoning Department and the city of Appleton, although their specific location will not be identified in this plan. The maps of the general location can be found in the appendix.

Infectious Disease
All areas of the county are vulnerable with a higher risk in areas of higher populations such as the hospitals, schools, group homes, prison and nursing homes.

Civil Disturbances/Terrorism
The city of Appleton may be more vulnerable to civil disturbances because of the privately operated prison however; any areas with higher populations and critical/public facilities run a high risk. Schools have become recent targets throughout the nation and it should not be assumed it happens only in more urban and highly populated areas.

Mitigation Strategies (Summary)

Chapter 5

Table 107. SC Prioritized Strategies (Natural Hazards)

Ranked	Hazard	Strategy	Affected Jurisdiction
1	ALL	Public education and open communication on hazards – focusing on precautions, signs, best practices, and collaborations.	Countywide
1	ALL	Collaborate with other counties, public and private sectors to improve warning system(s) to shorten response time.	Countywide
1	Violent Storms / Extreme Temperatures	Identify safe shelters for homes without basements, manufactured home parks, schools, senior and multi-housing units, care facilities, parks, campgrounds and other public event locations.	County, Cities (Appleton), Vulnerable Populations
1	Violent Storms / Extreme Temperatures	Improve emergency management system by backup power sources for sirens, transmitters, the radio station and others as needed.	County, Cities, Townships
1	Violent Storms / Extreme Temperatures	Encourage residents to have weather radios – focus on vulnerable populations – and/or pagers for quicker notification of storms.	County, Cities, Townships Vulnerable Populations
1	Violent Storms / Extreme Temperatures	Improve cell phone service for better notification time – satellite service.	County, Cities, Townships
2	Hazardous Materials	Utilizing GIS or the best current technologies to identify permitted facilities on a local zoning map and associated transportation corridors – establish the type and amounts.	County, Cities, and Hazardous Material Facilities
2	Hazardous Materials	Need proper personal protection equipment and training to respond to hazardous material disasters.	Fire Departments, Law Enforcement, Emergency Responders
2	Hazardous Materials	Need for building codes or ordinances that improve protection and cleanup of illegal activity such as meth labs, indoor grow operations, processing of chemicals, etc.	County, Cities, Townships
3	Flooding	Continue the removal of repetitive loss structures throughout the county.	County, Cities, Townships
3	Flooding	Develop a plan for sand bagging using the inmates at the prison.(when applicable)	County, Cities, (Appleton, Benson, Kerkhoven), Townships and PCF
3	Flooding	Conduct a ditch inventory and analysis study.	County
4	Wildfires	Create working agreement with DNR and local fire departments on “let-burn” acres/policy and an organized response to wildfires and have the DNR train fire fighters and emergency responders.	City Fire Departments (7), DNR
4	Wildfires	Work with entities on controlled burns to minimize fuel on public and private lands.	Cities, Fire Departments, Farm Programs
4	Wildfires	Look for grants for additional and updated equipment for fight wildfires.	Cities, Fire Departments

SWIFT COUNTY
CHAPTER TWO: COMMUNITY PROFILE

RELATED DOCUMENTS

The Community Profile is as intricate piece of the updated Swift County All-Hazard Mitigation Plan. This profile is used as a factual data point and includes the most recent available data.

To create this profile, several other Swift County documents were used:

- Comprehensive Plan
- Water Plan
- Zoning Maps
- Zoning Ordinances
- Land Use Maps
- FEMA Regulations
- County Soil Survey
- County Emergency Management Plan and Resource Manual

The coordinated use and implementation of these combined documents create a sound foundation for all hazard mitigation projects, plans, and activities to ensure they are tied to the county's land use and environmental regulations.

GENERAL COUNTY INFORMATION

Swift County is 42 miles long and 18 miles wide with 743.43 square miles (481,439 acres). The Minnesota River cuts off about three square miles of Appleton Township in the southwestern corner of the county. Swift County is bordered by Stevens and Pope Counties to the north, Kandiyohi County to the east, Chippewa to the south and Big Stone County to the west. The Minnesota River touches the most southwest corner of the county while the Pomme de Terre and Chippewa Rivers flow within the county boundaries.

Swift County is 164 miles northwest of the Twin Cities and Benson, the county seat, is 82 miles southwest of St. Cloud, Minnesota. The county includes 21 townships and eight cities.

HISTORICAL SETTING

After the Civil War ended and the fear of Indian attacks had died down, the westward march of pioneers was renewed. Settlements began to pop up around timber for buildings and fuel, and water for fish and game – a source of subsidence and income. The promise of the railway encouraged some hardy pioneers to move to the plains. The rail meant they could market the crops off the plains easier and quicker. Scandinavians and Germans were the decided majority, but many of the communities are rich in Irish heritage in Swift County.

An act of the legislature organized Chippewa County in 1862 and included the boundaries of Swift County. On February 18, 1870 Swift County was organized and was named in honor of Henry Swift, Governor of Minnesota in 1863. Three citizens, C.E. Foster, A. W. Lanthrop and Iver Knudson, were selected to serve on the first board of commissioners. They created three districts around three towns – Fairfield, Camp Lake and Benson. In 1876 the legislature authorized building the courthouse and jail in Benson, which were replaced in 1897.

To the pioneers who first viewed this region in the 1860's, it must have presented to the naked eye a vast, flat, monotonous stretch of land, unbroken even by few trees. Except for some timber to be found along the streams and in small groves on the borders of the lakes, there was nothing to stop the plow from being put to use as soon as the settler arrived in the spring or summer. Agriculture has been and still is the main industry in Swift County. Crops include corn, soybeans, wheat, oats and sugar beets. New markets are being explored with organically grown grains and produce, along with organically feed livestock. Today the average size farm is 525 acres compared to the 5 to 15 acres for the first homesteaders.

When we consider that from a total of approximately 600 people in the county in 1870, the population has increased to the current population of 11,946, the stream of immigration must have been very strong despite the hard times. In 1900, the population peaked at 13,503.

The railway played a large role in the creation and location of communities like it did in many counties. Access to water like in the city of Appleton along the Pomme de Terre River was another reason for communities to form. Another factor for location was close proximity to other communities; a horse and buggy ride away. Most of the cities although founded earlier were not incorporated until the late 1870's or early 1880's after the railway was built. By 1870 the St. Paul and Pacific Railroad reached Benson and later became the Great Northern Railroad. The railroad determined the number of trading centers between Willmar and Benson to be three – Kerkhoven, DeGraff, and Randall (later to be renamed Clontarf). In 1887 the Great Northern began to move towards Watertown, South Dakota bringing two more railroad towns – Danvers and Holloway – between Benson and the already existing Appleton.

Townships and cities many times bear the names of the first settlers or are named after another community in the "old country", other states, or cities in America. The earliest

colony was founded in Camp Lake Township in 1866 – Swift Falls Village – along the Chippewa River by J. M. Danelz. Danelz, a real entrepreneur, was the postmaster, started a bank and the creamery in town. The village was never incorporated but still has residents today. The first township to be organized was Fairfield in 1871.

The city of Appleton organized in 1870 was named after a city in Wisconsin that bared the same name. Founded in 1871-72 the railway was built in 1879. The village was incorporated in 1881. Early industries capitalized on the waterpower of the Pomme de Terre River by building a flourmill, beer brewery and cigar plant.

Benson first settled in 1866 was named the county seat and platted for the railway company in 1870; the city incorporated as a village in 1877 and later as a city in 1908. Benson is the largest of the eight communities in Swift County.

Clontarf, a community of Irish immigrants was settled in 1878. Originally named Randall, the location of Clontarf was chosen in 1876 by the Catholic Colonization Bureau to move poverty-stricken Irish Catholics out of New York and Boston. The Great Northern Railway came in 1870. The village was incorporated in 1881 and reincorporated again in 1904. It was known as the Hay Capitol of the World producing hay and blue grass for many parts of the United States.

Danvers was named after a city in Massachusetts and a village in Illinois. The city was incorporated as a village in 1900 and housed a station of the Great Northern Railway.

DeGraff was founded and platted in 1875 and incorporated in 1881. The city is named after Andrew DeGraff who built many railroads in the state including the Great Northern Railway line that runs through the county.

The city of Holloway, originally named Norton, was renamed by officers of the Great Northern Railway in honor of a neighboring farmer and incorporated in 1903. In 1907 one of the most devastating fires of the county wiped out many of the businesses.

Kerkhoven, known as the village of churches, was platted in 1870 after a Dutch stockholder in the St. Paul and Pacific Railroad, later the Great Northern Railroad. In 1876 it changed its name to Pillsbury, after the township it was the center of and in 1881 was incorporated as Pillsbury. Two years later by popular vote the name was changed back to Kerkhoven.

Murdock was named after the city in Dublin, platted in 1878 and was incorporated in 1881. Samuel Murdock who plotted the city later became the Minnesota Railway Commissioner and was convinced there was room for another trading center along the railway.

Source: Swift County Historical Society and Minnesota Place and Names by Warren Upham

PHYSICAL CHARACTERISTICS

Climate and Precipitation

Swift County has a continental climate, with warm summers, cold winters, and maximum precipitation occurring in the summer months. Swift County lies in a belt where there is considerable interaction between the cold, dry air from the north and the warm, moist air from the south, leading to marked daily changes in the climate.

A wide range of seasonal temperatures characterizes Swift County, shown in Table 3. Swift County can also experience extreme temperatures. The hottest day that Swift County has recorded was 104 degrees in 1988. The coldest day was -35 degrees in 1977 (Midwest Regional Climate Center Benson Data Station).

Because of its location near the center of North America, Swift County is subject to a variety of air masses that affect the amount of precipitation that falls in the county. Average annual precipitation is about 27.92 inches (see Table 4); 65 percent of which usually falls in the growing season between May and September. The sun shines 65 percent of the time in summer and 45 percent in winter. Prevailing winds are from the south.

Table 3. SC Average Monthly Temperature and Record Highs and Lows from 1962 - 1999

Month	Average High	Average Low	Mean	Record High	Record Low
January	20º F	1º F	10º F	63º F (1981)	**-35º F (1977)**
February	27º F	9º F	18º F	59º F (1991)	-35º F (1996)
March	39º F	21º F	30º F	78º F (1967)	-27º F (1962)
April	57º F	34º F	45º F	97º F (1980)	0º F (1975)
May	71º F	47º F	59º F	98º F (1969)	20º F (1967)
June	79º F	57º F	68º F	**104º F (1988)**	34º F (1964)
July	83º F	61º F	72º F	103º F (1966)	41º F (1971)
August	80º F	59º F	70º F	103º F (1988)	37º F (1964)
September	72º F	49º F	60º F	99º F (1978)	21º F (1965)
October	59º F	37º F	48º F	93º F (1963)	12º F (1976)
November	39º F	22º F	30º F	81º F (1999)	-21º F (1964)
December	24º F	7º F	16º F	60º F (1962)	-28º F (1955)

Source: State Climatologist (www.climate.umn.edu) & Midwestern Regional Climate Center (www.mcc.sws.uiuc.edu) Data pertains to Benson station. 2005

Table 4. SC Average Precipitation/Snowfall

Month	Precipitation in Inches	Snowfall in Inches
January	0.88	**10.7**
February	0.72	7.2
March	1.66	8.2
April	2.10	2.0
May	3.01	0
June	**4.50**	0
July	4.03	0
August	3.90	0
September	2.60	0
October	2.45	0.3
November	1.43	6.7
December	0.64	6.7
Annual	**27.92**	**41.8**

Source: State Climatologist (www.climate.umn.edu) & Midwestern Regional Climate Center (www.mcc.sws.uiuc.edu) Data pertains to Benson station 2005

Geology and Topography

Swift County contains 481,439 acres of land and water, all influenced by glaciations. Swift County lies entirely within the drainage of the Minnesota River and is covered by glacial drift and modified glacial drift of the late Wisconsin Glaciation. Glacial ice covered Swift County approximately 8,000 years ago. When it receded it left a mantle of glacial drift ranging in thickness from 150 feet in the southwestern part of the county to more than 300 feet in the northeastern part.

Glacial till material was deposited mainly in the northeastern and northwestern parts of the county and occurred mainly in undulating to rolling areas. In the northeastern part of the county, however, is a series of hilly terminal moraines that form part of the Alexandria Moraine Complex.

Throughout the central and southern parts of the county, the glacial drift was modified to outwash and lacustrine alluvial deposits by the action of water. Melt water from the glacier carried soil material into the part of Swift County that forms a basin. The outwash deposits occur at the mouths of streams, and the lacustrine deposits are found in the broad level areas beyond the outwash.

The greater part of the county varies from nearly level to undulating in topography. In the northeast corner and in other small areas throughout the country the topography is steep and choppy. The only extensive level area is around the city of Benson and adjacent to the Chippewa River in Clontarf.

The highest elevation in Swift County is found in Kerkhoven, Camp Lake and northeastern Hayes Township at approximately 1150 feet above sea level. The lowest elevation is at the mouth of the Pomme de Terre at 934 feet above sea level. The mean elevation of the county is approximately 1075 feet.

Additional information related to the geology of Swift County can be found in Soil Survey of Swift County 1973.

Soil

Soils are produced by natural processes acting through time on material deposited or accumulated by geologic processes. Soil characteristics are determined by the parent material, climate, vegetation and topography in the area of soil formation. Several soil associations (distinct patterns of soil series in defined proportions) cover Swift County. Tara-Barness-Hamerly association mainly covers the western part of the county, defined as deep, nearly level to gently rolling, moderately well drained and well drained, and medium-textured soils that formed in glacial till. Arveson-Marysland-Hecla association covers the central portion of the county, defined as level, poorly drained, medium-textured soils that are shallow and moderately deep to sand and gravel; and deep, nearly level, moderately well drained, coarse-textured soils. Vallers-Winger-Hamerly association is the major soil in the eastern portion of the county. This soil association is defined as deep, nearly level to gently undulating, poorly drained to moderately well drained, moderately fine textured and medium-textured soils that formed in glacial till.

Soil data indicates suitability and limitations for land uses and can be used to determine flooding potential, load bearing capacities, permeability, surface drainage and percolation rates. All of Swift County is prone to wind and or water erosion. Water erosion results from soils being removed from its original location by the force of water moving from higher slopes and plots to lower slopes and plots. Wind erosion occurs when wind velocities increase to above 12 mph. Soil erosion by wind or water is dependent on soil type and the amount of protective cover. Soil erosion affects cropland, urban areas, roadsides, lakeshores, stream banks and drainage systems. Soil without vegetation is the most vulnerable. November to June is the worst time for wind erosion when fields are dry and strong northwest winds are prevalent.

Water erosion impacts the county's water quality and develops detrimental conditions in uplands and steeper slopes and generally occurs between the months of April and June when a crop canopy has not developed to protect the surface yet. Easements are used to protect water quality, reduce soil erosion and enhance fish and wildlife.

Sources: Swift County Soil Survey; Swift County Water Plan; Swift County Comprehensive Plan

Land Use and Cover

The pre-settlement vegetation of Swift County has undergone significant change since settlement began in the 1870s. Before it was settled, Swift County was predominately covered with prairie, wet prairie, and river bottom forest vegetation along the Chippewa and Minnesota Rivers. Fire played a major role in limiting the woody vegetation of Swift County. The forests were restricted to areas where natural firebreaks (such as rivers, lakes and rough topography) prevented the spread of fire from the adjacent prairie lands.

Today, land use in Swift County can be divided into four general categories: agricultural, woodland, water and wetlands, and others that include urban uses. Agriculture is the most important use composing about 92 percent of the County land. Woodland is three percent, and water and wetlands is two percent. Other uses are three percent. Table 5 lists all land covers and land uses within Swift County.

Table 5. SC Land Cover and Land Use

Description	Acreage	Percent
Urban and rural development	7,452	1.6
Cultivated land	402,313	83.6
Hay/pasture/grassland	41,963	8.8
Brush land	1,568	0.3
Forested	12,975	2.7
Water	5,760	1.1
Bog/marsh/fen	8,113	1.7
Mining	322	0.1
Unknown	814	0.1
Total	481,280	100

Source: 1989 Minnesota Land Use/Land Cover Data

Agriculture.

Agriculture land is the dominant use in every township. Farms in Swift County have steadily increased in size from 447 acres in 1987 to 525 acres in 1997 see Table 4, (Minnesota Department of Agriculture). As the size of farms increased, the number of farms decreased. In 1987 there were 884 farms in Swift County. Twenty years later (1997) there were only 739 farms remaining (Minnesota Department of Agriculture).

The county developed rapidly because of the rich agricultural resources and opportunities. The climate, soil, topography and vegetation all create a productive agricultural environment in Swift County.

Approximately 80 percent of the land in Swift County is considered to be prime farmland. Nearly all prime farmland is used for crops. Swift County's top two produced crops are corn (ranking 13 in the state for production) and soybeans (ranking 16), see Tables 5 and 6. Organic farming includes smaller crops such as vegetables, beef, dairy, and other niche markets, and has grown significantly in the past 15 years. Livestock production has been a steady decline. Swift County ranks 46 in hog production in the state, 47 in beef cattle and 35 in milk production (Table 9). Currently there are 28 milk producers in the county.

Table 6. SC Swift County Farm Statistics 1987 to 2004

Farms	1987	1992	1997	2004
Farms (producers)	884	760	739	958
Land in Farms (acres)	395,484	389,897	388,215	375,091
Average Size of Farms (acres)	447	513	525	525

Source: National Agricultural Statistics Service 2004

Table 7. SC Crop Production 2002

Crop	Acres	Yield	Rank
Corn, bushel	153,500	168.0	13
Soybeans, bushel	149,300	42.0	16
All Hay, tons	11,100	4.0	53
All Wheat, bushel	8,100	40.9	22
Sugar beets, tons	5,400	21.3	
Oats, bushel	2,000	71.0	42

Source: Agriculture Census for Swift County, Swift County FSA 2002

Table 8. SC Crop Production Comparison 1919 to 1997

	Corn-1919	Corn-1997	Wheat-1919	Wheat-1997	Oats-1919	Oats-1997
Acres	45,055	142,287	85,996	12,968	73,062	1,334
Bushels/ Acre	29.1	120.8	26.9	30.96	8.3	60

Source: Agriculture Census for Swift County and Swift County Historical Society Book 1993

Table 9. SC Livestock Production 2003

Livestock	Number	Rank
Hogs & Pigs	18,500	46
Cattle	21,500	45
Beef Cows	3,100	47
Milk Cows	3,700	35
Poultry	1,574,289	

Source: Agriculture Census for Swift County, Swift County FSA 2003

A recent trend in land use in some parts of the county has resulted in the loss of prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which are generally less productive because they are more erodible, subject to drought or difficult to cultivate. Government programs such as CPR and CREP have been established to keep marginal land out of production and have helped to prevent erosion and improve water quality in the region.

CREP, CRP and other Government Programs.

The Conservation Reserve Program (CRP) is the federal government's single largest environmental improvement program and one of its most productive and cost-efficient. There are 30,581.1 acres in Swift County enrolled in CRP.

Established in 1985, CRP encourages farmers to voluntarily plant permanent areas of grass and trees on land that needs protection from erosion. The purpose of planting is meant to act as windbreaks or in places where vegetation can improve water quality or provide food and habitat for wildlife. Farmers must enter into contracts with the Commodity Credit Corporation (CCC) lasting between ten and fifteen years. In return, they receive annual rental payments, incentive payments for certain activities, and cost-share assistance to establish the protective vegetation. Land eligible for enrollment includes cropland that is physically and legally capable of being cropped in a normal manner and that has been planted or considered planted to an agricultural commodity in any two years from 1992 to 1996. The acreage must also be determined eligible and suitable for any of the following practices: filter strips, riparian buffers, shelter belts, field windbreaks, living snow fences, grass waterways, shallow water areas for wildlife, salt-tolerant vegetation and wellhead protection areas.

The Reinvest in Minnesota (RIM) Program protects water quality, reduces soil erosion, and enhances fish and wildlife habitat through retiring marginal lands from agricultural production and restoring previously drained wetlands. The program pays landowners a percentage of the value of their land to enroll it in a conservation easement. Types of land eligible for the program include drained wetlands (for restoration), highly erodible cropland, riparian agricultural land, pastured hillsides and sensitive ground water areas. The state legislature created the RIM Program in 1986 as a response to the concerns of a coalition of environmental, conservation, and agricultural groups. As of February 2009, Swift County has 1,563 acres enrolled in the RIM program (Minnesota Board of Soil and Water Resources 2009).

One way the county has been able to address pollution issues are with the Minnesota River Conservation Reserve Easement Program (CREP). CREP gives landowners an opportunity to voluntarily enroll marginal cropland in a conservation easement program with 15 annual payments and a one-time bonus payment. Swift County has 6,072.6 acres enrolled in the CREP program (Minnesota Board of Soil and Water Resources 2009). With this program, landowners in the Minnesota River Basin can get paid to take cropland out of production as a way to improve water quality and wildlife habitat.

CREP combines the federal Conservation Reserve Program (CRP) with the State RIM Reserve Program. The program's goal is to protect and enhance up to 100,000 acres of environmentally sensitive land in the 37-county Minnesota River Basin; presently as of February 2009 Minnesota has 106,435.3 acres involved in the program. The Minnesota River CREP ended in September 2002.

The Wetlands Reserve Program (WRP) is the federal government's wetlands restoration program. It is a voluntary program that offers landowners the means and the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural

Resources Conservation Service (NRCS) manages the program as well as provides technical and financial support to help landowners who participate in WRP. In all cases, the landowner retains ownership and responsibility for the land, including any property taxes based on its reassessed value as wetland or nonagricultural land. The landowner controls access to the land; has the right to hunt, fish, trap, and pursue other appropriate recreational uses; and may sell or lease land enrolled in WRP. Swift County has 519.7 acres in permanent easement through WRP.
Source: Conservation Land Summary 12/31/02

Wildlife Management Areas.
Wildlife Management Areas are state-owned lands preserved for wildlife habitat. Swift County has 15 State Wildlife Management Areas occupying approximately 9,842 acres. Consistent with the primary goal, is a responsibility to provide public use of the area. The area is to be developed to accommodate activities directly oriented towards wildlife and fishing. Public hunting, trapping and fishing receive priority as sportsmen's tax monies were used to finance nearly all the development and management, and much of the land acquisitions on the area. Public use will be limited to levels that prevent excessive interference among users and will not endanger wildlife and fish populations. The use of motorized vehicles, including snowmobiles and all-terrain vehicles, is generally prohibited.

A portion of the Lac qui Parle Wildlife Management Area, along the Minnesota River, is located in Swift County. It was established in 1936 as a state-sponsored flood control project under the Federal Works Progress Administration (WPA). The unit was authorized as a federal flood control project later in 1936, and operational authority was transferred to the U.S. Army Corps of Engineers.

State Wildlife Management Areas serve multiple uses. In addition to their value as wildlife habitat and nesting areas, they serve to increase nutrient, sediment and chemical retention, floodwater storage, and ground water recharge.

In addition U.S. Fish and Wildlife, federally owned lands, occupy 7,609 acres in the county. Their mission is "*to work with others to preserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people".*
Source: Wildlife Lands 2003 and Updated by the DNR, U.S. Fish and Wildlife Morris Office

Hydrology
Swift County's lakes, streams and ground water are some of its most significant resources. They are vulnerable to pollution from a wide variety of human activities and/or disasters. Water quality has become one of the most important environmental issues facing the county and state as it's used for domestic and residential purposes, industry, agricultural and recreation. The health, safety and welfare of the public are directly linked to the county's water supply.

Groundwater.
According to the publication, *Water Resources of the Chippewa River Watershed* published by the United States Geological Survey, groundwater is available almost

anywhere within the watershed, principally from glacial drift, but to a limited extent from Cretaceous and Precambrian rocks. Buried lenses of sand and gravel yield small quantities of water throughout the entire watershed. Outwash and ice-contact sand and gravel deposits commonly yield greater quantities and receive more rapid recharge than buried sand and gravel deposits. Cretaceous deposits, present only in the southern part of the watershed, and Precambrian rocks, present throughout the watershed, have the lowest rate of recharge and yield little water. Groundwater movement within the glacial drift is mainly across the watershed from northeast to southwest, depth to water is quite variable (near surface to over 100 feet). Wells in the moraine more commonly yield "hard" bicarbonate type waters and those in the till plains the "softer" sulfate type. Many wells within the watershed, with the exception of those in the Benson area, are high in iron, often exceeding three parts per million (ppm). Water containing more than .3-ppm iron is considered unsatisfactory for many uses.

Recharge of aquifers occurs through precipitation mostly in the spring from snowmelt and rainfall when ground water demands by growing vegetation are minimal and precipitation can infiltrate the water table. There is generally little recharge during the active growing season and some recharge may be done in neighboring counties for Swift County use.

Increases in surface and groundwater use may lead to future conflict and domestic water is the highest priority when water supply is limited. Permits have been issued to maintain and protect in-stream uses – a list can be obtained from the Department of Natural Resources (DNR - call 888-MINN-DNR for a local contact). The DNR monitors the use of the state's water. Groundwater levels are routinely measured at 700 observation wells statewide – 26 are located in Swift County (see Appendix 8). In addition the Minnesota Pollution Control Agency (MPCA) establishes water quality standards for all state waters, surface and underground, and conducts a variety of monitoring efforts.

The Chippewa River, Minnesota River (Lac qui Parle Lake), Pomme de Terre River: Muddy Creek to Marsh Lake Dam, and Oliver Lake are on Minnesota Pollution Control Agency's List of Impaired Waters – cannot meet their designated use due to pollution problems. Eroding land is the major cause of pollution in these waters. In agricultural areas like Swift County other pollutants include sediments, nutrients, pesticides, bacteria and oxygen-demanding substances. Urban pollutants may include oil droppings, fallout from auto emissions, construction site sediments, road salt, pet wastes, lawn fertilizers and pesticides, and many more. Runoff is more of an issue with natural cover removed like in urban areas. Highly water-soluble materials are easily leached to the aquifers beneath.

Wellhead Protection.

Wellhead protection is a means of protecting public water supply wells by preventing contaminants from entering the area that contributes water to the well or well field over a period of time. The wellhead protection area is determined by using geologic and hydrologic criteria, such as physical characteristics of aquifers and the effects that pumping has on the rate and direction of groundwater movement. A management plan is developed for the wellhead protection area that includes inventorying potential sources of

ground water contamination, monitoring for the presence of specific contaminants, and managing existing and future land and water uses that pose a threat to ground water quality. The goals of a wellhead protection plan are to reduce the use of costly treatment facilities, avoid the drilling of new wells, and the need to clean up contaminated groundwater.

Presently, the number and condition of abandoned wells in the county is difficult to determine. In 1991 the county developed a well sealing cost share program to assist landowners with 50 percent of the cost, not to exceed $300, to seal a well. Since this, the program provided cost share for over 220 wells.

Benson, Appleton, and Holloway are currently in the Wellhead Protection Program according to the Swift County Water Plan, 2003. Kerkhoven and Agralite Electric Cooperative are going to be brought into the program within the next five to ten years. Other public water suppliers that will be brought into the Wellhead Protection Program are Lorenz Manufacturing Co., Murdock, DeGraff, and the Chippewa Valley Ethanol Company.

Surface Water.

Watersheds. Swift County is located within three major watersheds: Upper Minnesota River, Pomme de Terre and Chippewa River Watersheds (see Appendix 6). All three watersheds are part of the Minnesota River Basin –12 total in the state. The Chippewa River Watershed covers the majority of Swift County (78 percent) and measures approximately 2,084 square miles or 1,333,541 acres. The Chippewa River and its tributaries define the drainage network until it meets the Minnesota River in Montevideo, a total of 1,567 miles. The Upper Minnesota River Watershed is located on the extreme western edge of the county and is 2,097 square miles or 1,341,917 acres in size. The Pomme de Terre Watershed is located in the northwest corner of the county and measures 875 square miles or 559,966 acres. The Pomme de Terre River defines the drainage network for the watershed – 751 miles. The whole county drains into the Minnesota River.

Water and wind erosion is moderate in the watersheds. Land use is primarily agricultural in nature, primarily growing corn and soybeans and croplands are generally classified as moderately productive. The county receives an average of 27.92 inches of precipitation each year mostly falling during the growing season between May and September. The surface water bodies receive runoff and act as temporary reservoirs.

Wetlands. The term "wetlands" refers to low depressions in the landscape covered with shallow and sometimes intermittent water. Wetlands are also commonly referred to as marshes, swamps, potholes, sloughs, shallow lakes, and ponds. Wetlands differ in size, shape, and types of wet environment and derive their unique characteristics from climate, vegetation, soils and hydrologic conditions. Some have surface water only in the springtime during thaws or after rainstorms, while others may form shallow lakes that rarely dry up. They are classified according to their depth of water, total area, and seasonal life span. They are regulated by federal, state and local agencies. Minnesota

has a no net loss of wetlands policy. The county is the responsible agency for the administration of the Wetlands Conservation Act.

Originally, wetlands were located throughout the entire county. With the advent of intensive agriculture practices and the application of land drainage techniques, many of the wetlands located on lands that were flat and suited to agricultural use have been drained. Because of this, there are now relatively few wetlands in the flat till plain areas of the county (see Appendix 8). Most of the remaining wetlands are found in the moraine areas of the northern half of the county where the wetlands have either been preserved or where drainage is not economically feasible.

Wetlands provide many benefits including the reduction of flooding by means of storage, filtration of pollutants and sediment, groundwater and aquifer recharge, wildlife habitat and aesthetic appeal. The Swift County board of commissioners has designated the entire county as high priority wetland preservation area.

Figure 1: Floodplains.

100-Year Floodplain

FEMA identifies floodplains based on the risk of flooding in a given year. On FEMA floodplain maps, the area identified as a floodplain indicates that there is a one percent chance of a flood occurring in that area in a given year. A flood occurring in an area with a one percent chance of flooding is known as a 100-year flood.

A goal in flood control is to minimize the threat to life and property. Efforts on the part of local governments to enforce zoning ordinances, sponsor projects, and relocate flooded buildings have helped reduce risk to lives and flood damages. Repetitive flooding damage in certain areas of Minnesota has necessitated a program to mitigate the possibility of future damages. Moving critical infrastructure to higher ground and out of floodplains is an important task for local units of governments. Appleton has partaken in structure relocation since the flooding in 1997 and 2001 and continues to work with the DNR on these initiatives. Local units of government are required to regulate land use and development in floodplains and shore land areas. The County is the only jurisdiction that has an adopted shoreland ordinance. Official floodplain maps for Swift County are available in the County Environmental Services Office (see Appendix 8).

FEMA recently issued new floodplain maps identifying new floodplain elevations for some parts of the county for public review. Once a final determination on the maps is made by FEMA local jurisdictions including the county will review their current floodplain ordinances and make necessary changes within six months to qualify for the National Flood Insurance Program. Residents located within floodplains are required to carry flood insurance if they have any kind of secured mortgaged financing in the event of a major flood.

Rivers. Pomme de Terre and the Chippewa Rivers are the two major rivers that dissect Swift County. Pomme de Terre runs through the western part of the county,

eventually coupling with Marsh Lake as well as the Minnesota River. The Chippewa River runs through the central part of the county, while the east branch flows through Swift Falls to the East eventually coupling with the main Chippewa River. The Chippewa River runs south into the western portion of Chippewa County where it intersects into the Minnesota River.

Lakes. Swift County has 169 lakes of 10+ acres or more. These lakes cover an area of 12,393 acres that represent 2.6 percent of the total area of the county. Lake basins were formed by ice blocks deposited in terminal moraine and in outwash and by the irregular deposition of till in ground moraine. Half of the lakes in the county are affected by artificial drainage systems and many are dry most of the time. Table 10 lists general characteristics of larger lakes found within Swift County.

Table 10. SC Larger Lakes

Lakes (Over 150 acres)	Area in Acres	Maximum Depth (ft.)	Water Clarity (ft.)	Location (Township)
Artichoke	46 of 1,964	15.5	3.3	Hegbert
Camp	230	26	3.83	Camp Lake
Hassel	647			Benson
Large Henry	254			Hegbert
Hollerberg	221			Kildare
Lac qui Parle	374 of 5,589	15.0	1.5	Appleton
Marsh	308 of 4,500	5	5'	Appleton
Monson	207	21	5.7	Hayes
Moore	211			Benson
North Drywood	399			Hegbert
Oliver (Long)	416	35	5	Hegbert
Shible	341	8.5	2	Shible
South Drywood	227			Hegbert
West Sunburg	200			Hayes

Source: DNR Website Lake Finder (if available for the lake)

Recreational Use of Water Resources. Recreational uses of water resources in Swift County include year round fishing; swimming; recreational water sports; boating and canoeing; sight seeing/photography; trapping; birding; and hunting. Public access is available to most fishing lakes and rivers within the county for easy access and use. The lakes and wetlands of the Chippewa River Watershed provide rich fish and wildlife resources, especially in the higher headwater regions. Many of these lakes contain a wide variety of sport fish including, walleye, largemouth bass, northern pike, and pan fish.

Cottonwood Creek is the only designated trout waters located in Swift County. Rough fish are abundant in the marginal-shallow lakes subject to occasional winterkill. In the lower area of the watersheds many wetlands and small tributaries provide rich resources for production of waterfowl, pheasants and partridge especially along the riverbanks. The most abundant and impressive waterfowl in Swift County is the Canada goose. Many of these areas are protected by state wildlife management and are part of federal waterfowl production areas, both open to public hunting. The Minnesota River meets the Canoe and Boating Routes Criteria providing suitable conditions for the canoe/boating enthusiast. Swift Falls County Park, a wooded rocky section of the Chippewa River, has waterfalls for recreational enjoyment.

Pollution. As the surface waters in Swift County are limited, it becomes very important to preserve and protect those water resources. The need to establish lake water quality criteria or standards have been recognized at the state, provincial and federal levels of government. The Minnesota Pollution Control Agency (MPCA) is the primary agency charged with pollution monitoring, control, and abatement. The MPCA develops water quality standards for all water bodies in the state and sets effluent limits for each discharger that will maintain the appropriate standards.

Swift County is part of the Minnesota River Basin so the following basin summary pertains to Swift County water activities:

> In the **Minnesota River Basin**, there are 29 rivers and creeks that are impaired for one or more of the following pollutant: low dissolved oxygen, impaired biota, mercury, fecal coliform, turbidity, excess ammonia, chloride, PCBs and eutrophication. The Minnesota River has the most "reaches" listed for impairment in the Basin (46 total). There are also 81 lakes listed with one or more of the following impairments: excess nutrients and mercury or PCBs in the water column and /or fish tissue. Altogether, there are 320 river reaches and lakes listed as impaired in this Basin.

MPCA came out with a list naming all lakes and streams affected with different substances that affect aquatic life and recreational uses of water. The county is working to remove the county's waters from the list which includes the Chippewa River, Minnesota River (Lac qui Parle Lake), Pomme de Terre River: Muddy Creek to Marsh Lake Dam, and Oliver Lake. Chippewa River has high levels of mercury and segment of both the Chippewa and the Minnesota Rivers are impacted by toxic pollutants from any source due to a variety of municipal pollution effects. Both the north and south portion of Lac qui Parle Lake are impacted by point or non-point source discharges of toxic, conventional and non-conventional pollutants due to nutrient pollution. Swift County's Pomme de Terre River is affected with fecal coliform, low oxygen and turbidity, which does influence the water by killing aquatic life and effects of recreational uses. Further, Oliver Lake has a high mercury level content.

Non-permitted waste disposal is a problem in some unincorporated areas. Sewage dumped directly into ditches contributes to the pollution problems of surface waters. A

concern with hazard mitigation is an excessive level of any pollutant that could cause a decreasing quality of life, loss of property or be life threatening.

Drainage and Flooding. Swift County has an elaborate system of drainage ditches (780 miles) in the county, with 280 miles of open ditches and approximately 500 miles of tiled ditches (see Appendix 8). Huge amounts of public and private capital have been invested in draining water from the landscape. This infrastructure radically improves the drainage efficiency of the landscape, which benefits agricultural production in nearly level landscapes and poorly drained soils. A drainage system is needed to control ponding and to lower the water table below the root zone for proper growth.

As water storage on the landscape is reduced, peak stream flows come faster and higher in response to rain events and run off. Another issue is the recent explosion of pattern tiling that has accelerated these conditions. Older drainage infrastructure and receiving waters are often not adequate to meet new peak flows generated with pattern tiling. The current design for drainage is open ditches coupled with tiling. As a result problems surrounding water quality are numerous, especially if filter strips (16.5 foot permanent grass strips on each bank of a ditch) are not used. Swift County's drainage systems pose threats to water quantity as well. As ditches are designed to remove large quantities of water in a short time, flooding can occur following major storm events and during the spring snowmelt backing up on land and flooding areas within the drainage systems causing economic impacts. Ditches can easily be filled with sediment, nutrients and bacteria over time - all factors affecting overall water quality. While ditches are open and easily accessible for vehicles to pollute both surface and sub-surface aquifers – serious health threats for the public are posed. Increased upland storage is necessary to reduce the overall quantity of water transported by the ditches.

Drainage activity peaked in the 1950s and in the 1960s public policy began to shift toward wetland conservation and less drainage. General authority for public drainage lies at the county level and the development of ditch inventories and history proves invaluable to the county through the use of GIS practices. Ditch history identifies age, tracks dollars spent; identifies where it drains and entities on the ditch.

As the landscape hydrology has been altered by humans, higher peak flows are carving out larger channels. Unfortunately, this often results in riverbanks being destabilized. With two major rivers located in the county - this is a critical issue, especially pertaining to flooding and debris. Downed trees caused problems at various bridges over the Minnesota River with the 2001 flooding. The trees would run into bridges and got caught forming logjams. Contractors lifted the trees over bridges and returned them to the river downstream of the bridge, with the end result of trees floating to succeeding bridges to be lifted over again. Large flood events can and do kill trees within the flood plain, including large cottonwood and maples. In subsequent flood events these standing dead trees can be knocked down and washed away, causing havoc to communities and counties.

Sources: http://www.pca.state.mn.us/water/basins/mnriver/chippewa.html#physiography; Source Water Protection (SWP) materials, Swift County Water Plan 2003; Environmental Services Office and DNR.

SOCIOECONOMIC

Please refer to the Swift County Comprehensive Plan for extensive discussions on socioeconomic trends.

Population Trends

Swift County.

Swift County has lost residents over almost every decade since 1940 except in the last decade. In the year 2000, the County's population of 11,956 was up 11.5 percent over 1990. In addition, the minority population totaled 1,228 people (12 percent of the total population) – 2.7 percent black or African American; 2.4 percent Asian; 2.6 percent Pacific Island; 2.7 percent Hispanic/Latino origins; .5 percent American Indian; and 1.2 percent other races. The median age is 39.5 years and the census is divided almost equally between the urban population (6,262) and the rural population (5,694). **It is important to note that the Prairie Correctional Facility (prison), built after the 1990 census, is located in Appleton and the inmates are included in the 2000 census for the city of Appleton which skew population and minority numbers for the city of Appleton and the county. The Prairie Correctional Facility closed in 2009-2010 and was not included in the 2010 census.** The 2007 estimate population for Swift County was 11,370, an overall decrease of 4.9 percent. Regardless of the slight decrease in population, Swift County's population is expected to increase to 13,370 by 2030, as shown in Table 11.

Table 11. SC County Population Projection*

	2000	2030	Percent Change
Minnesota	4,919,479	6,300,000	28.1
Swift County	11,956	13,370	11.8

Note: Based on Historic Projections from Swift County Comprehensive Plan and US Census Bureau Projections. These projections are based on population statistics from the previous 40 years.
Source: MN State Demographic Center, 2006

When the data of neighboring counties are examined, it is apparent that as you move further east, closer to the Twin Cities metropolitan area, the rate of decline tends to reverse to a growth trend. This is especially seen in neighboring Kandiyohi County, which has seen relatively rapid population growth over the last 30 years.

Along with all the cities of Swift County, the county is committed to the expansion or development of business by providing loans, tax increment financing, tax abatement and/or other incentives to foster economic development. Swift County has two revolving loan funds and several regional and state funding resources. For more information contact Swift County Rural Development Authority at (320) 842-4769 or a city's Economic Development Authority (if available).

Table 12 on the following page provides population and household trend data for individual cities within Swift County from 1970 to 2007.

Table 12. SC Population and Household (HH) Trends by City

City	1970		1980		1990		2000		2007 (Est.)	
	Population	HH	Population	HH	Population	HH	Population	HH	Population	HH
Appleton	1,789	--	1,842	783	1,552	714	2,871	729	2,683	692
Benson	3,484	--	3,656	1,498	3,235	1,382	3,376	1,451	3,393	1,506
Clontarf	147	--	196	68	172	66	173	62	154	56
Danvers	136	--	152	49	98	38	108	43	86	120
De Graff	195	--	179	64	149	60	133	60	95	92
Holloway	146	--	142	61	123	56	112	54	102	51
Kerkhoven	641	--	761	294	732	299	759	313	737	311
Murdock	358	--	343	128	282	118	303	126	270	108

Source: U.S. Census Bureau 2000, Minnesota State Demographic Center and Metropolitan Council 2007

Appleton.

Appleton is a quaint community settled on the mouth of the Pomme de Terre River. The first people to settle in the community were the Addison Phelps family as they traveled westward. The town is named after Appleton, Wisconsin, the city Addison grew up in. Appleton's population in 1970 was 1,789 and increased in 1980 to 1,842 but the biggest decrease in population happened in 1990 down to 1,552, but then in 2000 the city increased to 2,871. The final population decrease occurred from 2,871 to 2,683 from 2000 to 2007, a decrease of 3.4 percent. The fluctuation in households matched that of the population trends –an increase from 1970 to 1980 and then a decrease in 1990 with an increase in 2000, and notable decrease in 2007 (Minnesota State Demographic Center and Metropolitan Council 2007). Population and household increase in 2000 reflects the creation and operation of the Prairie Correctional Facility. The population saw a 46 percent increase while households only saw a 2 percent increase. Inmate capacity at the time was 1,200. Agriculture and farm-related business is the mainstay of the economy in Appleton. The area has an unusually diversified agricultural mix of livestock and crops on many irrigated acres. Development sites are available in a 160-arce industrial park for interested businesses. Appleton's unique living memorial includes naming the streets and avenues after Appleton war heroes in 1947. Since then many have been added as they continue to honor their veterans.

Benson.

Benson is a friendly, progressive community rich in history located at the crossroads of US Highway 12, MN Highway 29 & MN Highway 9 – "a nice place to be". Once Glacial Lake, Benson is nestled amongst the glacial hills, lakes and rivers. It is in Ambush Park where the Chippewa Indians ambushed the Sioux in 1838 at the junction of the Chippewa River. Benson is the largest city in Swift County and is the county seat. The courthouse built in 1898 is on the National Register of Historic Places.

Residents and visitors enjoy the quality of life a small town provides with modern technology available at their fingertips. Benson offers one of the finest 18-hole golf courses in western Minnesota, unlimited hunting and outdoor recreation and unique shopping opportunities combined with a knowledgeable, proactive business community making Benson an ideal destination for a family vacation, a good place to start or expand a business and raise a family.

Benson's population has fluctuated some over the past 30 years. From 1970 to 1980 the population of the city grew to 3,656, which is an increase of 172 people. In 1990 the city's population decreased to 3,235 but then increased again in 2000. As of 2007, Benson's estimated population and household count was 3,393 and 1,506, respectively (Minnesota State Demographic Center and Metropolitan Council 2007). Household size showed the same pattern. The city is one of the most progressive manufacturing cities of its size with the expansion of Case New Holland and the addition of the ethanol plant – owned by Chippewa Valley Ethanol Company.

Clontarf.

Clontarf is an Irish community settled in 1878, chosen by the Catholic Colonization Bureau to relocate the poverty-stricken out of New York and Boston. A station on the Great Northern Railway was incorporated in 1904 and today the Burlington Northern Santa Fe Railroad runs through the heart of the city. It's a small community with lots of potential – new businesses are welcome. In 1970 the population was 147 and grew to 196 in 1980 but dropped again in 1990 to 172. The population almost stabilized in 2000 with a slight increase to 173. By 2007 the estimated population of Clontarf declined to 154 people (Minnesota State Demographic Center and Metropolitan Council 2007). Over this 30-year period the households have continued to drop – 68 in 1980 to 56 in 2007. Agriculture is the pulse of this small town that is close enough to Benson and Morris (Stevens County) for larger community amenities.

Danvers.

Danvers was incorporated as a village on January 19, 1900 and separated from the township on April 9, 1906. It had a station of the Great Northern Railway and an established post office in 1892. The community's ancestry is tied to Ireland, nestled halfway between Benson and Holloway on Highway 12 – a small, attractive town with affordable living. Danvers' population has fluctuated from 1970 to 2000. From 1970 to 1980 the population grew from 136 to 152 but then had a large decrease in 1990 to 98 and increased slightly to 108 in 2000. As of 2007, Danvers estimated population declined to 86 people (Minnesota State Demographic Center and Metropolitan Council 2007). The household change fluctuated similar to that of the city's population. A new wastewater treatment facility makes it attractive for future development.

DeGraff.

DeGraff was founded and platted in 1875 and incorporated on February 10, 1881. The Great Northern Railway ran through the city and the post office was established in 1875. DeGraff's population has steadily decreased since 1970 from 195 to 133 people in 2000, with a 2007 estimated population of 95 – a notable decline. The number of households decreased slightly from 64 in 1980 to 60 in 1990, remained constant in 2000, and

dropped to 59 in 2007 (Minnesota State Demographic Center and Metropolitan Council 2007). Despite its small size progressive community leaders and community residents work to make it an attractive place to live – a new water tower and water distribution system are examples of their dedication.

Holloway.

Holloway was first known as Norton and incorporated as a village on February 14, 1903, with an established post office in 1889. Holloway also had a station for the Great Northern Railway. Holloway's population has decreased since 1970 from 146 to 112 in 2000, and to 102 in 2007 (Minnesota State Demographic Center and Metropolitan Council 2007). The household population resembles that of DeGraff's as it has steadily declined from 1980 to 2007 from 61 to 51 (estimated). Holloway is a friendly community with room to grow and attract development. Western Consolidated Cooperative has its main offices in Holloway.

Kerkhoven.

Kerkhoven was platted in 1870 and incorporated in 1881 by a Dutch stockholder in the Great Northern Railroad. Kerkhoven's population fluctuated from 1970 to 2000; in 1970 the population was 641 and increased to 761 in 1980, but decreased in 1990 to 732 then increased again in 2000 to 759. The estimated population of Kerkhoven in 2007 was expected to be 737, with 311 households (Minnesota State Demographic Center and Metropolitan Council 2007). The number of households has steadily increased since 1970 from 220 to 310 in 1980, then in 1990 increased to 315 and 2000 another increase to 338. This small community is exactly the halfway mark between Benson and Willmar (Kandiyohi County). It provides the amenities of rural living with the convenience of accessibility to a regional hub (Willmar), as many residents commute for work but enjoy the affordable living this community provides.

Murdock.

The city of Murdock was platted and incorporated on January 28, 1881 and reincorporated on December 31, 1898. It too became a station for the Great Northern Railroad, but not by design. Samuel Murdock a large area farmer successfully pushed to add another station on the railway to market his crops. Murdock's population decreased from 1970 to 1990 from 358 to 282, but increased slightly in 2000 to 303. The most recent estimated population of Murdock was in 2007, with a population of 293 and 126 households (Minnesota State Demographic Center and Metropolitan Council 2007). Murdock's number of households has fluctuated by increasing from 1970 to 1980 (124 to 140) and decreasing in 1990 to 132 then increasing again to 150 in 2000. Only five miles to DeGraff or Kerkhoven, Murdock is located on Highway 12 and houses the Murdock Elementary School, Dooley's Petroleum and Glacial Plains Cooperative as the main employers but land for commercial and industrial development is plentiful. Murdock is a friendly community strong in heritage.

Townships and City Population Distribution.

As shown in Table 13 on the following page, the distribution of population within Swift County has not significantly changed from 1970 to 2007. Notably, the main trend shows an increase of people living in cities versus rural townships. The greatest change from

1990 to 200 is the overall increase in city population from 6,343 to 7,835, an increase of 1,492 residents, with a decline of only 249 people by 2007.

Table 13. SC Distribution of Population

	1970		1980		1990		2000		2007 (est.)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Townships	6,281	48	5,649	44	4,381	41	4,121	34	3,784	33
Cities	6,896	52	7,271	56	6,343	59	7,835	66	7,586	67
Total	**13,177**	**100**	**12,920**	**100**	**10,724**	**100**	**11,956**	**100**	**11,370**	**100**

Source : U.S. Census Bureau, Minnesota State Demographic Center and Metropolitan Council 2007

In Swift County, as throughout Minnesota, the average household size has decreased (Table 14). The average household size decreased to 2.4 persons, according to the estimated 2007 Census (Minnesota State Demographic Center and Metropolitan Council 2007). Even though the population has decreased since 1970, the number of housing units and number of households has increased slightly in the last decade. The number of people in "group quarters" also has increased. This reflects the rise in the elderly population (some of the highest in the state), the number of people in nursing homes or housing with service facilities, and the prison, which is counted as group quarters as well.

Table 14 SC Swift County Population Profile

	1970	1980	1990	2000	1990-2000 Change	
					Actual	Percent
Population	13,177	12,920	10,724	11,956	1,232	11.49
Land Area (sq. mile)	739	739	743.5	743.53	0.03	0
Density (persons/sq. mile)	17.83	17.48	14.42	16.08	1.66	11.48
Housing Units	4,717	5,182	4,795	4,821	26	0.54
Households	--	4,694	4,268	4,353	85	1.99
Persons Per Household	--	2.75	2.51	2.39	-0.12	-4.88
Persons in Group Quarters	--	179	212	1,538	1,326	625.47

	2000	2007 (Est)	2000-2007 Change	
			Actual	Percent
Population	11,956	11,370	-70	-4.9
Households	4,353	4,304		-1.12
Persons Per Household	2.39	2.43	-0.01	-0.42

Source: U.S. Census Bureau 2000

The Prairie Correctional Facility was created as a public trust in April 1993 to bring jobs and economic development to the city of Appleton. The facility initially housed offenders from Puerto Rico, Colorado, and Idaho. The 1996 Legislature authorized the Minnesota

Department of Corrections to contract up to 200 medium custody inmates at the facility. Corrections Corporation of America (CCA) assumed responsibility for the management and operation of the facility in September 1996. In 2003 the prison housed inmates from North Dakota and Wisconsin but in 2004, the prison took a huge decline at about one fourth the total capacity of 1,338. Minnesota statutes do not contain provisions that regulate the use of this private facility for public use. The prison increased the "Persons in Group Quarters" in the 2000 census.

On February 25, 1997, a riot occurred at the prison facility involving approximately fifty inmates in a dormitory area. The incident was contained to one area and did not spread elsewhere in the facility. However, the situation escalated to the point where tear gas was used to get the inmates to comply with orders. Offenders at the facility are grouped together and are not segregated in any way. The potential for civil disturbances continually exists. The prison has its own crisis management plan.

Household characteristics have a direct impact on land use, housing needs, social services, and educational expenses. Changes in household size have a direct and proportional effect on the demand and types of housing necessary for communities. As household size decreases the demand for housing units will increase. Only 8.4 percent of the county's housing units were vacant at the time of the 2000 Census. The conditions, type and variety of housing offered by a community directly influence the sustainability and vitality of the entire county. Housing is a critical community amenity in deciding whether someone will reside there – both quality and affordability.

Table 15. SC Housing Characteristics 2000

Total Housing units	Total Structures Built	Owner Occupied	Renter Occupied	Total Occupied	Vacant/ Destroyed
1999 to March 2000	53	28	4	32	21
1995 to 1998	192	106	61	167	25
1990 to 1994	169	100	59	159	10
1980 to 1989	279	185	81	186	93
1970 to 1979	792	514	222	736	56
1960 to 1969	394	240	129	369	25
1940 to 1959	1,142	868	191	1,059	83
1939 or earlier	1,800	1,316	249	1,565	235
Total	**4,821**	**3,357**	**996**	**4,273**	**548**

Source: US Census Bureau 2000

The above data consists of all houses that were built in Swift County (Table 15). Some of those houses have been destroyed and do not exist anymore. The data below reflects the 2000 vacancy status (Table 16 following page).

Table 16. SC Vacancy Status 2000

Status of Vacant Housing Units	
For rent	151
For sale only	88
Rented or sold, not occupied	87
For seasonal, recreational, or occasional use	59
For migrant workers	1
Other vacant	82
Total:	**468**

Source: US Census Bureau 2000

Age and Sex Characteristics

Since 1970, the county's population has been increasingly "aging." Minnesota Planning predicts that the percent of increase in the elderly population will continue to grow at a faster rate than that of the total population over the next 30 years. It is during this time frame that the "baby boomers" will reach their retirement age. This is a strong indicator of the need for many senior-related services, including senior housing and transit services.

The two tables, 17 and 18, below and on the next page identify the breakdown of Swift County's population by age and sex. When evaluating data, each of the cities within Swift County had very similar percentages to the county as a whole. In general terms, the 2000 census revealed that Benson and Holloway have the largest percentage of elderly, while Clontarf has the largest percentage of younger population. The entire county has a much larger percentage of elderly people compared to Minnesota – 19 percent compared to 12 percent.

Table 17. SC Sex Characteristics

	Male	Female
Minnesota	49.5%	50.5%
Swift County	54.7%	45.3%

Source: US Census Bureau 2000

Table 18. SC Age Characteristics

	Under 18	18 and older	Under 40	40 and Older	Under 65	65 and Over
Minnesota	26%	74%	58%	42%	**88%**	**12%**
Swift County	23%	77%	51%	49%	81%	19%
Appleton	12%	88%	53%	47%	84%	16%
Benson	24%	76%	48%	**52%**	76%	**24%**
Clontarf	**36%**	64%	**56%**	44%	**89%**	11%
Danvers	29%	71%	51%	49%	84%	16%
De Graff	29%	71%	56%	44%	86%	14%
Holloway	25%	75%	45%	**55%**	76%	**24%**
Kerkhoven	27%	73%	53%	47%	79%	21%
Murdock	30%	70%	57%	43%	80%	20%

Source: US Census Bureau 2000 and Swift County Comprehensive Plan

ECONOMIC SYNOPSIS

Swift County's economic atmosphere supports a base of agriculture, recreation, tourism, services, retail, trade and government. With strong and mature manufacturing and service-related industries, Swift County provides an ideal location for expansion of established businesses, as well as additional ventures. With excellent access to transportation systems, close proximity to the major urban centers, Swift County is positioned to have a vibrant economy for many years to come.

Fifty-seven percent of Swift County residents 16 years old and over are in the labor force and four percent are unemployed, according to the 2000 Census (Table 19 following page). About 75 percent of employed people are private wage and salary workers; 18 percent are government workers. The estimated median household income is $34,820 and the median family income is $44,208 in 2005 (Minnesota Department of Administration Dataset 2005). Most workers, more than 76 percent, drive alone to work with a mean travel time of 17 minutes.

Table 19. SC Labor Statistics

Employment Status	Number	Percent
Population 16 years and older	9,586	100%
In labor force	5,438	57%
Civilian labor force	5,435	99.9%
Employed	5,199	96%
Unemployed	236	4%
Armed Forces	3	.1%
Not in labor force	4,148	43%
Commuting to Work	**5,160**	**100%**
Car, truck, or van -- drove alone	3,900	76%
Car, truck, or van -- carpooled	463	9%
Public transportation (including taxicab)	28	1%
Walked	278	5%
Other means	64	1%
Worked at home	427	8%
Average travel time to work (minutes)	17.2	(X)

Source: US Census Bureau 2000

The biggest employer in Swift County is Prairie Correctional Facility with 350 employees when at full capacity (Table 20 following page). The second largest is Case New Holland with 265 employees. The other major employers in Swift County consist of: Benson Public Schools, KMS Public Schools, Appleton Health Services, Swift County Benson Hospital, Meadow Lane Health Care Center, and Future Products Inc. These major employers reflect the four main employment industries found in Table 18 below, including Education/Health/Social services, manufacturing, retail, and agriculture/forestry/fishing/hunting/and mining.

Table 20. SC Largest Employers

Employers	Number of Employees
Prairie Correctional Facility	350
CNH	265
Benson Public Schools	180
Appleton Health Services	148
KMS Public Schools	108
Swift County-Benson Hospital	98
Meadow Lane Health Care Center	83
Future Products Inc.	82
Total	**1,411**

Source: Department of Trade and Economic Development

Table 21. SC Industries for the Employed Civilian Population 16 Years and Over

Employment	Number of Employees
Agriculture, forestry, fishing and hunting, and mining	**618**
Construction	301
Manufacturing	**879**
Wholesale trade	175
Retail trade	**711**
Transportation and warehousing, and utilities	273
Information	98
Finance, insurance, real estate and rental and leasing	222
Professional, scientific, management, administrative, and waste management services	196
Educational, health and social services	**971**
Arts, entertainment, recreation, accommodation and food services	219
Other services (except public administration)	216
Public administration	320
Total	**5,199**

Sources: Minnesota Department of Administration, Office of Geographic and Demographic Analysis, Land Management Information Center, US Census Bureau 2000

As shown in Table 19 below, the highest percentages of households (73 percent) and families (81 percent) fall into the income range of $15,000 to $74,999 in Swift County – a large range. The median household income for Swift County in 2005 was $34,820. This amount is significantly higher than the estimated Regional Income Estimate found in Table 23 below, with Swift County's estimate income of $24,017 for 2006.

Table 22. SC Income Statistics 1999

	Households		Families	
	Number	**Percentage**	**Number**	**Percentage**
Less than $10,000	478	11%	112	4%
$10,000 to $14,999	321	7%	94	3%
$15,000 to $24,999	671	15%	333	12%
$25,000 to $34,999	726	17%	503	17%
$35,000 to $49,999	867	20%	685	24%
$50,000 to $74,999	905	21%	819	28%
$75,000 to $99,999	234	5%	223	8%
$100,000 to $149,999	112	3%	101	3%
$150,000 to $199,999	19	.05%	13	0%
$200,000 or more	35	.05%	29	1%
Total	**4,368**	**100%**	**2,912**	**100%**
Median household or family income	34,820	-	44,208	-

Note: Household count contains both families and persons living alone.
Source: US Census Bureau 2000

Table 23. SC Regional Income Estimates (1996 – 2006)

Region	1996	2001	2005	2006	% Change: 1996 – 2006
Minnesota	25,716	32,619	34,757	36,714	18.6%
Yellow Medicine	20,752	22,712	29,383	30,059	13.2%
Big Stone	**18,962**	**23,298**	**28,614**	**30,091**	**24.0%**
Swift	18,971	20,677	25,677	24,017	-1.1%
Chippewa	21,883	26,156	29,223	30,168	7.7%
Lac qui Parle	21,427	23,573	29,479	30,050	9.6%

Note: Data provided in dollars.
Source: Minnesota Department of Administration 2006

Tables 24 and 25 compare monthly housing expenses for renter-occupied units and owner-occupied units. In 2000, 70 percent of renters had rent lower than $499 dollars a month, while the majority of mortgage holding owner-occupied units (76 percent) spent between $300 and $999 dollars.

Table 24. SC Monthly Housing Expenses (Renter-Occupied) 2000

Monthly Rent	Number	Percent
Less than $200	156	17%
$200 to $299	126	14%
$300 to $499	357	39%
$500 to $749	123	13%
$750 to $999	45	4%
$1,000 to $1,499	7	3%
$1,500 or more	0	0%
No cash rent	96	10%
Total	**910**	**100%**

Source: U.S. Census Bureau 2000

Table 25. SC Monthly Housing Expenses (Owner-Occupied) 2000

Monthly Payments	Number	Percent
With a mortgage	1,287	54%
Less than $300	16	1%
$300 to $499	318	25%
$500 to $699	426	33%
$700 to $999	362	28%
$1,000 to $1,499	122	9%
$1,500 to $1,999	34	3%
$2,000 or more	9	1%
Median of mortgaged units	*$705*	X
Not mortgaged	1,109	46%
Median of not mortgaged units	*$239*	X
Total	**2,396**	**100**

Source: U.S. Census Bureau 2000

Please refer to the Swift County Comprehensive Plan 2007 for further extensive discussions on socioeconomic trends.

COMMUNITY INFRASTRUCTURE

Schools

Swift County consists of three public school districts: Lac qui Parle Valley, Benson, and Kerkhoven-Murdock-Sunburg (KMS) and Benson Christian Schools (private) (Table 26). Lac qui Parle Valley School District covers the western portion of the county and the cities of Appleton and Holloway. Benson School District covers the central part of the county and the cities of Benson, Clontarf, Danvers and DeGraff. KMS covers the eastern portion of the county and the cities of Kerkhoven and Murdock.

Table 26. SC Schools

School Name	Address
Benson Christian Schools (Private –K-12)	203 14 St. S., Benson, MN
Benson Public Schools	1400 Montana Ave., Benson, MN
KMS Elementary School	408 Hollis St., Murdock, MN
KMS Junior/Senior High School	302 North 15 St., Kerkhoven, MN
Lac qui Parle Valley - Appleton Elementary	309 Edquist St., Appleton, MN

Recreation

County Recreational Activities (Table 27) City Recreational Facilities (Table 28)

- *Monson Lake State Park*
  Monson Lake State Park offers fishing, birdwatchers, hiking and 187 acre park with a diverse landscape of wetlands and hardwood forests. The park includes a quiet campground and wooded picnic area. Paddle the lake and take a short portage that leads from Monson Lake to west Sunburg Lake. Access is off State Highway 9, just west of Sunburg, via County Road 95.

- *Swift County ATV Park*
  The park is one of two in the state for avid ATV and motor-cross bikers, located two miles northeast of Appleton on Highway 59. The park offers 110 acre ATV park containing 5-6 miles of groomed trails for ATV riders, off highway motorcycles, and snowmobiles. Also included is a picnic area, parking, motorcycle practice.

- *Snowmobile Trails*
  The county has two snowmobile trails – Northern Lights Trail (north of Benson and to the west along Highway 12) and Ridge Runner Snowmobile Trail (east of Appleton and to the west to Big Stone County). The Monson Lake State Park has designated trails for snowmobile or cross-country skiing as well.

- *Bike and Pedestrian Trails*
  County bike and pedestrian trails are becoming popular and several potential projects are being discussed for the county such as a bike trail connecting Appleton and Milan and near Swift Falls that has a county park and campground. Currently the cities of Benson and Appleton have bike/pedestrian trails within their city limits.

Table 27. SC Trails

Trail Name	County	Location/ Descriptions	Length (miles)	Surface	Use
Ridgerunners Snowmobile Trail	Big Stone, Chippewa, Swift	Routes throughout the counties	140	Snow	Snowmobile
Northern Lights Snowmobile Trail	Swift, Stevens, Pope	Routes throughout the counties	66	Snow	Snowmobile
Monson Lake State Park	Swift	State Park	1	Natural	Hiking, Snowmobile, and Cross-country
Pomme de Terre River/Canoe Route	Swift	Swift County	Unknown	Water	Canoeing
Appleton/Milan Trail (phase I)	Swift	Within the City of Appleton	2.5	Paved	Walk, Bike, Inline Skating
City of Benson	Swift	Within the City		Paved	Walk, Bike, Inline Skating
Swift County ATV	Swift	East of Appleton on Hwy 59		Dirt	ATV or Motor-cross Bike

Source: UMVRDC Trail Planning Guide 2002

Table 28. SC City Recreational Facilities

City	Parks	Golf	Pool	Tennis Courts	Ball Fields	Outdoor B-Ball Courts	Play-grounds	Outdoor Volleyball	Camping	XC Skiing	Ice Skating	Trails	Museum
Appleton	2	9-hole	X	X	X	X	2	X	X		Outdoor	X	
Benson*	3	18 - hole & Mini	X Indoor & out	X	X	X	2		2	X	Indoor	X	X County Museum
Clontarf													
Danvers	X			X	X		X						
De Graff							X						
Holloway	X				X			X					
Kerkhoven	2	9-hole	X w/ Indoor spa		X	X	X	X	X	X			X
Murdock					X	X	X						X Murdock House

Note: * Also has racquetball courts, bowling, movie theatre
Source: Prairie Waters Visitors Guide and DEED Community Profiles

Transportation

Roads.

Trunk Highway System. Swift County has four Minnesota trunk highways passing through including, 7, 9, 29 and 119. U.S. Trunk Highways include 12 and 59. These roads are constructed and maintained by the Minnesota Department of Transportation (Mn DOT).

County Roads. These roads are established, constructed, and improved by the county board; and are under the sole authority of the county board. Currently, there are 131.5 miles of county roads.

Township Roads. A road established by and under the authority of the township board, or reverted to township jurisdiction by the county board. These roads are constructed and maintained by township boundaries. Township roads stretch to 734 miles.

City Streets. These roads serve as direct access from residential properties and/or commercial establishments and are classified as any street under the jurisdiction of a municipality not otherwise designated as a trunk highway, county state aid street, highway or county highway. City streets stretch 17.2 miles.

For Additional information on roads refer to *Annual Surveillance Monitoring Reports for Transportation* (2004)

Table 29 below identifies all roadway types and number of miles within Swift County. The majority of roads are maintained by townships, followed by County State Aid Highways.

Table 29. SC Roadway Types & Mileage

US Highway	MN Highway	County State Aid Highway	Municipal State Aid Streets	County Roads	Township Roads	Municipal Streets
65.4	67.7	329.5	0.0	131.5	734.0	17.2

Transit.

Mass transit is an essential public service to provide for increased capacity on heavily traveled roads, transportation access to disabled persons or those otherwise unable to drive, supports dense land use development, decreases dependence on car use, and helps prevent the creation of additional air pollution from diminished individual car use.

Transit systems play an important part in the lives of the population of Swift County. Seniors especially benefit from the network of available transit. It is available for all ages needing rides for any reason such as medical appointments, social events, shopping, etc. in the region. The services also provide rides outside the region to places such as Minneapolis/St. Paul, Fargo/Moorhead, St. Cloud, Willmar, Marshall, and Watertown, SD.

Swift County is served by two transit systems: Benson Heartland Express and Prairie Five RIDES. The buses run from approximately 7:00 a.m. to 5:00 p.m., Monday through Friday for both systems. Benson Heartland Express operates two buses (small buses) in the city of Benson. Prairie Five RIDES a regional system serving the five counties of Big Stone, Chippewa, Lac qui Parle, Swift and Yellow Medicine has 10 vehicles (small buses) and coordinates a volunteer driver program. RIDES also operates the bus service for the city of Appleton. In 2007, Prairie Five RIDES gave 76,851 rides driving 407,018 miles, compared to 2008 where they provided 83,405 rides and drove 399,071 miles.

Airports.

Swift County has airports in Appleton, Benson, and Murdock. The Appleton Municipal Airport has a paved, 3500 feet runway, 75 ft wide and a turf runway that is 2700 feet in length and 150 feet in width. The Benson Municipal Airport has a paved runway 4000 feet long and 75 feet wide and is estimated to land six to eight planes per day. The Murdock Municipal Airport is a turf runway that is 3,415 feet long and 150 feet wide used for agricultural services.

Railroads.

There are two active rail lines in Swift County and the Burlington Northern Santa Fe (BNSF) operates both tracks. The tracks in the county span approximately 51 miles. BNSF track in the east runs 12 trains a day on this line. The BNSF rail line owns approximately 1,626 miles of line, or about 35 percent of the total rail mileage in the state. It runs from Appleton to Benson where it connects to the BNSF. The other BNSF line runs five trains a day on this line. The rail system is mainly for agriculture purposes since there is no coach coverage in the county. Each city has a grain elevator served by the rail system.

Public Facilities

Public facilities have been mapped and are found in Appendix 8. Important public facilities include city and town offices, the county courthouse, armories, libraries, public service facilities and historic resources in Swift County. These places provide both public services and create an important sense of community character. Most of these facilities are located in the heart of the city. The loss of these facilities in most cases would cripple the day-to-day activities and functioning of the community. **Critical facilities** defined as facilities whose incapacity or destruction would have a debilitating impact on the defense or economic security of the community, are identified below in Table 29 (following page) for all cities within Swift County. Buildings on the National Historic Register include the County Courthouse, Murdock House and Pioneer Public Television.

Table 30. SC Public Facilities by City

Appleton	
Airport	323 W. Schlieman
City Garage	431 N. Hering St
City Office*	323 W. Schlieman
Fire Department*	230 W. Snelling
Library	323 W. Schlieman
Police Station*	323 W. Schlieman
National Guard Armory	25 N. Munsterman Street
Appleton Health Services*	30 S. Behl Street
Benson	
Swift County Court House*	415 9th Avenue
Airport	1410 Kansas
Fire Station*	1410 Kansas
Police Station*	1410 Kansas
Municipal Utilities*	281 20th Street
City Offices*	1410 Kansas
Library	200 13th St. N.
Street Department	1540 Kansas
Sheriff Department*	301 14th Street N.
Swift County Hospital*	1815 Wisconsin Avenue
Meadow Lane Nursing Home*	2209 Utah Avenue
County Highway Garage	1000 15th Street S.
Homestead Places	287 Hwy. 29 414 13th Street S.
Heartland Girls Ranch	185 Hwy. 9 N.E.
Clontarf	
Fire Station*	Grace Avenue
Danvers	
City Offices*	109 Liberty St. S.
Fire Station*	412 Minnesota Avenue
Village Hall	111 Liberty St. S.

DeGraff	
City Offices	307 Atlantic Avenue
Fire Station	102 4th St. S.
Holloway	
City Offices/Community Center*	110 Rand Street
Kerkhoven	
City Office	206 N. 9th Street
Fire Station/Ambulance	206 N. 9th Street
Library	206 N. 9th Street
Murdock	
Ambulance/Rescue Squad	300 Frederick Street
City Offices	300 Frederick Street
Fire Station	300 Frederick Street
Homestead Place	116 Schaaf Street
Airport	Rural Route

***Critical facilities. Water towers and water treatment plants in cities would also be classified as a critical facility.**

Sewer and Water Systems

All cities aside from DeGraff are served by sanitary sewer, with Danvers and Clontarf as two communities without public water. Table 31 indicates sewer and water systems for all communities in the county.

Table 31. SC Communities Served by Public Water, Storm Sewer and Sanitary Sewer Systems

Community	Storm Sewer	Sanitary Sewer	Public Water
Appleton	X	X	X
Holloway	X	X	X
Danvers	X	X	
Benson	X	X	X
Clontarf		X	
DeGraff			X
Murdock	X	X	X
Kerkhoven	X	X	X

RESPONSE

A county's ability to respond to an emergency situation or event is based on service areas, facilities and equipment. An understanding of response times and abilities is critical in protecting the citizens of Swift County. The existing facilities and equipment in the county are intended to address local needs and support regional needs. Swift County is considered a mutual aid county and provides and receives support from adjacent counties. The following summary and description serves as an inventory of the response facilities for Swift County.

Medical Facilities

All medical services within Swift County are listed below by community in Table 32. Swift County is served by two hospitals, served by local physicians and regional specialists, and two clinics. There are seven ambulances and trained First Responders throughout the entire county serving every community. Appleton and Benson have trained EMTs for their ambulance services. Several locations have been identified as emergency treatment centers and fire stations default as emergency treatment centers in the event a center has not been identified in a community or the identified center cannot be used.

Table 32. SC Medical Services

City	Hospital	Clinic	Ambulance Service	First Responders/Rescue Squad/EMTs	Emergency Treatment Centers	Nursing Homes/Assisted Living
Appleton	X	X	2 Fire Station	Appleton Police Appleton EMTs, Artichoke First Responders	National Guard Armory Hospital/Clinic	X
Benson	X	X	2 Hospital	Benson Police EMTs	Benson High School Our Redeemer's Church Hospital/Clinic	X
Clontarf				X Rescue Squad		
Danvers				X First Responders		
DeGraff						
Holloway						
Kerkhoven			2 Fire Station	X First Responders	KMS High School	
Murdock			1 Fire Station	X First Responders	KMS Elementary School	X

Note: Camp Lake Township is served by the Boondockers First Responders.
Source: Swift County Emergency Operations Plan and Resource Guide, City Surveys 2009

County Public Health Department.

Countryside Public Health Services is the County Department of Health for Chippewa, Swift, Lac qui Parle, Big Stone, and Yellow Medicine Counties. Part of their mission is designed to protect and promote health services of the general population by emphasizing the prevention of disease, injury, disability, and prevention of death thought assessment and the promotion of effective coordination and use of community resources, and by extending health services into the community

Fire Services

There are no full-time fire departments in Swift County as all fire departments are volunteer-based with responsibilities divided into four response zones and operate under mutual aid agreements (Table 33). The Department of Natural Resources is responsible for fire protection on state forest and parkland. The DNR works closely with local fire units for protection of these lands through contracting agreements. Both the U.S. Forest Service and the DNR work closely with local fire fighters whenever danger of woodland and urban fires is elevated. Additionally, all fire departments have mutual aid agreements amongst each other.

Table 33. SC City Fire Departments

City	Pumpers	Tankers	Aerial/Ladders /Grass Rigs	Air Packs	Number of Firemen
Appleton	3	3	1 aerial 2 grass rigs 2 rescue vans	18	25
Benson	3	2	3 grass rigs 1 aerial ladder (85 ft)	20	33
Clontarf	1	1	1 grass rig	4	
Danvers					
DeGraff					
Kerkhoven	2	1	1 grass rig	8	
Murdock					

Source: Swift County Emergency Operations Plan and Resource Guide

The Appleton Fire Department is a member of the West Central Firefighters Association. The other cities in the county are part of the Lake Firefighters Association. These community fire departments agreed to be of help to other communities in the West Central Firefighters Association in case of emergency.

In the event of a disaster fire departments assist in dissemination of warnings, evacuations, search and rescue efforts, and have the primary responsibility for responding to hazardous materials incidents, provide first responder and EMT services; and SkyWarn personnel.

Public Safety

Emergency Operations Center.

The Swift County Emergency Operations Center for the county is located in the basement of the Law Enforcement Center in Benson with a backup in the Benson city office. In all other cities the fire stations are the Emergency Operations Centers. The mayors or their designee would make the decision to move the Emergency Operations Center if necessary. Holloway is covered by the city of Appleton.

Emergency Warning Systems.

The Swift County Public Service Answering Point (PSAP) is the Swift County Warning Point. The Swift County Dispatch Center has overall responsibility to ensure that all notifications received by the warning point are handled properly. The Swift County Warning Points are responsible for proper receipt and dissemination of all emergency notifications to local TV, local radio stations and county fire departments.

The Chanhassen NWS Warning Point is responsible for disseminating all watches and warnings to the Swift County Warning Point; except warnings for conditions generated within the county itself. The National Weather Service has a tower located in Appleton.

There are a total of seven sirens in the county – one in each community except Holloway. The Public Service Answering Point (County Dispatcher) can activate the systems in Appleton, Benson, Murdock and Kerkhoven; while other communities must manually activate the systems.

Direction and Control.

The Swift County board of commissioners is ultimately responsible for providing direction and control of county government resources in response to a disaster. The line of succession on the board is as follows:

1. Chairperson Swift County board of commissioners
2. Vice-chairperson Swift County board of commissioners
3. Other commissioners in order of seniority
4. County Administrator

The Swift County Emergency Manager will implement this plan and coordinate emergency operations. Line of succession after the County Emergency Manager is as follows:

1. Swift County Emergency Manager
2. Swift County Sheriff/Assistant Emergency Manager
3. Swift County Chief Deputy
4. Other Swift County personnel with appropriate training and experience
5. City Police Chiefs
6. Swift County Fire Chief

The Swift County Administrator is the Public Information Officer. If unavailable, the County Auditor may serve as an alternate.

Spotters.
There are severe weather spotters in all eight communities. All fire fighters are trained in SkyWarn. These individuals are provided training on a semi-annual basis.

Law Enforcement.
Police stations are located in Appleton and Benson. The Sheriff Department is located in Benson and each has the following features listed in Table 34 below.

Table 34. SC Law Enforcement Capabilities

Communities	Officers	Squad Cars
City of Appleton	4 FTE 5 PT	2 – 1 SUV
City of Benson*	5 FTE 2-3 PT	4 – 1 SUV
Sheriff Department	6 FTE	6 – 1 SUV 2 Boats (water rescue)

Benson has canine services of two dogs that have not met the certification but will potentially serve the community in the near future.

Media
Swift County has one radio station in Benson. The station identification is KSCR. There are three weekly newspapers – Appleton Press, Benson Swift County Monitor and the Kerkhoven Banner. Pioneer Public Television is located in Appleton.

Heavy Equipment Inventory
The County Highway Department has equipment that can be used in case of emergencies. The National Guard Units in Appleton and Benson, all of the cities and the DNR have equipment that can aid in disaster cleanup. Mutual aid agreements or contracts amongst street departments, county highway department, and other entities with heavy equipment would be helpful to have in place for quicker response and equipment inventory. Several private contractors of heavy equipment have resources available in the event of emergencies and include: Kennedy Excavating, Benson; Commerford Construction, Danvers; T & K Kennedy Excavating, Benson; Van Hevelen Construction, Kerkhoven; Greg Walsh Enterprises, Murdock; Rothers Construction, Kerkhoven; and Benson Gravel, Kerkhoven.

The city of Benson has its own electric utility with a crew of four – one electrician and three linemen that have heavy equipment available as well.

Veterinary Services
There are veterinary clinics in both Appleton and Benson.

Individual Emergency Response Plans
A special Emergency Plan has been developed for the Prairie Correctional Facility in the event of a disturbance or emergency at the prison. Parties who have signed on to the agreement include the prison, Appleton Police Department, Swift County Sheriff Department, Minnesota Highway Patrol, National Guard, Appleton Health Services, and the Minnesota Department of Corrections. The county utilizes the services of the Otter Tail County SWAT, Kandiyohi County SWAT and C6 Drug Task Force, and Willmar to address special emergency issues that local enforcement has limited training/experience with or they need to draw on additional support.

The following have developed and have in place "on-site emergency response plans" or "crisis plans" Table 35:

Table 35. SC Facilities with On-Site Emergency Response Plans or Crisis Plans

Dome Pipeline Corporation	Lac qui Parle Valley Public Schools	Appleton Health Services
Koch Industries	Benson Public Schools	Benson Hospital
Glacial Plains Cooperative	KMS Public Schools	Meadow Lane Nursing Home
Western Consolidated Corporation	Chippewa Valley Ethanol Corp	Murdock Assisted Living
Johnson Fertilizer Services	Heartland Girls Ranch	Countryside Public Health
Crop Production Services Inc.	Alliance Pipeline	Homestead Place (Murdock)
Homestead Places (Benson South, Benson)		

PROPERTY

Land Uses
Land uses outside city limits are regulated in Swift County through county ordinances. The Swift County Comprehensive Plan 2007, details the land use within the county as well as individual city comprehensive plans. The cities of Benson and Appleton have comprehensive plans in place.

Building Codes/Zoning Ordinances
The communities of Benson and Appleton have adopted the state building codes and have zoning ordinances.

Manufactured Home Parks
There are manufactured home parks in Appleton (3), Benson (2), Murdock (1) and Kerkhoven (2). City ordinances govern these parks as well as public health ordinances.

Public Health Laws
Public health laws assure the conditions in which people's health and safety can be protected by preventing disease, prolonging life, and promoting physical and mental health. Laws control the sanitation of the environment and community infections setting a standard of living adequate for the maintenance of health. Laws are focused on prevention not treatment.

SWIFT COUNTY
CHAPTER THREE: HAZARD INVENTORY

A public meeting was held on July 16, 2009 to identify past and potential hazards. Task force members, interested parties and the public were invited to the meeting through mailings and press releases, approximately 15 people attended. The hazard inventory chapter is divided into two parts: Natural Hazards and Technological Hazards, defined by the Minnesota State Hazard Mitigation Plan.

Definition – Natural Hazard
Natural hazards are those presented by the physical world, rather than those presented by humans. In natural hazards there is an interaction between the physical world, the constructed environment, and the people that occupy them. They are primarily atmospheric or geologic.

Definition – Technological Hazards
Technological hazards are those presented by humans, rather than those presented by nature. They are comprised of substances and processes that are flammable, combustible, explosive, toxic, noxious, corrosive, oxidizers, irritants, or radioactive.

NATURAL HAZARDS – PRESENTED BY THE PHYSICAL WORLD

Introduction
Source: Minnesota State Hazard Mitigation Plan:
Guarding against the unpredictable forces of nature has always been a goal of society. Ways to accomplish this goal include informing society of known hazards and constructing building environments to prevent serious damage from occurring. As the forces of nature can strike with unpredictable fury, there is always an element of risk associated with natural hazards. To inventory hazards that have occurred in Swift County, the Local Task Force committee identified and describe hazards, established relationships between hazards, recognized current plans and programs in place to mitigate hazards, and highlighted gaps and overall deficiencies in current plans and programs.

For the purposes of this plan, Natural Hazards are organized into these categories:

1. **Violent Storms & Extreme Temperatures**
   a. **Winter Storms**
      Blizzards, Ice Storms, Sleet Storms, Heavy Snow or Snowstorm
   b. **Summer Storms**
      Thunderstorms, Lightning, Tornados, Hailstorms, Windstorms
   c. **Extreme Temperatures**
      Summer Heat, Winter Cold
2. **Floods**
3. **Drought**
4. **Wildfire**
5. **Dam Failure**

Hazard: Violent Storms

Swift County is routinely affected by various types of violent seasonal storms and events throughout the entire year. It shall be noted that some storms are more violent than others (tornados), whereas other types of storms last for longer periods of time and the effects of such storms build over time (sleet and ice storms). Thus for practical purposes, the seasonal events category encompasses winter and summer storms, as well as extreme temperatures occurring throughout the year in Swift County.

Winter Storms
Swift County experiences three basic types of winter storms: blizzards, heavy snow events, ice storms and extreme temperatures. Ice storms include freezing rain, freezing drizzle and sleet.

Blizzards. Blizzards, the most violent of winter storms, are characterized by low temperatures usually below 20° Fahrenheit, strong winds in excess of 35 miles per hour, and blowing snow that creates visibility issues at one-quarter mile or less for at least three hours. Blowing snow leads to whiteouts and drifting on the roadways, causing stranded motorists and the difficulty or inability of emergency vehicles to respond to incidents. While blizzards may occur in Swift County from October through April, they most commonly occur from November through March.

Ice Storms. Freezing rain, the most serious of ice storms, occurs during a precipitation event when warm air aloft exceeds 32° Fahrenheit while the surface remains below the freezing point. When precipitation originating as rain or drizzle contacts physical structures on the surface, ice forms on all surfaces creating problems for traffic, utility lines and tree limbs.

Sleet Storms. Sleet forms when precipitation originating as rain falls through a rather large layer of the atmosphere with below freezing temperatures, allowing raindrops to freeze before reaching the ground. Sleet is also commonly referred to as ice pellets. Sleet storms are usually of shorter duration than freezing rain and generally create fewer problems.

Heavy Snow or Snowstorm. In Minnesota six or more inches of snow define a heavy snow event in a 12-hour period and eight or more inches of snow in a 24-hour period. Snow is considered heavy when visibility drops below one-quarter mile regardless of wind speed.

History of Winter Storms in Swift County
Swift County (SC) usually experiences at least one occurrence of each of the above types of winter storms annually, often the same type more than once shown in Tables 36 and 37 below.

Table 36. SC Winter Storms 1993 – 2003

Winter of:	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003
Events:	4	4	3	3	1	4	2	5	4	1
Events include: blizzards, winter storm, heavy snow, blowing snow, ice storm, glaze, low and extreme wind chills										

Source: Storm Database – National Climatic Data Center 2010

Table 37. SC Winter Storms 2003 – 2010

Winter of:	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
Events:	4	3	4	0	2	7	5
	Events include: blizzards, winter storm, heavy snow, blowing snow, ice storm, glaze, frost/freeze, low and extreme wind chills						

Source: Storm Database – National Climatic Data Center 2010

Blizzards are relatively common in Swift County. From November 1993 until January 2009, the National Climatic Data Center has reported thirteen blizzards and 70 instances of winter weather. The weather station for the Regional Climate Center in Swift County is located in Benson located in the center of the county. Table 38 shows the snowfall extremes for this weather station. Benson had a record season of 79.5 inches of snowfall in 1968-1969.

Table 38. SC Snowfall Extremes by Month

Monthly High	Benson	
	High (in)	**Year**
January	27.2	1975
February	24.1	1967
March	37.2	1965
April	10.4	1957
May	2.1	1954
June - September	0	-
October	4.6	1970
November	24.8	1985
December	29.5	1968
Season (Aug - Jul)	79.5	1968-1969
	1-Day Max (in)	**Date**
January	9.6	1/2/1960
February	8.2	2/25/2001
March	18.7	3/3/1985
April	9.1	4/13/1996
May	1.9	5/2/1954
June - September	-	-
October	4.2	10/10/1970
November	11	11/27/2001
December	10.2	12/4/1955
Season (July-June)	18.7	3/3/1985

Source: Midwest Regional Climate Center 2000

The winters of 1995–1996 and 1996–1997 were exceptionally extreme. In the season of 1995-1996, three blizzards were reported. Three blizzards were also reported in 1996-1997. In addition, heavy snow, high wind and winter storms made these two winters difficult for Swift County. There were many school cancellations and high costs to remove the snow. The winter of 1996-1997 was declared a Presidential Disaster because of the snow emergency. Snow removal was extremely expensive because of the large amounts of snow. The snow load also damaged and destroyed buildings. Several of the cities and townships as well as the county applied for FEMA assistance for their snow removal.
Source: Midwest Regional Climate Center

Relationship to other Hazards: Cascading Effects
As much of Swift County is relatively flat, dangerous winter conditions are created when the wind blows causing drifting, white outs and wind chills. Drifting and blizzard conditions can occur even if there are no new snow accumulations. During the winter of 1996-1997, drifts were higher than most street vehicles.

Flooding. The winter of 1996-1997 also contributed to record spring flooding. This event is discussed in the flood section.

Summer Storms
Summer storms affecting Swift County include thunderstorms, tornados, hailstorms, windstorms and extreme heat.

Thunderstorms. Thunderstorms are the most common summer storm in Swift County, occurring primarily during the months of May through August with the most severe storms most likely to occur from mid-May through mid-July. Thunderstorms are usually localized produced by a cumulonimbus clouds, always accompanied by lightening, and often having strong wind gusts, heavy rain and sometimes hail or tornadoes.

Lightning. While windstorms and tornadoes are significant hazards associated with severe thunderstorms, lightning is probably the most frequent hazard associated with thunderstorms and the hazard that causes the largest loss of life. Lightning occurs to balance the difference between positive and negative discharges within a cloud, between two clouds and between the cloud and the ground. For example, a negative charge at the base of the cloud is attracted to a positive charge on the ground. When the difference between the two charges becomes great enough a lightning bolt strikes. The charge is usually strongest on tall buildings, trees and other objects protruding from the surface and consequently such objects are more likely to be struck than lower objects.

While cloud-to-ground lightning poses the greatest threat to people and objects on the ground it actually accounts for only 20 percent of all lightning strikes. The remaining lightning occurs within the cloud, from cloud to cloud or from the ground to the cloud with in-cloud lightning being the most common.

Tornadoes. Tornadoes are the most violent of all storms. A tornado is essentially a rapidly rotating column of air, spawned by a cumulonimbus cloud. When it drops to the ground it can create significant damage and loss of life. Tornadoes always occur in association with

thunderstorms. While somewhat more common in southern Minnesota, they have occurred in all counties in the state.

Tornadoes are most likely to occur during warm humid spells during the months of May, June, July and August; but have occurred as early as March and as late as November in Minnesota. On occasion tornadoes called cold air funnels occur after the passage of a cold front when air is much less humid but the air aloft is very cold creating enough instability to make funnel clouds. Most tornadoes occur during the warm part of the day – late afternoon or early evening; over 80 percent of tornadoes occur between noon and midnight.

The tornado's path typically ranges from 250 feet to a quarter of a mile in width. The speed of a tornado varies but commonly is between 20 and 30 mph; however, larger and faster tornadoes have occurred in Minnesota. Most tornadoes stay on the ground for less than five minutes. Tornadoes frequently move from the southwest to the northeast but this, too, is variable and consequently cannot be counted on in all instances.

Hailstorms. Hail is considered ice and is a by-product of severe thunderstorms. Hail is formed when strong updrafts within the cumulonimbus cloud carry water droplets above the freezing level or when ice pellets in the cloud collide with water droplets. The water droplets freeze or attach themselves to the ice pellets and begin to freeze as strong updraft winds toss the pellets and droplets back up into colder regions of the cloud. Both gravity and downdrafts in the cloud pull the pellets down, where they encounter more droplets that attach and freeze as the pellets are tossed once again to higher levels in the cloud. This process continues until the hailstones become too heavy to be supported by the updrafts and fall to the ground as hail.

Most hail in Minnesota ranges in size from pea-size to golf-ball sized hail. Larger hailstones have been reported but occur much less frequently. Strong updrafts are necessary within the cloud to form hail. Strong updrafts are usually associated with severe thunderstorms. Area coverage of individual hailstorms is highly variable and spotty because of the changing nature of the cumulonimbus cloud. While, almost all areas of southern Minnesota can expect some hail during the summer months most hail is not large enough to cause significant crop or property damage.

Windstorms. Windstorms can and do occur in all months of the year; however, the most severe windstorms usually occur during severe thunderstorms in the warm months. These include tornadoes and downburst or straight line winds. Winds of greater than 60 mph are also associated with intense winter, spring and fall low-pressure systems. These inflict damage to buildings and in some cases overturn high profile vehicles.

A downburst is a severe localized downdraft from a thunderstorm or a rain shower. This outflow of cool or colder air can create damaging winds at or near the surface. Winds up to 130 mph have been reported in the strongest thunderstorms. Downburst winds can cause as much damage as a small tornado and are frequently confused with tornadoes because of the extensive damage they cause. As these downburst winds spread out they are often referred to as straight-line winds. They can cause major structural and tree damage over a relatively large area.

History of Summer Storms in Swift County
At one time or another Swift County has experienced all of the summer storms described above. Table 36 below describes the frequency of summer storms in Swift County. Thunderstorms, lightning, hail, and windstorms are relatively common and can topple trees, cause destruction to homes as well as destroy agriculture crops.

According to the Storm Database, the county has experienced 32 tornados since 1952 as well as four funnel clouds. Of the 27 tornados, 19 were classified as F0, eight were classified as F1, and four were classified as F2. Many of the tornados occurred in rural areas and downed trees, destroyed farm buildings or in some cases did little damage. Ten of the 27 tornados that were recorded occurred on June 11, 2001 most classified as F0 or F1. In 2001, an F2 hit Benson and DeGraff. The two most recent tornados occurred in July of 2007 and 2008. On July 31, 2008 the City of Appleton was struck by a tornado which downed trees, utility power lines (electrical and telephone), damaged public buildings and restricted access along roadways. On July 13, 2009 Swift Falls experienced a tornado causing downed trees and power lines, as well as damage to turkey and pole barns, machine sheds and houses. Table 35 below identifies all summer storms in Swift County from 1952 to 2008.

Benson/DeGraff 2001 Tornado.
On the 11th of June, 2001, ten tornados swirled around in Swift County, after several brief tornadoes circled around Danvers, a much larger tornado, F2, struck the east side of Benson and traveled southeast along Highway 12. Seventy-one structures were damaged, including four homes and seven businesses within the city limits. Seven people were injured when they fled in a van just as the tornado was hitting the vehicle on the eastern edge of Benson. One boy was critically injured and was discharged from the hospital two weeks later. The damage listed encompasses the damage from all ten tornadoes and wind events in Swift County on that day**.**

The tornado traveled eastward from Benson on to the city of DeGraff. The tornado lifted off in DeGraff, but not before damaging one last grain bin, taking the roof off a grain elevator, and knocking several sheds/garages down in DeGraff. City officials said that probably 70 percent of the residents had damage from the storm – uprooted trees, shingles, windows, and debris.

Table 39. SC Summer Storms from 1955 – 2010

	Thunder storms 1957-2010	Lighting 1997 has only report	Tornados 1952-2010	Hailstorms 1957 - 2008	Windstorms* 1990-2010
Events	44	1	33	73	11
Years	54	--	58	54	20
Average per year	.81	--	.57	1.35	.55

*** Wind and thunderstorms of over 60 kts.**
Source: National Climatic Data Center – Event Query 2010

Relationship to Other Hazards – Cascading Effects
Flooding. Heavy snows, snow melt and thunderstorms can cause flooding, which disrupt emergency response, transportation and communication.

Transportation, Emergency Services, and Utility. Violent storms of all types can cause property damage, loss of life, personal injury, disrupt transportation and communication and emergency services and threaten public health and safety and be significant threats to essential public infrastructure and services such as power, water supply systems and sanitary systems. Due to the increased demand for services, a power outage caused by seasonal events is more likely to affect a greater area than previously anticipated. Further, the storms listed above could down power lines, which may lead to fires.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Plans and Programs for Seasonal Events

Severe Storm Spotters Network. This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers (SkyWarn) to spot severe storm conditions and report this information to the County Sheriff. No tornado warning is given unless the storm has been spotted by a person or is confirmed by NWS radar reports. Swift County has several trained severe storm spotters who report directly to the Swift County Sheriff who reports to the NWS when severe weather is observed. Further, all firefighters are trained to spot severe storms.

Severe Weather Awareness Week. Each spring Swift County Emergency Management personnel conduct a severe weather-training workshop for school, hospital and nursing home personnel.

Severe Weather Shelters. Appleton and Benson have identified safe shelter locations in case of severe weather for the manufactured home parks in their communities.

Windbreaks. MnDOT and the Swift County Soil and Water Conservation District have been exploring the use of natural snow fences to protect highways from drifting snow. Strategically planted strips of trees, shrubs and or native grasses can be used as natural snow fences. USDA has been contacted to access CRP resources to help implement the program.

Live Weather Conditions. All of the schools in the county have computer/internet access to online weather radar.

KSCR Radio Station. The local radio station in Benson provides weather information, especially during storm events (FM 93.5).

Weather Radios. Swift County has a weather tower near Appleton providing excellent range coverage for residents of the county.

Severe Weather Warning System. Seven of the county's eight cities have emergency sirens to warn residents in the event of severe weather. Holloway is the only city that does not have a siren, but is covered by Appleton.

Publication "The Right Tree". Minnesota Power has published *The Right Tree.* The publication can be useful in selecting proper trees – especially around power lines. Proper maintenance of trees can also prevent problems. DNR forestry staff as well as private consultants are available to work with communities to develop community forestry programs.

Public Health Laws. Public health rules are in place for manufactured home parks that cover everything outside the structure – water supply, sewage and garbage disposal, fireproof skirting, tie downs, clutter control, animal and rodent control and spacing. Issues inside the house – aside from garbage house conditions are dealt by the city with adopted building codes or trailer specific city ordinances (Appleton and Benson).

Program Gaps and Deficiencies

- Approximately 10-20 percent of the homes in the county lack basements that would provide shelter in the event of a tornado or damaging winds from a severe thunderstorm.
- Manufactured home parks in both Benson and Appleton are quite old and are not provided adequate safe shelters for residents within the parks. Safe shelters have been identified for the parks but are more than one block away. Most homes should be equipped with tie-downs. Benson campgrounds do not have safe shelters within the campground.
- City ordinances for manufactured home parks fall short; however Appleton now requires tie-downs. Areas of concern are around safe shelters, tie-downs, age of home, and meeting current codes (electrical, heating, and fire).
- Countryside Public Health is updating safety plans for manufactured home parks that cities must review and approve.
- Most of the power lines in the county are above ground and subject to damage from severe storms, wind and falling trees. There are no ordinances discouraging planting trees near power lines.
- Local radio stations do provide warnings but are effective only if tuned to and the information they receive is from the National Weather Service. They are not in communication with the sheriff's department for local storm information.
- Most of the county's severe weather warning systems sirens do not have back up power sources. Most rural residents are outside of the range of these sirens.

Hazard: Extreme Temperatures

Located near the center of the continent, Minnesota and Swift County experience the extremes of summer heat and winter cold. Summer temperatures in Swift County have exceeded 100 ^{o} F on several occasions while winter temperatures have been as cold as 35° F below zero. Both heat and cold pose risks for people, animals, equipment and infrastructure.

History of Summer Heat in Swift County

Located in the center of the continent, Minnesota and Swift County experience extremes of summer heat and winter cold. Summer temperatures in Swift County have exceeded 100 ^{o} F on occasion while winter temperatures have been as cold as 35° below zero. Both heat and cold temperatures pose risks for people, animals, equipment and infrastructure.

The average July maximum temperature in most of Swift County is approximately 83 ^{o} F, the warmest summer month. On average the county experiences 13 days of 90 degrees or higher during a summer. The all time recorded high is 104° F in Benson, which occurred in 1988.

While summers are typically warm but pleasant in Swift County, it is not uncommon to get extended warm spells with high dew points and temperatures in the 90s for several days in a row. Extended periods of warm, humid weather can create significant risks for people, particularly the elderly who may lack air conditioning or proper insulation or ventilation in their homes. Animals are also at risk during extended periods of heat and humidity.

In recent years a heat index has been developed that combines humidity and temperature to better reflect the risk of warm weather to animals and people. The index measures the apparent temperature in the shade. People exposed to the sun would experience an even higher apparent temperature. A heat index of 105 is considered dangerous. With prolonged exposure it could result in heat stroke, heat exhaustion and heat cramps. People are reminded to use extreme caution when the heat index is between 95 and 105. A heat index of 95 occurs when the temperature is 90 degrees and the relative humidity is 50 percent. This is more of a problem when these conditions are present for several days in a row as it causes buildings to become hotter and hotter as the conditions persist.

According to the State Climatologist, there is some evidence that current dew points are not only higher, but are occurring with greater frequency than was true in the past. If that is the case, Swift County residents can expect an increasing number of hours with heat indexes in the danger category.

History of Winter Cold in Swift County

On average, January is the coldest month of winter, with daytime highs averaging 22° F. and nighttime lows of 0° F. However, these averages do not tell the entire story. Maximum temperatures in January have been as high as 63˚ F. and minimums as low as 35˚ F. below 0° in Swift County. The winter months on average produce about 33 days of 0° F. or lower.

Cold weather is often accompanied by winds creating a dangerous wind chill effect, putting both people and livestock at risk. Most of the county is at risk from this kind of weather due to its relatively flat open character, whereas more wooded, hilly areas of the county are less severely affected. Wind chills of minus 35˚ F. and lower can present significant risk, particularly if people are not properly clothed or protected. A 15° F. below air temperature with wind speeds of 10 mile per hour creates a wind chill of 35˚F. below zero. Under these conditions, in the open, frostbite can occur in minutes on exposed skin.

Relationship to Other Hazards – Cascading Effects

Violent Storms. Temperature extremes can be associated with weather extremes, such as snowstorms and blizzards or summer extremes of tornadoes and hailstorms.

Drought. Extended high temperature extremes can phase into drought.

Wildfire and Structure Fires. Dry, hot condition can increase the risk of wildfires.

Collapse Structures. As structures age, structural weakness develop from building material deterioration, weakness or failure; settling; or other factors. Tornadoes, floods, high winds, snow, heavy rainfall, may result in major damage to structures.

Utility Failure. Heavy use can cause utility failure or damage.

Plans and Programs for Extreme Temperatures
The following programs and projects are in addition to the ones already mentioned for violent storms:

School Closings. The county's school districts each have their own policy of closing schools. Local radio stations partner with the districts to make sure the announcements are out by 6:00 a.m. or earlier. All districts use the Minneapolis TV stations to announce closings both on air and online.

Heat Advisories. The local radio and TV media in concert with the National Weather Service issues a heat advisory when the combination of temperature and humidity create risks for people and animals. A heat index of 105 to 114 warrants a heat advisory. This occurs when air temperature reaches 95 and the relative humidity is 50 percent. An excessive heat warning is issued when the heat index reaches 115. This occurs with an air temperature of 95 degrees and relative humidity of 60 percent. An index of 115 or higher creates severe risk for both humans and animals.

Wind Chill Warnings. The local radio and TV media in concert with the National Weather Service issues a wind chill warning when temperatures are 30° F or lower. Severe wind chill warnings are provided when conditions warrant and when severe risk and safety is a factor.

Hourly Data. Hourly weather data is available from the Automatic Weather Observation Station at the Benson airport. Information from this station could be utilized more and shared with the local radio station to distribute to the public. It is underutilized.

Program Gaps or Deficiencies
- None of the schools have automated weather stations providing current weather conditions. Additional stations at schools throughout the county would provide more current information and quicker response to dangerous and changing weather conditions.
- Hourly weather data is available from the automated weather station at the Benson airport, but is not staffed and sharing the data and information is not done. Moreover, conditions in the northwestern part of the county will have already changed with the passage of cold fronts moving in from the northwest, making the airport data of little use for people in the northwestern and northern part of the county. It would be helpful to have this system in the western part of the county as well.

Hazard: Flood

A flood is defined as an overflowing of water onto an area of land that is normally dry. For floodplain management purposes, the Federal Emergency Management Agency uses the following definition of "100-year flood." Other water hazards considered in this section include flash floods and washouts.

The term "100-year flood" is misleading - it is not a flood that will occur once every 100 years; rather, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. Thus, a 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. A structure located within a special flood hazard area shown on a map has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage. One-hundred year floodplains have been identified, mapped and used for further analysis using the county's Geographic Information System (GIS).

Floods generally occur from natural causes, usually weather-related, such as a sudden snowmelt, often in conjunction with a wet or rainy spring or with sudden and very heavy rainfalls. Floods can, however, result from human causes such as a dam impoundment bursting. Other water-related hazards include wash-outs and ice freezes that affect dams and culverts. In the spring of 2009 and 2010, a great amount of water overflowed roads, causing a major washout and road closures throughout the county.

History of Floods in Swift County

The most severe flooding in Swift County occurs along the Pomme de Terre and Chippewa Rivers when there is excess rainfall, ice blockage of the channels or rapid spring snow melt. Flood damage may also be associated with poorly maintained or undersized ditches, excess drainage or lack of retention structures. This affects agricultural land and road washouts.

Swift County has experienced three flooding events in the last 36 years that took place in July 1995,the spring of 1997 and spring of 2001 – two were considered 100-year floods. It followed winters of high snowfall and were springs of high rainfall and the soil had low permeability qualities. Areas mostly affected were areas directly adjacent to the river channels in townships and the cities of Appleton and Benson. Flood fighting efforts included hundreds of volunteers filling sandbags. Many roads and bridges were closed entirely and required being rebuilt after the flood. It should be noted that ice flow or frazzle ice have increased flooding issues on many occasions during spring flows. Two flash floods occurred in 2005 (county-wide) and in Appleton in 2006. The latest water event took place in the spring of 2009, where waters took over roads causing numerous washouts, resulting in major breeches in road surfaces.

Factors that contributed to the 1997 flooding include:

- heavy autumn precipitation
- extraordinary winter snowfall
- less than ideal snowmelt scenario
- heavy early spring precipitation

Factors that contributed to the 2001 flooding include:

- significant autumn precipitation
- heavy winter snowfall
- less than ideal snowmelt scenario
- record-breaking April precipitation

Source: MnDNR Waters Summary (See Appendix 3)

The following reports were extracted from the Storm Database (Figures 2 and 3):
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms

Figure 2

July 2, 1995

"Chippewa and Swift County's extreme rainfall between five and 15 inches resulted in severe property and crop damage. Numerous fields and roads were washed out. Hay bales were floating in fields. **Crop damage in Swift County affected 180,000 acres. 55,000 acres were a total loss.** This was the second highest crest ever of the Chippewa River at Milan. The river flooding subsided by July 10th."

March 26 – 31, 1997

"Above normal temperatures during the last week of March began melting a deep snow cover across much of west central into central Minnesota. Snow depth rank was in the 80 to 90th percentile over much of the area measured on 3/20/97. The snow cover had high moisture content. In addition, a spring storm deposited a mixture of rain and fresh snow over the area on 3/24/97, immediately preceding the warm temperatures. The flooding resulted in severe losses to both public and private property. Damage was extensive to roads, bridges, culverts, agricultural drainage areas, homes and businesses. More details will be in the April report.**"**

Figure 3

April 1 – April 10, 1997

"Above normal temperatures during the last week of March began melting a deep snow cover across much of west central into parts of central Minnesota. Snow depth rank was in the 80 to 90th percentile over the area as measured on 3/20/97. The snow cover had high moisture content. In addition, several storms deposited additional rain and snow over the area on 3/24/97 and 4/5/97. The flooding resulted in severe losses to both public and private property. Damage was extensive to roads, bridges, culverts, agricultural drainage areas, homes and businesses. Scattered road closures were a result of the spring thaw as well. Many smaller rivers also overflowed their banks resulting in road closures and structural flooding. **The Pomme de Terre River rose to 16 feet over flood stage on 4/6/97 resulting in major damage to roadways throughout Swift and Stevens counties. Bridges were washed out in Appleton. 16 houses were evacuated in Appleton as well. Highway 59 closed north of Morris.**"

April 1 – April 30, 2001

Heavy snowfall during winter remained on the ground through the end of March and then rapidly melted, resulting in river stages close to record levels. Water began to gush through drainage ditches, streams and into the main stem rivers during midday April 1. Heavy rain April 7-8 over much of central Minnesota prolonged the high water and also added one or two feet to many crests during mid April. Another period of heavy rain April 22-23 caused rivers to crest again in late April and early May; in some cases the crest was higher than the first. Many rivers remained well above flood stage into mid-May (see May 2001 Storm Data). Three fatalities occurred due to flood waters.

Issues that arose from the 1997 and 2001 flood events:

Entire County.

- Roads damaged from hauling of sand, etc.
- Flooded county and township roads, bridges and culverts. Township damage was large but generally goes unnoticed.
- Flooded county ditches.
- High ground water all over.
- Flooding all over county – streams, creeks and wetlands as well as the major rivers and lakes.
- Many roads closed and eroded.
- In 1997 only, septic tanks backed up into homes (many rural septic systems have been updated since).
- Rural flooding that did some structural damage as well as the flooding of land (saturated soil).
- Risk to human lives.
- Infrastructure issues – water treatment, water mains and sewage.
- Along the Chippewa River there were about five farm homesteads that required sandbagging and had damage to property.
- Along the Chippewa River there were two feedlots that were flooded causing raw sewage to seep into the river and the groundwater.

Appleton.

- Residential property damaged and residents were forced to move out of their homes (1997). Two structures remained in the floodplain in 2001 but had less damage.
- One church borders the floodplain and had basement water issues during both floods.
- Many volunteers and organizations helped to fight flooding (1997) risking harm.

Benson.

- Debris and ice jammed at the railroad bridge on Highway 9 causing water backup and flooding.
- The golf course along the Chippewa River experienced extensive flooding.
- The new housing development along the river and next to the golf course at this time only had a couple of homes in it. This area is now identified in the floodplain.

Future Issues.

- Concerned there will be less of a chance that future floods will cause a "disaster designation" and some entities will not receive the help needed.
- Two structures remain in the floodplain in Appleton and should be relocated.

Relationship with Other Hazard – Cascading Effects

Infectious Disease. Water issues often translate into issues around infectious diseases. Water contamination and wastewater removal many times go along with flooding issues. Diseases such as influenza, hepatitis A and West Nile virus are potential hazards that have direct links to water.

Transportation. As flooding often washes out roads, emergency vehicles have to compensate for a lack in accessibility to help those in need.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Landslide and Debris Flow. There were issues with debris flow and bridge damage in the floods of 1997 and 2001. It was difficult to keep the rivers and drainage ditches clear and backup of floodwaters occurred.

Destabilized stream banks are related to flooding. As rivers evolve they carve out a channel adequate to handle typical peak flows (1-2 year flood events). As landscape hydrology alters, higher peak flows carve out larger channels. Unfortunately, this often results in riverbanks being destabilized. Across the region these unstable banks have threatened farmlands, roads and homes. Bank stabilization projects are expensive and often only shift the problem to a different place along the stream. Long term mitigation for riverbank stabilization is 1) holding water on the landscape and 2) proper setback of infrastructure and building from rivers.

Debris flow includes downed trees being carried by floodwaters. These trees caused problems at various bridges over the Minnesota River in the last round of major flooding. The trees ran into bridges and got caught forming logjams. Contractors lifted the trees over bridges and returned them to the river downstream of the bridge, with the end result of trees floating to succeeding bridges to be lifted over again. Large flood events can and do kill trees within the flood plain, including large cottonwood and maples. In subsequent flood events these standing dead trees can be knocked down and washed away, causing havoc to communities and counties.

Debris flow happens along the rivers and in ditches throughout the county. Every year, the BNSF trestle bridge on Highway 9 west of Benson has ice jams and debris issues. Township roads have collapsed around landslide issues.

Plans and Programs for Flooding

County Flood Map and Controls. The current county official land use map identifies the 100-year flood areas. The county zoning ordinance controls the permitted land uses in these areas, what can be built and how.

Appleton and Benson Flood Map and Controls. Appleton and Benson have identified 100-year flood areas on its official land use map and adopted in its zoning ordinance appropriate zoning and land use controls governing these areas. All of this will require updating or addressing with the adoption of new FEMA floodplain maps.

Response Plan. A response plan to a flood emergency has been developed and local resources and personnel have been committed to it. Sandbagging efforts by Prairie Correctional Facility are part of the response plan and assistance from other agencies at the federal, state and local level is critical. Local resources are not adequate for a severe and prolonged flood.

Wetland Restoration. Wetland restorations are being done in Swift County to ensure water is not a hazard to roads and adjoining landowners.

Program Gaps and Deficiencies

- At-risk uses and structures remain in identified 100-year floodplains, including nonconforming structures and uses currently "grandfathered in" both the county and Appleton land use plans and ordinances.
- After the 1997 buyouts, two homes remain in the 100-year floodplain in Appleton
- The city of Benson is working with BNSF and MnDOT on replacing the railroad trestle bridge on Highway 9.
- Local resources are not adequate for a severe and prolonged flood and there is a need for the county and communities to work with outside resources during an emergency.
- Some township roads still need rip-rapping or raising to prevent washout.

Hazard: Drought

Drought is defined as a prolonged period of dry weather or a lack of rainfall. Swift County has experienced prolonged periods without rainfall, however has not experienced a drought from 1990 - 2008. The most severe in climatic records occurred during the 1930s.

History of Droughts in Swift County

1920 – 1930.

Perhaps the most devastating weather-driven events in American history were the droughts of the 1920's and 1930's, which significantly impacted Minnesota's economic, social, and natural landscapes. Abnormally dry and hot growing season weather throughout the better part of two decades turned Minnesota farm fields to dust and small lakes into muddy ponds. The parched soil was easily taken up by strong winds, often turning day into night. The drought peaked with the heat of the summer of 1936, setting many high temperature records that still stand today.

1974-1977.

Drought-like conditions began in the winter of 1974 and extended through the summer of 1977. The dry conditions of these years lowered water levels in wells and caused record low stream flows throughout the state. Late summer forest fires broke out, and conflicts arose between domestic well owners and neighboring high capacity well owners. The DNR Division of Waters formulated new policies to resolve these resource management problems and user conflicts. Many of these new policies formed the basis of subsequent amendments to agency rules and state statutes.

1987-1989.

The warm, dry winter of 1986-87 was the beginning of this period of little rainfall and extreme dryness. Drought conditions became very serious in mid-June 1988 when Mississippi River flow levels threatened to drop below the Minneapolis Water Works intake pipes at the city of Fridley. Below normal precipitation coupled with declining lake levels, ground water levels, and stream flow created statewide concern. To facilitate coordination of drought response actions a State Drought Task Force was convened by the director of the Division of Waters. The State Drought

Task Force brought together local, state, and federal officials to share information and coordinate drought response strategies. Several actions were taken following the summer of 1988 to better prepare the state for the next drought. The Governor appointed a "Twin Cities Water Supply Task Force" specifically to make recommendations on how to meet future water demands in the event of low flow conditions on the Mississippi River. The Corps of Engineers initiated review of its operating plans for the Mississippi River headwaters reservoirs, and the 1989 legislature charged the Metropolitan Council with preparing water use and supply plans for the metropolitan area. In the summer of 1988, rains finally came in August, but not soon enough to save agriculture crops.

2003.
For a three-month period from mid-July through mid-October, a stubbornly persistent weather pattern resulted in extremely dry weather across the state of Minnesota. Few widespread rain events moved through the state during the interval, and precipitation totals were less than six inches across much of Minnesota. Total rainfall for the mid-July through mid-October period fell short of historical averages by four or more inches in many areas. Rainfall deficits exceeded seven inches in portions southeastern Minnesota. When compared with other July 15 through October 20 time periods in the historical database, mid-July through mid-October 2003 rainfall totals rank among the lowest on record for many areas of south central and southeastern Minnesota, and a small portion of west central Minnesota.

Record low rainfall for the summer in Benson, Swift County weather station, was 6.17 inches in 1950. Record low for the month of July in Benson was 1.11 in 1967. Annual record low rainfall for Benson was in 1976 at 13.25 inches.

Drought also gives way to insect infestation. Grasshoppers were well known during the 1988 drought.

Relationship with Other Hazards – Cascading Effects
Wildfires. Drought stressed woods, brush land and non-cultivated fields significantly increases the risks of wildfire.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Plans and Programs for Droughts
Water Plan. The current Swift County Comprehensive Water Plan identifies the major and minor aquifers serving the county.

Shoreline Zoning. Swift County has adopted via ordinance the state's statutory shoreline and riparian zoning classifications and minimum standards.

Program Gaps and Deficiencies

- The county has no estimates of annual recharge rates or the capacities of the various aquifers.
- Semi-annual or annual water consumption by various major consumers, urban residential, industrial/commercial or agricultural, is not documented or known.
- Water conservation provisions and use restrictions in times of drought are not included in county or city ordinances.
- The current county water plan recommends wellhead protection standards for adoption via ordinance by Swift County, but has yet to be implemented.
- There are no drought water consumption/use policies or ordinances in any of the cities or at the county level.

Hazard: Wildfire

A wildfire is an uncontrolled fire spread through vegetative fuels, posing danger and destruction to property. Wildfires can occur in undeveloped areas and spread to urban areas where structures and other human development are more concentrated.

While some wildfires start by natural causes such as lightning, humans cause four out of every five wildfires. Debris burns, arson or carelessness are the leading causes of wildfires. As a natural hazard, a wildfire is often the direct result of a lightning strike that may destroy personal property and public land areas, especially on state and national forest lands. The pre-dominate danger from wildfires is the destruction of timber, property and wildlife, and injury or loss of life to people living in the affected area or using the area for recreational facilities.

Wildfire risks are not limited to public lands. There are extensive tracts of privately owned grasslands as well. These include both conservation program lands (CRP, RIM, CREP, etc.) and "rough ground" that has been hayed, pastured or left wild. These private lands particularly in combination with public lands (such as WMA, SNA, State Parks, WPA, etc.) can combine to create substantial blocks of grasslands. Fire danger grows when cedar trees encroach into grasslands as evergreens can add a considerable amount of fuel load.

To date, there has been very little injury or loss of property resulting from wildfire in the Upper Minnesota Valley Region. However, there are some risks that should be managed to mitigate potential disasters.

History of Wildfires in Swift County

Wildfires occur throughout the entire of Minnesota. According to the Minnesota State Fire Marshal, there are more than 2,000 annual wildfires with an estimated loss of more than $13 million dollars. Wildfire behavior is based on three primary factors: fuel, topography and weather. When dry weather mixes with windy conditions, areas with fuel have the potential for a wildfire to spread out of control. Swift County currently has approximately 30,581.1 enrolled in CREP, RIM, CRP and the Wetland Reserve Program. These areas are left for wildlife habitat and are not burned on a regular basis. As a result, years of dead grasses accumulate on these lands and act as fuel for any fire that may start. The Minnesota River Valley and the Wildlife

Management Areas also provides an abundance of fuel for wildfires. Wildlife Management Areas occupy about 9,842 acres in Swift County.

Danvers Wildfire, 1984. Although not confirmed the wildfire of 1984 that burned some 2,000 acres of the Danvers Wildlife Management Area (the largest in the county) was suspected to be started by arson. Fortunately the burn lasted less than a day before it was contained.

DNR personnel were called to the fire and three city fire departments responded – Benson, Danvers and Clontarf. Equipment had to be brought from the Lac qui Parle Refuge some 45 miles away. Two fire fighters suffered smoke inhalation and a fire truck was stuck in lowland, but not permanently damaged. Property damage was threatened but never was reached. Back burning efforts kept the fire under control.

Quicker response time and improved efforts to control this fire could have taken place if local fire departments had the proper training and right type of equipment needed for back burning, which the DNR provided.

Svor Wildfire, 2000. On October 11, 2000 a wildfire was reported north of DeGraff and straight east of Clontarf on Waterfowl Production Area land identified as Svor. The Morris and Fergus Falls U.S. Fish and Wildlife Agencies responded to the fire as well as Big Stone National Wildlife Refuge personnel along with the Benson and Murdock fire departments. The fire was controlled after a day of burning. Two days of "mopping" up or clean-up followed the fire to assure the fire would not start again.

A total of 686 acres of the Waterfowl Production Area and 161 acres of private land were destroyed by the wildfire. Conditions were perfect since it was fall and very dry. No structures were lost or damaged and no injuries were reported fortunately. The fire was started by a neighbor to the south burning a trash pile.

Public education may have helped avoid this wildfire from occurring. Many times fires caused by people burning their garbage could be avoided if people were more aware of the conditions to avoid burning under and how to be sure to distinguish fires so they do not re-ignite later.

Milan Area Wildfire, 2003. On April 12, 2003, a wildfire started on a vacant farm near Chippewa County Road 30. Fifteen fire departments responded to the call over the weekend, while many did not have proper equipment meant to fight prairie fires, thus ending with damaged and lost equipment. Many clutches on the fire trucks went out from driving on the bumpy prairie and at least one firefighter was reported injured.

The demands of this and other weekend fires stretched the resources of local, volunteer fire departments and DNR crews that joined to battle the blazes. They obtained critical assistance from a DNR Forestry tanker plane based in Brainerd and later National Guard helicopters with 500-gallon buckets.

Wildfires that raced through grasslands south of Appleton scorched an estimated 3,300 acres; approximately 1,700 were part of the Lac qui Parle Wildlife Management Area. The fire could

have spread further if it was not for back burn efforts that kept the blaze south of Highway 119. Sunday, wind speed increased and rekindled the fire. Conditions of powerful winds and bone-dry tinder set the stage for the Sunday fire.

Topography is also important in determining wildfire potential, as it affects the movement of air and fire over the ground surface. The slope and shape of terrain can change the rate of speed at which the fire travels. Most of Swift County consists of relatively flat lands.

Weather affects the probability of wildfire and has a significant effect on its behavior. Temperature, humidity and wind affect the severity and duration of wildfires. These conditions are similar throughout the county. Although higher wind speeds are possible in the northern portion of the county due to the lack of vegetation and slope, the area is dominated by agricultural uses and lacks major stands of forests.

Swift Falls, 2006. On May 4, 2006 the Benson Fire Department performed a controlled burn on approximately 30 acres of grass. The grass fire includes a fire confined to an area characterized by grass ground cover with little or no involvement of other ground fuels.

Relationship with Other Hazards – Cascading Effects

Flooding and Erosion. Major wildfires can completely destroy ground cover, which can cause heavy erosion and loss of all vegetation. If heavy rains follow a major fire, flash floods, landslides and mudflows can occur, since vegetation is essential in deterring flooding during heavy rainfalls or spring runoff.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Hazardous Materials. Risk of fires spreading to anhydrous ammonia tanks or fuel tanks on rural farm sites is an issue. Some chemical companies store tanks in rural areas. While most tanks can be moved quickly, fire departments and response teams may not be aware of their presence.

Plans and Programs for Wildfires

Fire Districts, Departments. Fire departments respond to any structure fires in their own fire district and will also help when needed in other districts. They often work together on larger fires. All the fire departments in the county are on the city level, but are a part of the Swift County mutual aid agreement agreeing that they will provide service as backup and make available their equipment and personnel, if required from another department within the county. The Lake Firefighters Association includes Benson, Clontarf, Danvers, DeGraff, Kerkhoven, and Murdock. Appleton belongs to the West Central Firefighters Association.

Zoning. The Swift County Environmental Services, which includes the county building inspector, regulates the development of new housing. The department also is in charge of enforcing safety restrictions including setbacks, lot coverage, lot depth and structure height. In addition, the Unified Building Code sets standards for roofing. The county building inspector is

responsible for inspecting residential structures, while the fire marshal inspects commercial structures for potential fire hazards.

DNR Training. County firefighters participate in wildfire training classes offered by the Minnesota Department of Natural Resources-Forestry Department. The majority of firefighters have been trained in fighting wildfires. The DNR also works with local firefighters in promoting their Fire Smart program, which is a fire prevention program involving local public schools.

State Land Management. The DNR operates and regulates all state lands within the county, including management of Monson Lake State Park. The park currently is managed predominantly for recreational activities. Thinning brush and vegetation around the park, particularly around the campground areas, minimizes wildfires.

Fire Wise. The DNR participates in a national wildfire education program called FireWise. This program provides tools for risk assessment and risk reduction and is available to communities who would like to do a detailed risk assessment. Small grants are available for 50 percent of projects**.**

Education and Outreach. Education is available through existing resources and channels such as the Extension Service and Soil and Water Conservation Districts.

Evacuation Plan. The county's cities have evacuation plans delineating routes residents should take in the event of an emergency.

Dry Hydrants. Attached in Appendix 6 is a wetlands map that fire departments could and would tap in rural settings.

Program Gaps and Deficiencies

- Currently the county zoning lacks regulations regarding vegetation on property. One of the problems with past fires is the undergrowth and overhanging trees near residential structures. Although aesthetically appealing, vegetation around homes has destroyed numerous dwellings in past fires.
- The county has not undertaken a systematic assessment of wildfire risks and associated prevention measures.
- Land use regulations can provide some protection for rural housing. The DNR informally recommends considering reasonable structure setbacks (perhaps 200 feet) from permanent conservation lands (i.e., publicly owned, private lands with a permanent conservation easement, or lands owned by private non-profit conservation organizations such as the Nature Conservancy). An additional benefit of such setbacks would be a reduction in the potential conflict between hunting and residential land uses. In addition, standards for access roads and driveways in fire hazard areas could be considered in order to ensure safe passage of fire equipment.
- There is currently no program to ensure that wildfires be considered when planning conservation plantings that include woody cover. Firebreaks should be included to protect homes and woody cover as well as allowing the use of fire as a management tool. If a tree and shrub planting is placed in the middle of a prairie planting, it may be difficult to

accomplish a prescribed management burn of that property without damaging or destroying the woody component. It may also be impossible to protect that planting in the event of a wildfire.

- Local governments can reduce the risk of wildfires through fire prevention efforts as well. Frequently, rural residents burn trash and other debris on-site. Burn barrels and burn piles are the source of a large portion of wildfires, as well as structural fires. Local units of government have the ability to restrict the use of such waste management tools, can promote rural garbage collection, establish township garbage dumpster sites, promote recycling and composting to reduce the need for burning and educate rural home owners about better designs for burn barrels. Improved rural waste management practices will not only reduce fire hazard, but also other environmental hazards associated with waste disposal.
- There are many CRP, CREP and other natural areas that are not managed with prescribed burns. Prescribed burns should be encouraged to help reduce trash and debris that can create a large wildfire hazard.
- Communications between DNR, U.S. Fish and Wildlife and local Fire Departments needs to be more organized and regular.
    - Much of the land in wildfire risk is state land and in rural areas. It needs to be defined as to who is responsible for fighting these fires and to establish a mutual aid agreement between these agencies and local FD.
    - Fire departments should be aware of DNR's "let burn policy" and the acres this implies.
    - A plan should be in place regarding proper radio channels between DNR, U.S. Fish and Wildlife, State Patrol, local fire departments, and local police. The identified point person in the event of wildfires for control and direction is critical. The smoke associated with wildfires can present a major hazard on roadways. Without direct contact with law enforcement, traffic control can be compromised.
    - Updated gear/equipment and a plan to use it in cooperation with other departments is necessary. The DNR and U.S. Fish and Wildlife have an up-to-date list of equipment available to them in the event of wildfires and working agreements could be put in place for access to these resources for quick response prior to the event.
    - Currently the DNR calls the county before lighting a prescribed burn. This information should come to the local dispatch in order to be better prepared for fires that get away or relight at a later time.
- Infrastructure is important. Dry hydrants have been demonstrated as an effective tool in assuring a steady and close source of water for responding to both major wild land and structural fires in rural areas. Assessments should be made to determine where existing dry hydrants are, where fire risks are greatest, and where water bodies suitable to support a dry hydrant are located. Suitable placement of additional dry hydrants may be difficult as the area to fight wildfires is extremely large.
- Evacuation plans are general in nature and are not disaster specific.

Hazard: Dam Failure

Dam failure is defined as the collapse or failure of an impoundment resulting in downstream flooding. Dam failures can result in loss of life and extensive property damages; and may result from an array of situations, including flood events, poor operation, lack of maintenance and repair and terrorism.

One of the main benefits of dams is to hold water, which is important during high water or floods, especially during spring runoff and immediately after heavy rains. Although dams act to prevent harm from flooding, they do pose potential threats in the event of failure. Dam failure can push a wall of water down the valley below the dam causing destruction in its path.

There are nine dams currently located in Swift County, eight of which are considered Low Hazard Potential dams, where failure may cause minimal property damage. The Pomme de Terre River dam is a Significant Hazard Potential Dam and may cause damage to structures or loss of life.

Relationship with Other Hazards – Cascading Effects

Flood. Dam failure, although the risk is minimal, would not have any effect on cities or populations in Swift County.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Plans and Programs for Dam Failure

Infrastructure Plan. The county infrastructure plan prohibits further development on the properties adjacent to the dam, including property directly below the dam. Lac qui Parle County has dedicated land adjacent and below the dam as public open space.

Dam Inspection. The Minnesota Department of Natural Resources regulates nearly 900 of the numerous dams in the state. The DNR and US Army Corps of Engineers regularly inspect the dam and reservoir capabilities for flooding and dam failure. Their report indicates that the size of the dam is adequate for any major floods or spring runoff.

Program Gaps or Deficiencies for Dam Failure

- None identified.

MANMADE / TECHNOLOGICAL HAZARDS – PRESENTED BY MAN

Definition
Technological hazards are those presented by humans, rather than those presented by nature. They are comprised of substances and processes that are flammable, combustible, explosive, toxic, noxious, corrosive, oxidizers, irritants, or radioactive.
Source: Minnesota State Hazard Mitigation Plan

Introduction
Technological hazards exist as a part of everyday life, as a result of building the modern world in which we live. The challenge is to benefit from the use of technology while limiting potential harm to the community. In order to fully realize the benefits of technology, it is necessary to plan an effective response to unwanted technological emergencies before they occur.

From a hazard mitigation perspective, the existence of technological hazards in the community poses a risk to life, health, or property. The use of hazardous materials in manufacturing and transportation can be extremely harmful if an unwanted release occurs, and the use of nuclear materials in the presence of a community creates risks that must be managed. Dams can have a catastrophic impact on those downstream, when a failure does occur. Further, the furnishings in our homes make a pleasant living environment, but are often flammable and produce toxic gases when ignited.

For the purposes of this plan, Technological Hazards identified are organized into these groups:

1. **Infectious Diseases**
2. **Structure Fires**
3. **Hazardous Materials**
4. **Environmental**
    a. **Water Supply Contamination**
    b. **Wastewater Treatment System Failure**
5. **Civil Disturbances/Terrorism**

Hazard: Infectious Diseases

An infectious disease is defined as an organism or matter that has the potential to spread or affect a population in adverse ways. Infectious diseases have the potential to affect any form of life at any time based on local conditions, living standards, basic hygiene, pasteurization and water treatment. Despite medical breakthroughs and technology, infectious diseases continue to pose an important public health problem. Today, the issue of emerging and re-emerging infectious diseases is at the forefront of public health concern. The very young, older adults, and hospitalized and institutionalized patients are at an increased risk for many infectious diseases. Changes in demographics, lifestyle, technology, land use practices, food production and distribution methods, and child care practices, as well as increasing poverty, have roles in emerging infections.

Many infectious diseases are preventable and controllable. Prevention and control of infectious diseases involve collection of accurate assessment data (such as surveillance data for specific conditions), outbreak detection and investigation, and development of appropriate control strategies (both short and long term) are based on specific epidemiological data. These activities require close collaboration between clinical providers (especially infection-control practitioners

within hospitals), clinical laboratories, state and local health departments, and federal agencies. Furthermore, a need exists for continued education of industry (particularly food producers and food-service industries), health-care students and providers, along with research to improve immunizations, diagnostic methods, and therapeutic modalities. Thus, the prevention of infectious diseases requires multidisciplinary interventions involving public health professionals, medical practitioners, researchers, community-based organizations, volunteer and private groups, industrial representatives, and educational systems.

History of Infectious Diseases in Swift County

Minnesota has not had an infectious disease outbreak that has reached epidemic proportions in decades. Swift County has experienced individual cases of infectious diseases over the last 50 years that have been considered isolated occurrences or minor exposures.

In contrast to typical natural disasters in which critical components of the physical infrastructure may be threatened or destroyed, an infectious disease outbreak may also pose significant threats to the human infrastructure responsible for critical community services due to wide spread absenteeism in the workforce. Examples of such services and personnel in the non-health sector might include highly specialized workers in the public safety, utility, transportation and food service industries, and will likely vary from jurisdiction to jurisdiction. State and local officials should carefully consider which services and key personnel within relevant firms or organizations are essential. It is important to identify where absenteeism would pose a serious threat to public safety or would significantly interfere with the ongoing response to the outbreak.

By and large infectious diseases would have no effect on physical property. A negative impact on the economy would occur, however, if a widespread outbreak occurred and businesses were forced to shut down for an extended period of time. Swift County's entire population is susceptible to exposure from infectious diseases due to of the random nature of diseases. Infection rates and exposure risk will vary based on the disease, sanitation habits of individuals and personal choices. Large population concentrations and sites with large numbers of people are especially at risk in the event of an outbreak.

The following is a list of the primary infectious diseases identified in the county that could be considered a health risk and disaster if an outbreak were to occur.

Human Health

H1N1Influenza. H1N1 Influenza, otherwise commonly known as Swine Flu, was first detected in April 2009. From April 15, 2009 to July 24, 2009, states reported a total of 43,771 cases of H1N1 flu throughout the country (Minnesota Department of Health 2009). Of the reported cases, 5,011 people were hospitalized and 302 people died. H1N1 is likely to be transmitted in two ways, through contact with infected pigs or environments contaminated with swine flu or through human-to-human spread of disease by coughing or sneezing of infected persons. Symptoms of H1N1 flu are similar to standard influenza including fever, cough, sore throat, body aches, chills, headaches, and fatigue. Some hospitalized patients claimed nausea, vomiting, and/or diarrhea as additional symptoms. One major concern with an H1N1 flu outbreak in Swift County is the lack of interest to receive vaccinations in the county population. The government created a tiered allocation for vaccines by first protecting those who are essential to handle the

outbreak response and care providers, second those who maintain essential community services, third children and workers at greatest risk of infection due to job nature and lastly those who maintain homeland and national security (flu.gov). To date, there have been no known occurrences of H1N1 flu in Swift County. **Visit Countryside Health, CDC.gov, flu.gov for more information.**

Tuberculosis. Swift County has experienced no cases of tuberculosis (TB) from 2003 – 2008 (Department of Health 2009). TB is a disease spread from person to person through air. TB usually affects the lungs, but can also affect other parts of the body, such as the brain, kidneys or spine. TB germs enter air when a person with TB of the lungs or throat coughs or sneezes. When a person inhales air that contains TB germs, he or she may become infected. People with TB infection do not feel sick and do not have any symptoms; however, they may develop TB at some time in the future. The general symptoms of TB include feeling sick or weak, weight loss, fever and night sweats. The symptoms of TB of the lungs include coughing, chest pain and coughing up blood. Other symptoms depend on the part of the body that is affected.

Hepatitis A. Hepatitis A is an enterically transmitted viral disease that causes fever, malaise, anorexia, nausea, and abdominal discomfort, followed within a few days by jaundice. The disease ranges in clinical severity from no symptoms to a mild illness lasting one and two weeks to a severely disabling disease lasting several months. In developing countries, hepatitis A virus is usually acquired during childhood, most frequently as a symptomatic or mild infection. Transmission can occur by direct person-to-person contact; exposure to contaminated water, ice or shellfish harvested from sewage-contaminated water; or from fruits, vegetables, or foods eaten uncooked, which can become contaminated during harvesting or subsequent handling. Hepatitis A occurred three times in Swift County in 1995, but no other cases have been reported since Hepatitis A vaccine is available as prevention for adults, children and infants. It is recommended vaccination and is becoming routine for infants. (Department of Health 2009, Countryside Public Health).

Influenza (Flu). Influenza is a contagious disease caused by the influenza virus. It attacks the respiratory tract in humans (nose, throat and lungs). The flu usually comes on suddenly and may include these symptoms: fever, headache, tiredness (can be extreme), dry cough, sore throat, nasal congestion and body aches.

Influenza types A or B viruses cause epidemics of disease almost every winter, however not all cases are reported. Swift County had three flu cases reported from 2003 – 2008(Department of Health 2009). In the United States, these winter influenza epidemics can cause illness in 10 to 20 percent of people and are associated with an average of 20,000 deaths and 114,000 hospitalizations per year. Getting a flu shot can prevent illness from types A and B influenza. Influenza type C infections cause a mild respiratory illness and are not thought to cause epidemics. The flu shot does not protect against type C influenza.

West Nile Virus (WNV). The virus made its first appearance in Minnesota in July 2002. In the fall of 2003, the first West Nile death in Minnesota was reported. As of July 2009, Minnesota has reported 259 human cases of West Nile and a total of seven deaths. Swift County has experienced three cases of West Nile Virus since 2002 (Minnesota Department of Health 2009).

Most people with the West Nile virus will experience only mild symptoms – or no symptoms at all. Less than one out of every 150 people who become infected will become severely ill. However, in some cases, West Nile can cause encephalitis, an inflammation of the brain. Approximately 10 percent of these encephalitis cases are fatal. Symptoms of the illness usually show up two to 15 days after being bitten. They can include headache, high fever, muscle weakness, stiff neck, disorientation, tremors, convulsions, paralysis and coma. People who suspect that they may have West Nile are recommended to see a physician.

Minnesota Department of Health Dr. Harry Hull, state epidemiologist reports that the best protection from the West Nile Virus is to:

- Use a good mosquito repellent, containing no more than 30 percent of the active ingredient DEET.
- Wear long-sleeve shirts and long pants if you have to spend time in an area where mosquitoes are biting.
- Avoid outdoor activities at dusk or dawn, when mosquitoes are feeding.
- Eliminate possible mosquito-breeding sites on and around your property – including items like old tires, buckets, clogged rain gutters, cans and other containers, and anything else that can hold a small amount of water. Change the water in birdbaths and horse troughs at least weekly.

A human vaccine against the virus is currently in development.
Source: Minnesota Department of Health

La Crosse Encephalitis. La Crosse encephalitis is a viral illness transmitted to people through the bite of an infected mosquito. Most people infected with this virus will have either no symptoms, or a mild flu-like illness. A small percentage of people (especially children) may develop encephalitis (inflammation of the brain). Approximately one to three percent of these encephalitis cases are fatal, and another 15 percent of patients have long-term nervous system problems.

Most of the severe cases start with headache, fever, nausea, and lethargy. The illness may rapidly progress into disorientation, seizures, and coma. There is no treatment for the illness other than supportive care until the illness is over. Severe cases occur primarily in children; the average case age is six years old, and no cases have been reported in Swift County (Minnesota Department of Health 2009).

E. coli. E. coli O157:H7 is one of hundreds of strains of the bacterium Escherichia coli and three cases have been reported to the Department of Health in Swift County from 2003 - 2008. Although most strains are harmless and live in the intestines of healthy humans and animals, this train produces a powerful toxin and can cause severe illness. E. coli spreads during slaughter and organisms can be thoroughly mixed into beef when it is ground. Bacteria present on the cow's udders or on equipment may get into raw milk. Among other known sources of infection are consumption of sprouts, lettuce, salami, unpasteurized milk and juice, and swimming in or drinking sewage-contaminated water. Bacteria in diarrhea stools of infected persons can be

passed from one person to another if hygiene or hands washing habits are inadequate.

E. coli O157:H7 infection often causes severe bloody diarrhea and abdominal cramps; sometimes the infection causes non-bloody diarrhea or no symptoms. Usually little or no fever is present, and the illness resolves in five to 10 days. In two to seven percent of people, particularly children under five years of age and the elderly, the infection can lead to kidney failure. Of the two to seven percent, a small percentage is life threatening or can lead to life long consequences.

Prevention includes cooking all beef and taking care to keep from ingesting bacteria from raw meet which includes washing hands and surface areas that are touched by raw meet. For additional information on preventative measures, visit the Minnesota Department of Health website.

Pertussis. Pertussis, or whooping cough, is a contagious respiratory disease caused by the B. Pertussis bacterium, spread by coughing or sneezing. Thick mucous builds up in the lungs and clogs air passages, triggering violent coughing spells. It can be quite serious, especially for young infants with tiny air passages. The fatality rate is highest in infants under six months of age. The effects of toxins in the B. Pertussis bacteria can produce high fever, convulsions, brain damage and death. Permanent damage can include continuing seizure conditions, mental retardation, learning disabilities, and chronic illness. There is a vaccine now routinely available and recommended for adolescents and adults that include Pertussis with the Tetanus and Diphtheria vaccine. This is recommended as a one-time vaccination to these populations regardless of the date of their last Tetanus vaccination. It can also be used as the 10 year booster dose for Tetanus vaccine. *(Countryside Public Health)*

Severe cases of whooping cough may require hospitalization, respiratory support, and nutritional and rehydration therapy. There is no medicine to cure whooping cough but antibiotics are often used to reduce the spread of the disease to others as well as treat secondary infections such as pneumonia, bronchitis, and otitis media (inner ear infections). In the past, these secondary infections often caused many of the deaths, which occurred after a child had whooping cough. Pertussis causes about nine deaths per year in the United States. The children's vaccine program includes a vaccine for Pertussis, although during outbreaks, children that have taken the vaccine are not always protected from getting Pertussis. In 2008, 2009, and 2010 there were over 1,000 cases of Pertussis in Minnesota. Swift County reported in 1997 that five people were infected with Pertussis, with 10 cases in 2005 and three in 2008 (Minnesota Department of Health 2009).
Source: National Vaccine Information Center 2005

Animal Health

Wildlife diseases are a major area of concern in colonial water birds or major concentrations of waterfowl. Diseases, such as Newcastles Disease or West Nile, exist in the wild and outbreaks will occur. However, the extent to which animals die or disease is spread can be minimized through early identification.

Mad Cow Disease (Bovine Spongiform Encephalopathy, BSE). Mad Cow Disease is the layperson's name for Bovine Spongiform Encephalopathy (BSE), a transmissible, slowly progressive, degenerative, fatal disease affecting the central nervous system of adult cattle.

According to the FDA the only way to transmit BSE is if the animal has contact with meat processed food; they cannot transmit it cow to cow.

BSE is a disease that affects cattle. However, there is a disease similar to BSE called variant Creutzfeldt-Jakob Disease (CJD), or vCJD, which is found in humans. There have been a small number of cases of vCJD reported, primarily in the United Kingdom, occurring in people who consumed beef that may have been contaminated. (As of June 2008, there have been a total of approximately 208 cases of vCJD worldwide.) There is strong scientific evidence (epidemiological and laboratory) that the agent that causes BSE in cattle is the agent that causes vCJD in people.

BSE has been of great concern since 1986, when it was first reported among cattle in the United Kingdom. At its peak, in January 1993, almost 1,000 new cases per week were identified. The outbreak in the United Kingdom may have started from the feeding of scrapie-contaminated sheep meat-and-bone meal to cattle. Scrapie is a disease of sheep that is related to BSE in cattle. There is strong evidence that the outbreak in cattle was amplified to common treatments, such as heat, to reduce or eliminate its infectivity or presence. According to the FDA, milk and milk products from cows are not believed to pose any in the United Kingdom by feeding rendered bovine meat-and-bone meal to young calves.

The federal government in 2002 aggressively surveyed 20,000 animals for BSE. The first case of BSE was reported in December of 2003, in a sick animal that came from a farm in Mabton, Washington, about 40 miles southeast of Yakima. It was a so-called "downer" animal, meaning it was unable to walk when it reached the slaughterhouse, which under USDA rules triggers automatic testing. The FDA is taking several steps to eradicate this disease from cattle and prevent vCJD in people.

Foot-and-Mouth. Foot-and-mouth disease is a severe, highly contagious viral disease of wild and domestic animals. It primarily affects cattle and pigs, but infections can also occur in sheep, deer, and other cloven-hooved animals. A rule of thumb is sheep are carriers, pigs are amplifiers, and cows are indicators.

Infections in humans are extremely rare. The disease has not been reported in the United States since 1929. However, an outbreak of foot-and-mouth disease is occurring in the United Kingdom and has received considerable attention in the media recently.

Foot-and-Mouth Disease (FMD) is considered the most costly of all animal diseases. It is often necessary to conduct wholesale slaughter of animals wherever there is an outbreak. Second, no animals from an area not declared free of the disease may be moved to other locations or used in trade except as processed food subjected to high temperatures. It is also one of the most contagious animal diseases. The virus is spread not only animal to animal through the air, it can attach to truck tires and clothing and equipment in mechanical transmittal.

In cattle, the first symptoms include dullness, refusal to feed and a fall in milk production. From there the symptoms expand to blisters on tongue, gums, muzzle, nostrils, teats and the spaces

between the hoof segments, sometimes crippling the animals. In other animals there may be fewer signs of the disease and, in some cases, animals die without showing any symptoms.

For additional information on Foot (Hove) and Mouth disease, look on the web at www.fas.org/ahead/disease/fmd/.

Chronic Wasting Disease, CWD. Chronic wasting disease, CWD, is another wildlife disease that has received much attention in Minnesota and Wisconsin in the past few years. This is a degenerative brain disease similar to "mad cow disease" that affects elk and deer. It can be spread to wild herds from captive herds or vice versa. At this point there is no recorded occurrence of CWD in wild deer in Minnesota. However, one of the most important means of ensuring that the disease is not spread is to ensure all captive cervidae (elk and deer) farms are registered with and licensed by the Minnesota Department of Agriculture.

Exotic Newcastle Disease (END). Exotic Newcastle Disease (END) is a serious disease of poultry and other birds. As the production of poultry farms increases this disease becomes a bigger threat. END is one of the most infectious poultry diseases in the world. It is a contagious and fatal viral disease that affects the respiratory, nervous and digestive systems of all species of birds. The virus is spread primarily through direct contact between healthy birds and the bodily discharges of infected birds. The disease is transmitted through infected birds' droppings and secretions from the nose, mouth and eyes. This disease is very contagious and can spread rapidly amongst a bird population. Economic impact to a poultry producer can be devastating if a flock is infected. END poses no threat to public health and does not affect the safety of poultry or eggs as food. **Source: USDA and Center for Infectious Disease Research and Policy, University of Minnesota 2009**

Avian Influenza (Bird Flu). Avian influenza is an infectious disease of birds and sometimes pigs caused by type A strains of the influenza virus disease, which was first identified in Italy more than 100 years ago. All birds are susceptible to infection. Wild birds are considered the natural hosts for influenza A viruses and usually do not become sick but domesticated birds can become very sick and may die. Infected birds shed the virus in saliva, nasal secretions, and feces. Fecal to oral transmission is the most common mode of spread. Symptoms can vary from mild illness to a highly contagious and rapidly fatal disease resulting in severe epidemics. Domestic poultry, including chickens and turkeys, are particularly susceptible. Direct or indirect contact of domestic flocks with wild migratory waterfowl has been implicated in the cause and spreading of the epidemic.

Although it is rare, human infection is possible. Symptoms include severe respiratory problems or respiratory disease, fever, cough, sore throat, muscle aches, and eye infections. Direct contact with live infected birds transmits the disease. Death can happen in some extreme cases. These rare human cases have been reported in Asian countries since 1997 (Hong Kong, China, Viet Nam, Netherlands) but the concern is that as more and more humans have direct contact with the disease they can serve as "vessels" to transport from person to person. Prescription medications can be effective. Vaccination for persons who are in direct contact is available and reduces opportunities for human exposure to the virus.

Influenza viruses can change. Humans have little or no immune protection against the virus

because it does not commonly infect humans. Potentially the avian influenza virus could change to infect humans and spread easily from person to person and "influenza pandemic" could begin.

An influenza pandemic is a global outbreak of influenza and occurs when a new influenza virus emerges and spreads. **Source: World Health Organization and Center for Disease Control and Prevention 2009**

Relationship to Other Hazards – Cascading Effects

Associated with Other Disasters. Infectious disease outbreaks can occur as primary events themselves, or they may be secondary events to another disaster or emergency such as a terrorist attack, biological accidents, water contamination, or natural hazard events (ex. Molds associated with flooded residences).

Riots/Civil Disturbances. If an epidemic event were to occur, deaths, fear and misinformation could trigger large-scale riots, panic and lawlessness. Infectious diseases have the potential to be local, regional, statewide or national in scope and magnitude.

Plans and Programs for Infectious Diseases

Emergency Operations Plan. Swift County currently has an emergency operations plan known as the Swift County Emergency Operations Plan. This plan outlines procedures for county and local governments for contacting appropriate state and federal agencies and provides guidelines and strategies for dealing with infectious diseases and command structures with the County Health Department and Emergency Manager for Swift County. Public education lies with public health as well. Much of the information is coordinated with the Center for Disease Control and Prevention and the Minnesota Department of Health.

Emergency Response Plans. Response plans are incorporated into the Emergency Operations Plan and are updated as needed. CPH maintains Emergency Response Plans and the state provides a framework as new plans are necessary.

Cooperation with State Health Department. CPH Services works with the Minnesota Department of Health to address infectious diseases that are listed in Chapter 4605.7040 Disease and Reports (such as Encephalitis, Hepatitis, Influenza, Lyme Disease, Tuberculosis and Syphilis). If any of these or other listed diseases should appear in Swift County the county defers to both the state health department and the Centers for Disease Control and Prevention.

Notification. Communication between CPH, the MN Department of Health and the Center for Disease Control and Prevention operates 24 hours, seven days a week depending on where an outbreak first occurs. CPH and the County Emergency Manager receive health alerts via email and fax with instructions on how to proceed. Hospitals, clinics, city administrators, emergency managers and county commissioners are notified by CPH and the Minnesota Department of Health.

Media Outreach. CPH works directly with Radio and Television to broadcast important public information. Minnesota Department of Health also works directly with the Media.

Health Alert Network. This network along with a website are being developed as part of Minnesota's Public Health Emergency Preparedness and Response Program. The Health Alert Network also coordinates and maintains the CDC's Public Health Emergency Preparedness & Response Website (http://www.bt.cdc.gov/). The Health Alert Network is part of a nationwide, integrated information and communications system serving as a platform for distribution of health alerts, dissemination of prevention guidelines and other information, distance learning, national disease surveillance and electronic laboratory reporting, as well as for CDC's bio-terrorism and related initiatives to strengthen preparedness at the local and state levels. Information and warnings are sent by email by the network to the Minnesota Department of Health and then the MDH emails Countryside Public Health and then CPH will notify doctors and city administrators. This program is a 24-hour seven days a week warning point. When complete, the Health Alert Network ensures:

- Initial response issued via fax.
- High-speed, secure Internet connections for local health officials, providing access to the CDC's prevention recommendations, practice guidelines, and disease data; capacity for rapid and secure communications with first responder agencies and other health officials; and capacity to securely transmit surveillance, laboratory, and other sensitive data.
- Online, Internet-and satellite-based distance learning systems.
- Early warning broadcast alert systems.
- Public health agencies achieve high levels of organizational capacity.

Vaccination Program. MNVFC Minnesota Vaccine for Children: this is a program that is set up for children in lower income that do not have insurance. This covers the children so that they can be vaccinated for infectious diseases. MNVFC only covers county hospitals and local clinics have a similar vaccination program. The program is designed to assist families of need in protecting their children from infectious diseases. CPH has the ability to also provide for adults who are under-insured and/or uninsured.

Environmental Health Regulations and Policies. The county health department has been working on environmental health regulations and policy guide for the county. These documents are cross-departmental plans that deal with infectious disease and food-borne illnesses. They provide guidelines to protect the citizens of the county.

Quarantine Plan. The state is ultimately responsible to handle quarantine issues. CPH has developed a Quarantine/Isolation Plan that would provide follow-up to those in isolation/quarantine and ensure their basic needs are met.

Program Gaps and Deficiencies

- County does not have a systematic information service that provides useful and factual information to the public about infectious diseases that may be of concern in the future. Much of this information can be obtained through the Center for Disease Control and the Minnesota Department of Health.
- The county has not adopted the environmental health regulations or the policy guide the public health has developed.

Hazard: Structure Fires

Urban fires are blazes that spread through structures, posing danger and destruction to property. These fires include any instance of uncontrolled burning which results in structural damage to residential, commercial, industrial, institutional or other properties in developed areas. Fires can occur in any community, and pose threats year round.

History of Structure Fires in Swift County

According to the State Fire Marshal Division through the fire reporting system, Swift County reported that they lost 4 lives in a 24-year period to fires, with the most recent death in 2003. Table 41 below identifies the number of fires and dollar loss for Swift County communities in 2007.

Table 41. SC and Community Breakdowns of Fire-Related Information 2007

City	Total Fire Runs	Total Other Runs	Dollar Loss
Swift County	103	104	$200,250
Appleton	18	13	$3,000
Benson	40	60	$117,000
Clontarf	5	0	$0
Danvers	7	2	$80,250
DeGraff	8	0	$0
Holloway	0	0	$0
Kerkhoven	19	25	$0
Murdock	6	4	$0
*Holloway does not have a Fire Department			

Source: 2007 Fire in Minnesota "Fire Reporting System"

Some of the major fires in the county include the fire in Benson that destroyed the Paris Hotel in 1977 caused by electrical malfunction. The fire could have easily taken the entire block but firefighters controlled the spread of the fire. In 1965 the Kerkhoven Elevator was destroyed by fire but as an isolated structure posed no real threat of spreading. No lives were lost in either of these fires.

Fires have occurred throughout the entire county. However, fires are more probable in the cities due to the density and number of both residential and commercial structures. Cooking, electrical failure and/or chimney fires directly cause most residential fires in Swift County.

Relationship with Other Hazards – Cascading Effects

Service Disruption. Major fires can completely destroy structures, including essential public facilities, and utilities including electric and gas lines can be damaged and destroyed.

Health Risks. Destruction or damage to essential infrastructure such as water and wastewater facilities can cause a public health risk. Firefighting is a high risk job and puts a person in danger of harm at any time.

Hazardous Materials. Many times hazardous materials are highly flammable causing fires to spread rapidly and increasing danger to human lives in the event of explosion.

Plans and Programs for Structure Fires

Fire Districts, Departments. Local fire departments work within their own district to serve structure fires. Each district is responsible for fires within their district boundaries; however, they often work together on larger fires. All the fire departments in the county are on the city level, but participate in the Swift County mutual aid agreement.

West Central Firefighters Association Objective (Appleton). These fire departments agree to make available to each other their fire-fighting equipment and personnel in the case of emergencies, and each has the legal authority to send its fire-fighting equipment and personnel in to other communities.

Lake Firefighters Association Objective (Remaining Cities). Swift County also has a mutual aid agreement between each fire department within the county as well as the city of Sunberg, located on the border of the county.

Zoning. The Swift County Zoning Department controls development of new construction, including the enforcement of safety restrictions like setbacks, coverage, depth, and structure height requirements. The county building inspector is responsible for all new construction.

State Training. County firefighters participate in mandatory fire fighting training classes offered by the state.

Evacuation Plans. Evacuation Plans for general emergencies are in place in every community, but are not hazard specific.

Program Gaps or Deficiencies

- Snow removal around commercial and industrial buildings has caused problems in the past. Snow should be removed sooner after large storms. City ordinances could be created to prohibit snow piles from interfering with traffic.
- Homes with chimneys pose a larger threat for fires. Specialized training classes, like chimney cleaning, safe cooking in the kitchen, and holiday hazards, could be offered to residents.
- Currently evacuation plans exist in the cities but are general in nature and not hazard or disaster specific.
- Public education on fire prevention and reaction is an ongoing issue.
- Power lines in some incidences restrict accessibility. Underground lines especially in the cities would be very helpful, but have high maintenance costs.
- Need for new and up-to-date communication equipment is an on-going issue for local fire departments.

- Roads are adequate in size and maintained well in the county, but in Minnesota the elements on the roads can cause accessibility issues for local emergency responders.

Hazard: Hazardous Material

Hazardous materials are chemical substances, which if released or misused poses threats to the environment and health of a community. These chemicals are used in industry, agriculture, medicine, research and consumer goods throughout Swift County. Hazardous materials come in the form of explosives, flammable and combustible substances, corrosives, poisons and radioactive materials.

A hazardous material spill or release poses risks to life, health and property. An incident can force the evacuation of a few people, a section of a facility or an entire neighborhood or community, resulting in significant economic impact and possible property damage. Spilled material can be costly to clean up and may render the area of the spill unusable for an extended period of time. Hazardous materials incidences are generally associated with transportation accidents or accidents at fixed facilities.

Transportation
Roads, rails, aircrafts and pipelines, convey hazardous materials while presenting differing levels of risk of unwanted release of the hazardous materials. Transported products include hazardous materials moving from producers to users, moving between storage and use facilities, and hazardous waste moving from generators to treatment and disposal facilities.

The road system in Swift County provides a network to transport both hazardous and non-hazardous material throughout the region and between local communities. Risks of hazardous material events vary based on the classification of the road and its proximity to people and property. The risk of a major event is most severe in more populated western portions of the county and along state highways. According to the most recent findings at the Minnesota Department of Transportation, more than half of all accidents involving hazardous materials have occurred on the state roadways. Roads are a major concern in Swift County; due to the lack of information available regarding what is traveling on the road system and amounts on a daily basis. Average daily traffic volumes are collected every two years on state highways and every three years on county roads. Heavy commercial average daily traffic volumes are collected on state highways for large trucks – six or more wheels. Concentrated volumes are found in the cities of Benson and Appleton and on the eastern edge of the county on Highway 12 moving into Kandiyohi County. To see maps identifying the volumes for Swift County the following website can be used: MnDOT- Transportation Data and Analysis Homepage.

Rail transportation of hazardous material could affect the county with approximately 48 miles of rail running throughout the entire county. Approximately 11 percent of all statewide transportation incidents involving hazardous material in 2002 were from rail transport, according to MnDOT statistics. Valve leakage and safety valve releases can be sources of material spills on pressurized and general service tank cars or other hazardous materials containers such as covered hoppers, inter-modal trailers/containers, or portable tanks. These leaks can manifest

themselves as odors or vaporous clouds from tanker top valves; spraying or splashing from tanker top valves; wetness on the side of the car; or drainage from the bottom outlet valve. Depending on the type of rail car involved, a leak or spill could result in hundreds to thousands of gallons/pounds of a substance released in along the rail corridor.

The Appleton municipal airport operates a small aerial spraying business out of the airport and large amounts of flammable liquids, lubricants and chemicals are stored at the facility. Accidents involving aircraft and chemicals related to their operation create a potential situation where hazardous material could be released.

Swift County's pipelines supply pressurized flammable liquids transmission. The city of Benson, population 3,393, is has a risk as a vulnerable population from the pipelines; however, the pipelines do not run through city limits. The rest of the rural area is at risk as well. Risks appear when running back hoes or tiling equipment that may dig deep enough to snag pipelines. It is required that the pipeline companies are notified when a digging project is going to take place to assure they will not hit lines. In the event of a leak in any of the three pipelines they require personnel to inform each farm place to evacuate.

The city of Benson is particularly vulnerable to hazardous material disasters with the ethanol plant located on the west edge of the city, two pipelines surrounding the city, three major trunk highways intersecting within city limits that move a large amount of hazardous materials daily, the BNSF rail that splits the main street in half, and is the home for numerous other hazardous material commercial providers. This vulnerability was illustrated in 2003 with the explosion that took one life at CVEC, the ethanol plant.

Fixed Facilities

A variety of hazardous materials exist in fixed facilities throughout Swift County. They range from flammable liquids stored or used to fuel vehicles through exotic substances to radioactive materials and biological agents. Some materials are particularly lethal even in small amounts, while others require strong concentrations with prolonged exposure periods in order to cause harm. For information on fixed facilities and identified 302 facilities within the county refer to the "Swift County Emergency Operation Plan". As of 2005, Swift County held 11 302 hazardous facility sites throughout the county.

Pipelines

Currently, over 78,000 miles of pipelines are located within the state of Minnesota. Four pipelines run throughout Swift County carrying liquid gasoline and natural gas owned by Magellan Pipeline Company LP, Northern Natural Gas Company, Alliance Pipeline LTD, and Kinder Morgan Cochin LLP. From 2000 to 2009, a single pipeline break occurred in Swift County. A third party hit a natural gas service line in Appleton in 2001. Table 42 on the next page identifies the type of commodity carried and length of pipelines by their respective owners.

Table 42. SC Pipeline Report

Operator Name	Commodity Carried	Mileage
Magellan Pipeline Company LP	Gasoline Product	13.67 Miles
Northern Natural Gas Company	Natural Gas	8.83 Miles
Alliance Pipeline LTD	Natural Gas	27.23Miles
Kinder Morgan Cochin LLP	Gasoline Product	27.22 Miles

Source: National Pipeline Mapping System, 2009

Methamphetamine and Clandestine Drug Labs

A clandestine drug lab (or clan lab) is a collection of materials and ingredients used to manufacture illegal drugs. Methamphetamine (meth) is the drug most commonly made in Minnesota labs. The Minnesota Department of Health surveyed all 87 counties twice in 2005 from January to June and July to December to tract the number of meth lab discoveries and received information from 75 counties. A total of 128 labs were found throughout all counties, 95 from January to June and 33 from July to December. The number of meth lab discoveries decline continued in 2006 with only 73 found throughout Minnesota (Minnesota Department of Health 2006, 2007). The majority of these labs were located away from the largest population centers in rural or semi-rural areas. Meth labs are most often located in rural or semi-rural areas. Swift County not had a meth lab incident.

Each drug lab is a potential hazardous waste site, requiring evaluation, and cleanup by hazardous waste professionals, West Central Chemical - Morris. Health effects occur in people exposed to lab chemicals before, during and after the drug-making process. While many of the ingredients used to make illicit drugs are common household products, both the production process and the mixtures produced can be extremely dangerous. In Minnesota, numerous law enforcement officers and staff from health, social service and other agencies have collapsed or become ill at clan lab sites. Jail and hospital staff members have become ill from exposure to meth lab chemicals on the clothing of people living or working at lab sites. MDH has received reports of people who have moved into former lab sites and have suffered chest and respiratory symptoms months after lab chemicals were removed.

The impact of illegal drug-making labs is also felt by neighbors and occupants when labs catch fire explode and cause the release of chemicals and chemical waste into the surrounding environment. Finally, clan labs have been associated with increased crime in the surrounding community, including domestic abuse, theft and child endangerment.

Roughly 50 percent of Minnesota residences where drug labs have been discovered have also housed children. Recognizing the special risks to children living in lab environments, the Minnesota legislature has recently expanded child neglect and endangerment law to include endangerment through exposure to illegal drug manufacture and sales. In 2005, the Minnesota Legislature passed a law intended to reduce the number of meth labs and increase penalties for illegal meth usage. In many Minnesota communities, there are no laws requiring cleanup of a hazardous waste site (particularly one contaminated by non-standard use of common household products) in a private residence. The Minnesota Bureau of Criminal Apprehension is usually involved in the case and the cleanup to make sure it is thoroughly investigated and cleaned.

Facilities storing or using hazardous materials above minimum amounts have developed and filed a Risk Management Plan with the County Emergency Manager, State Emergency Response Commission and the Environmental Protection Agency. Each plan identifies significant hazards for the facility, likely release scenario for the hazards, estimated population impacted by the release, and specific steps to take in the event of a release to protect that population from harm.

History of Hazardous Materials in Swift County

Hazardous materials exist as part of everyday life in Swift County. These materials make life easier and more comfortable for residents throughout the county. The challenge is to use, store and transport hazardous materials in a safe way that minimizes harm to the community and prepare an effective response to unwanted releases of hazardous materials if they occur. A hazardous materials accident can occur anywhere at anytime.

The major concern for hazardous materials events for fixed facility is primarily in the city of Benson. Benson contains the majority of the county's population and employers. The transport of hazardous materials in Swift County is highly unpredictable. People and property on or immediately adjacent to transportation corridors throughout the county are at higher risk than those located one mile or more from a major county corridor. Swift County assumes that the highest risk of an incident would be to areas in proximity to both rail lines and major roads and from large quantities of hazardous materials moving into and out of Swift County. The airport facility also provides further concern based on the possibility of an aircraft or site incident involving some sort of hazardous material.

Vulnerability from hazardous materials during unwanted release is considered great. The specific hazards created by a release are dependent on the hazardous characteristics of the material, amount released, location where the release occurs, and weather and topographic conditions in the area. Identifying specific materials and those involved in transportation can provide a more specific assessment of the vulnerability.

Swift County has experienced minor hazardous materials incidents from 2002 – 2009, noting in 2003 at CVEC in Benson and the derailment in 2002 in the city of Benson. The ethanol incident resulted in a loss of life and damage in the explosion to the facility. The derailment did not result in a spill but easily could have. Minor incidents have occurred but these have had little or no impact on the community at large. The likelihood of a major event is considered to be marginal, but an isolated minor accident is a constant concern. The Local Hazard Mitigation Task Force felt this hazard was a real issue for the county and emergency response plans need to address the potential risk for the county and open communication amongst the parties directly involved in the issue.

According to the Minnesota Pollution Control Agency, 68 spills have occurred in Swift County from May 2002 to July 2009 (Table 43 following page). Fifteen of the 68 hazardous material events had spills totaling over 100 gallons of material. Of the 68 spills, 31 took place in Benson, 19 in Appleton, 5 in Murdock, 3 in Clontarf and Kerkhoven, 2 in DeGraff, Holloway, and Townships, and 1 in Danvers. For a complete list of all hazardous spill events and amount of product released, see Appendix 5.

Table 43. SC Hazardous Spills Summary from 2002 - 2009

City	Number of Spills	Product Type
Appleton	19	Fertilizer, Light Fuel Oil & Diesel, Alcohol Blend, Fertilizer (Anhydrous Ammonia), Mineral Oil, Mercury, Other
Benson	31	Alcohol Blend, Pesticide, Light Fuel Oil & Diesel, Anhydrous Ammonia, Solvent, Gasoline, Pesticide, Hydraulic Fluid, Mineral Oil, Fertilizer, Other
Clontarf	3	Chemical, Chemical Solvent, Fertilizer (Anhydrous Ammonia)
Danvers	1	Fertilizer (Anhydrous Ammonia)
DeGraff	2	Fertilizer (Anhydrous Ammonia), Other
Holloway	2	Pesticide, Mineral Oil
Kerkhoven	3	Light Fuel Oil & Diesel, Pesticide, Motor/Lube Oil/Engine Fluid
Murdock	5	Fertilizer, Light Fuel Oil & Diesel, Pesticide, Other
Townships	2	Other
Total	**68**	(see above)

Source: Minnesota Pollution Control Agency, 2009

Swift County is particularly vulnerable to hazardous material disasters with 76 facilities registered with the Department of Public Safety Emergency Response Commission as 302 facilities – *any facility with hazardous materials on location*. Of particular concern are the facilities that have propane, anhydrous-ammonia, ethanol, and natural gas on site. Every city in Swift County has retail/commercial facilities that have these chemicals on site and transport these chemicals. Benson is particularly vulnerable with the close proximity of the three pipelines, Chippewa Valley Ethanol Company and several propane or anhydrous-ammonia dealers. Clontarf as well along Highway 9 has the three pipelines running in close proximity to the city. With the major intersections of MN Highways 9, 29 and 12 in Benson and the BNRR running through the downtown business district, traffic levels are high for transporting material daily in this city. Six of the eight communities in the county lie along Highway 12 and are particularly vulnerable to the transporting of hazardous materials. The BNRR runs parallel to Highway 12, which increases the risk. MnDOT tracks the average daily traffic volumes for commercial vehicles but does not break it down by merchandise. In comparison though the highways transport low volumes compared of course to the rail running through the county. Cities with major gathering places of vulnerable populations such as schools, hospitals/nursing homes and the prison in Appleton especially if they are near transportation routes are at higher risk – Appleton, Benson and Kerkhoven.

Relationship to Other Hazards – Cascading Effects

Utility. Hazardous material incidents can have direct impacts on water supply contamination and water and wastewater treatment failure or contamination endangering human health and life.
Environmental. Water supply contamination is highly possible.

Agriculture. Agricultural related jobs are the number one source of income in the county and hazards affecting agriculture would have a huge economic impact on the county. Many businesses serve agriculture as their primary target population and would feel the loss if agriculture were affected.

Transportation. Almost all of the cities in Swift County have emergency services within two blocks of a major highway or railroad. In the event of hazardous material spill, it is likely that these service providers would have accessibility issues to handle crises as they arise.

Plans and Programs for Hazardous Materials

State Agency Cooperation. Swift County works directly with the appropriate state agencies to address needs for responding to and mitigating the impacts of a hazardous event.

Emergency Operations Plan. Swift County currently has an emergency operations plan, known as the Swift County Emergency Operations Plan that outlines procedures for dealing with hazardous material accidents, spills and releases.

Hazardous Chemicals Collection. Swift County's Emergency Manager works with the Department of Public Safety, Emergency Response Commission to assist in the statewide collection of hazardous chemicals existing at facilities throughout Swift County so that local emergency officials can prepare for incidents.

Water Plan. Swift County's Local Comprehensive Water Plan recognizes that the county's ground water is impacted by both agricultural and residential fertilizer and pesticide applications. It further recognizes the number of hazardous waste generators by minor civil division from the Minnesota Pollution Control Agency.

Environmental Health Regulations. Swift County has worked to develop environmental health regulations and a County Safety Procedures and Policy Guide. These documents are cross-departmental plans that deal with hazardous materials, infectious diseases and food-borne illnesses. They serve to provide guidelines to protect the citizens of the county.

Training of Emergency Personnel. Public health staff has extensive training in meth related issues and be a valuable resource in this area. All emergency personnel are trained to at least the minimum Hazardous Materials Awareness level and all first responder groups conduct the required Occupational Health and Safety Administration training on a yearly basis.

GIS System. Swift County has worked with the Upper MN Valley Regional Development Commission Geographic Information Systems department to develop their county geographic information system with support from the Department of Natural Resources and Transportation. The county continues to work with them to keep their information current and up-to-date.

Public Health Nuisance Laws. Public health nuisance laws are used as the basis for many meth related ordinances.

Program Gaps and Deficiencies

- The Swift County Water Plan only addresses ground water contamination based on fertilizer or pesticide use from residential and agricultural uses. Additional detail for other hazardous substances impacting the county's ground water would provide more detailed findings regarding the overall quality and potential risks if a hazardous materials event happens.
- People often ignore local Emergency Warning System tests.
- Plans, policies and/or procedures are not in place to deal with a meth lab incident in the county. Lack of information and awareness have left the county susceptible to an accident that could impact a large area. No county ordinance exists to deal with meth lab clean up.
- Swift County needs to develop further refinements to the current Emergency Operations Plan to coordinate more effectively with local cities and adjoining counties in dealing with hazardous material events, especially meth labs.
- The county has not adopted the environmental health regulations and policy guide. It is currently being worked on.

Hazard: Environmental – Water Supply Contamination

Water Supply Contamination hazard issues include water supply contamination and air supply contamination. Water supply contamination is the introduction of point and non-point source pollutants into public ground water and/or surface water supplies. Although minimal, water supply contamination does pose a threat in the county.

Microbiological and chemical contaminants may enter water supplies. Chemicals can leach through soils from leaking underground storage tanks, feedlots and waste disposal sites. Human wastes and pesticides can also be carried to lakes and streams during heavy rains or snow melt and contaminants can filter into the air supply just as easily. Pollutants can include hazardous materials along with insecticides and pesticides and other chemicals used daily if released at unusually high volumes.

History of Water Supply Contamination in Swift County

According to the Swift County Water Plan all community water suppliers use ground water. Currently six municipal water supply systems provide drinking water to Appleton, Benson, DeGraff, Holloway, Kerkhoven and Murdock. All six water plants are in good working condition, and undergo annual inspections by municipal employees. Clontarf and Danvers currently do not have public water systems. Individual wells provide drinking water for the remaining two cities and rural residences within Swift County and not all systems are within the floodplain.

Thick glacial till is found throughout the majority of Swift County. This soil type reduces the effect contamination might have on the water supply. Water supply contamination poses the largest threat in the southeast portion of the county, where limestone and karst topography is

more common. The northeast portion of the county poses a concern due to the agricultural activities, particularly the abundance of feedlots.

Three municipalities are currently in the wellhead protection program: Benson, Appleton, and Holloway. Benson's Wellhead Protection Plan was approved by the Minnesota Department of Health in 2003 and Appleton's plan is currently in process. Kerkhoven will be brought into the program within the next five years. Kerkhoven, Murdock and DeGraff have been issued phasing numbers and are public water suppliers and will have wellhead protection plans in the next five to ten years. **Source: Swift County Water Plan 2003, Minnesota Department of Health 2009**

Relationships with Other Hazards – Cascading Effects

Infectious diseases. Polluted human water sources may cause illness and epidemics in both humans and animals.

Plans and Programs for Water Supply Contamination

Drinking Water Standards, Requirements. The U.S. Environmental Protection Agency (EPA), as required by the Safe Drinking Water Act of 1996, sets uniform nationwide minimum standards for drinking water. Minnesota Department of Health and environmental agencies have the primary responsibility for ensuring that each public water supplier meets these federal drinking water standards, or more stringent ones established by the state.

Public Water Supply Monitoring. The EPA requires an ongoing water quality-monitoring program to ensure public water systems are working properly. Local officials work together with the Minnesota Department of Health and the EPA to ensure that all public water supplies are safe. The EPA requires all local suppliers to promptly inform the public if their supply becomes contaminated. Inspections of drinking water in restaurants, bars and other private businesses are inspected at least yearly by the Countryside Public Health Services located in Benson.

Wellhead Protection Program. Swift County is in the first stage of setting up a wellhead protection plan required by the state of Minnesota. The cities in the county will complete wellhead protection plans, that will comply with the state and federal guidelines that are set up for wellheads. The Environmental Protection Agency has set up guidelines that the counties in Minnesota must meet. All counties must have a wellhead protection plan started by 2006 or if any new well is added the wellhead protection plan must start immediately. All the cities have started their plans in Swift County.

Well Construction and Testing. Since 1974, all water wells constructed in Minnesota must meet the location and construction requirements of the Minnesota Well Code. These requirements pertain to private wells, also. Countryside Public Health tests private wells for contamination.

Feedlot Pollution Prevention. Several steps are taken to protect ground water sources from feedlot runoff. County ordinances require that all feedlots within the county participate in the state's feedlot programs and county extension services promote best management practices to minimize runoff from feedlots into rivers. These ordinances are currently under review by the Environmental Services Department and County Board.

Sealed Wells. Swift County Soil and Water Conservation District has received grant money to help home-owners to seal unused wells.

Emergency Water. The National Guard would provide drinking water in the event of contamination and disaster.

Program Gaps and Deficiencies

- The County Emergency Resource Guide identifies alternate sources of drinking water, including locations for acquiring adequate amounts of bottled water, in the event of contamination. Sources are not local and must be moved in from other locations.
- Security around well houses is not adequate.
- Some feedlots are not in compliance with MPCA rules.

Hazard: Environmental – Wastewater Treatment System Failure

Wastewater treatment and disposal is an important part of our need to protect and preserve Minnesota's water resources. Although minimal, failure of wastewater treatment systems poses a potential risk in Swift County. Numerous hazards may impact water treatment plants, including severe flooding.

Short-term or long-term utility failure during a disaster is a real threat. Issues around utility failure include damaging health conditions, slowing and delaying disaster recovery, loss of life, and economic impact for down times and costs related to recovery. Other issues associated with utility systems include those affected by seasonal events such as sleet and ice storms, tornados and straight-line winds, and the increased demand for electricity throughout Swift County.

History of Utility Hazards in Swift County

Wastewater systems typically pose higher risks of failure during the spring, when melting snow and runoff may cause flooding. None in the county lie within or close to the floodplain. Every municipality has a city sewer system except DeGraff.

Recent years utility failure has been minimized some. More and more power lines are underground, better equipment has improved reaction time. Improved technology has improved the time taken to find the cause of failure cutting the down time.

Relationships with Other Hazards – Cascading Effects

Infectious Diseases. The failure of septic treatment facilities and systems can have immediate adverse impacts on human health through communicable diseases and epidemics.

Water Supply Contamination. The failure of septic treatment facilities and systems can have immediate adverse impacts on potable water supplies.

Plans and Programs for Wastewater Treatment System Failure

Certified Operators and Inspections. The Minnesota Pollution Control Agency requires routine inspect of all public wastewater systems. These operators are required to take state training to maintain their certified operator status.

State Permit Enforcement. The MPCA regulates wastewater systems. State staff in the water-quality point-source program issue permits, monitors compliance through data review and inspections, and enforce permit conditions.

Emergency Response Plans. City emergency plans do not address necessary steps to take in the event of a disaster.

Program Gaps and Deficiencies

- The effects severe flooding would have on wastewater plants have not been determined.
- Emergency plans do not address necessary steps to take in the event of a facility failure.
- Human-induced events, like terrorism, are not addressed in the emergency plans.
- Swift County does not have an ordinance requiring periodic inspection of individual septic tank systems.
- Power lines need to be put underground, however this causes large increases in maintenance costs.
- Utility companies need the latest in equipment and technology, which limited resources do not always allow. Available resources are often based on population density.

Hazard: Civil Disturbances/Terrorism

Terrorism/civil disturbances are intentional, criminal, malicious uses of force and violence to perpetrate disasters against people or property. They can be the result of terrorism – actions intended to intimidate or coerce a government or the civilian population to further political or social objectives – which can be either domestic or international, depending on the origin, base and objectives of the terrorist organization. Finally, these acts can be of individuals perpetrated for personal reasons.

Hazards can result from the use of weapons of mass destruction, including biological, chemical, nuclear and radiological weapons; arson, incendiary, explosive and armed attacks; industrial sabotage and intentional hazardous materials releases; and cyber terrorism.

History of Civil Disturbances/Terrorism

Swift County has no history of terrorist or individual acts designed to cause disasters against people or property. Vandalism, assaults and other criminal acts do occur, but these isolated incidents fall within the purview of local law enforcement. The county has been the site of some protests and demonstrations over the years (i.e., NFO; school strike and prison lock down); however, these were all orderly, peaceful and managed by local officials.

A prison is located within Appleton municipal limits; however it closed in February 2010. Any incidents that occurred were handled internally by trained professional staff, for example a riot in

February 1997. The prison had the potential of having disturbances that could affect or impact the community as a whole. However, the prison had its own Emergency Management Plan and employees/personnel were specifically trained in these matters as it was their day-to-day operations mode. It is expected that this facility will be reused in the future for this purpose. The prison was a very valuable asset in dealing with these issues throughout the rest of the county.

School Violence.
Violence in schools has become an increasingly important topic among teachers, students, and police; focusing on bullying, school shootings, vandalism, and overall safety. Regardless of the availability of drugs, alcohol, and weapons to youth, it appears as though school incidences are decreasing. This fact is demonstrated in the Minnesota Student Surveys completed in 2001 and 2007 in Swift County. The majority of students "strongly agree or agree" to feeling safe walking to and from school and at school. From 2001 to 2007, a greater majority of students shifted up from "agree" to "strongly agree" concerning these topics. In general, surveyed students in 6th, 9th, and 12th grade had fewer people threatened and kicked/bitten/or hit in the previous 12 months from 2001 to 2007. The numbers of incidences remained primarily constant were those students that were pushed/shoved/grabbed at (on average 37%) and stabbed/had a gun fired at them (less than 5%) from when surveyed in 2001 and 2007.

From 2001 to 2007, the numbers remained consistent with how often (number of days) students brought a gun onto school property with all students reporting at least 95% at never bringing guns to schools. The only noticeable change was in senior males, from 6% to 11% in bringing a non-gun weapon to school six or more days from 2001 to 2007.

Relationship to Other Hazards – Cascading Effects
Cascading effects of an intentional terrorist or civil disturbance disaster are highly dependent on the specific mode used and asset/population targeted. Many of these have been detailed in the technological hazards portion of the plan covering utility facility incidents, environmental and hazardous materials incidents. Fires and secondary explosions are possible with explosive attacks or fires from arson attacks.

Plans and Programs for Civil Disturbances/Terrorism
Cooperation with State, Federal Officials. Swift County officials are working with state and federal officials on domestic preparedness efforts, including the Department of Health to ensure that health care facilities are prepared for bio-terrorism events.

School Multi-Hazard Emergency Plans. Since 2003, every school district in Minnesota has been mandated by state statute to institute multi-hazard emergency planning including at least quarterly drills and exercises. Each plan and practice is required to include prevention and response strategies – in particular to school violence. Each school in Swift County implements their particular plans differently, while holding to the same basic tenets and works with their respective law enforcement to uphold child safety.

Program Gaps and Deficiencies

- Design and operations of facilities in the county were not developed with terrorism prevention in mind.
- Many of the recreation facilities throughout the county provide easy, unmonitored access.
- Governmental/public facility buildings, including the county courthouse and city hall, have unrestricted pedestrian access and loading dock/delivery facilities. Even the public schools have very limited security procedures for easy access.
- All of the city halls or city facilities and the Swift County Courthouse, are not blast resistant and except for the courthouse do not have up-to-date fire suppression systems.
- Emergency response plans have not fully addressed this issue.
- Extremely low specter of receptivity by governing bodies to mitigation of building/facility security.