MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN FREEBORN COUNTY, MINNESOTA

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FREEBORN COUNTY MINNESOTA'S 2009 MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

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Mitigation Vision for the Future

Emergency Managers succeed and fail by how well they follow the following fundamental principals of emergency management, mitigation, preparedness, response and recovery. Purposefully, our emergency management forefathers put the word mitigation first as a means to prevent or minimize the effects of disasters.

Mitigation forms or should form the very foundation of every emergency management agency. The prevention of disasters in communities and emergency management agencies that adopt mitigation practices in an effort to reduce, minimize, or eliminate hazards in their community have found the vision for the future of emergency management. The Federal Disaster Mitigation Act of 2000 has set the benchmark and outlines the criteria for communities with the vision to implement hazard mitigation practices in their communities.

Freeborn County and its cities and townships realize the benefits achieved by the development and implementation of mitigation plans and strategies in our community. Freeborn County elected officials, public safety organizations, planners, and many others have proved that by working together towards the development and implementation of this plan that they have the vision to implement mitigation practices therefore reducing the loss of life and property in their communities.

1.1 About the Plan

The Freeborn County Multi-Jurisdictional Hazard Mitigation Plan is the first phase of a multi-hazard hazard mitigation plan for our community. The plan as written fulfills the requirements of the Federal Disaster Mitigation Act of 2000. The Act is administered by the Federal Emergency Management Agency (FEMA). The Act provides federal assistance to state and local emergency management to mitigate against potential future damages from disasters. The plan also encourages cooperation among various organizations and crosses political subdivisions.

This plan complies with all requirements and scope of work as written in Freeborn County's Hazard Mitigation Grant application dated October 22, 2007.

1.2 Authority

Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act Title 44 CFR as amended by Section 102 of the Disaster Mitigation Act of 2000 gives state and local governments the framework to evaluate and mitigate all hazards as a condition of receiving federal disaster funds. The Freeborn County Multi-Jurisdictional Hazard Mitigation Plan is a requirement of the law.

1.3 Funding

Freeborn County has been awarded a \$22,120.00 hazard mitigation planning grant through FEMA and Minnesota Division of Homeland Security and Emergency Management for the development of the plan.

1.4 Scope

The scope of the Freeborn County Multi-Jurisdictional Hazard Mitigation Plan encompasses all areas of Freeborn County including all its cities and townships. The plan will identify all natural and technological hazards that could threaten life and property in our communities. The scope of this plan includes both short and long term mitigation strategies, implementation and possible sources of project funding.

The plan also contains the following information:

- The vision of mitigation in our community (Preface).
- The profile of Freeborn County, its geography, history, physical features and other community indicators (Chapter 2: County Profile).

Section 1

- The planning process and the involvement of all cities, townships, state and federal governments, the public, industry and other community players (Chapter 3: Planning Process).
- Documentation of Freeborn County's past and predicted exposure to natural hazards and the potential risks that include the impacts on critical infrastructure with anticipated losses (Chapter 4: Risk Assessments).
- An overview of Freeborn County's capabilities to implement hazard mitigation goals and objectives, policies that will effectively mitigate risks to our community (Chapter 5, Natural & Technological Hazard Mitigation Goals & Objectives).
- Procedures for maintaining an effective, long range hazard mitigation plan and the strategy to implement it (Chapter 6, Plan Implementation & Maintenance).
- An assessment of Freeborn County's current policies, goals and regulations that pertain to hazard mitigation.
- Critical facilities information
- Documentation of the process (Appendices).

1.5 Purpose

The purpose of the Freeborn County Emergency Management Agency's Multi-Jurisdictional Hazard Mitigation Plan is to identify risks and vulnerability to Freeborn County and to formulate a plan of action to reduce damage and loss of life from natural and technological disasters. This plan shall serve as a benchmark for future mitigation activities and will identify Freeborn County and its cities and townships mitigation goals and objectives. The plan will also prioritize potential risks and vulnerabilities in an effort to minimize the effects of disasters in our community.

Realizing that identifying our community's risks and working collectively toward the prevention of disasters in our community is in everyone's best interest, the Freeborn County Emergency Management Office has taken a lead role in the development of the Freeborn County Multi-Jurisdictional Hazard Mitigation Plan. Under the Agency's leadership, there has been an endorsement and a commitment by the Freeborn County Board of Commissioners and the governing body of each city and township in Freeborn County.

Mitigation planning is imperative to lessen the impacts of disasters in Freeborn County. The written plan is an excellent method by which to organize Freeborn County's mitigation strategy, but the implementation of the plan and its components is vital to achieve a community that is resistant to the effect of a disaster. The implementation of the plan will provide a reduction in the loss of life and property and allow our community to prosper with minimal disruption of vital services to our citizens.

1.6 Consistency with Federal and State Mitigation Policies

The plan is intended to enhance and complement state and federal recommendations for the mitigation of natural and technological hazards in the following ways:

- Substantially reduce the risk of life, injuries and hardship from the destruction of natural and technological disasters on an ongoing basis.
- Create a greater awareness to the public about the need for individual preparedness and about building safer, more disaster resistant communities.
- Develop strategies for long-term community sustainability during community disasters.
- Develop governmental and business continuity plans that will continue essential private sector and governmental activities during disasters.

The Federal Emergency Management Agency publishes many guidance documents for local governments for mitigating natural disasters. The Freeborn County Multi-Jurisdictional Hazard Mitigation plan fully recognizes, adopts, incorporates and endorses the following principals.

- Develop a strategic mitigation plan for Freeborn County.
- Enforce current building codes.
- Develop incentives to promote mitigation.
- Incorporate mitigation of natural hazards into land use plans.
- Promote awareness of mitigation opportunities and programs throughout our community on a continual basis.
- Identify potential funding sources for mitigation projects.

The private sector is often an overlooked segment of the community during disasters. It is vital that this sector of a community is included in mitigation efforts that are consistent with state and federal recommendations such as,

- Develop mitigation incentives with insurance agencies and lending institutions.
- Encourage the creation of a business continuity plan for the continuance of commerce during disasters.
- Partner with businesses in an effort to communicate with customers about the hazards in our community and possible solutions.

Individual citizens must be made aware of the hazards they face. Additionally, they must be educated in how to protect themselves from the hazards they face. They must be shown that mitigation in their community is an important part of reducing loss of life and property in their community. Their support is critical to the success of any mitigation effort. The Freeborn County Plan supports the following FEMA recommendations regarding individual citizens:

- Become educated on the hazards that your community and you face.
- Become part of the process by supporting and encouraging mitigation programs that reduce vulnerability to disasters.
- That individual responsibility for safe guarding you and your family prior to a disaster event.

1.7 Goals and Objectives

The following goals and objectives are the basis of this plan and summarize what the Freeborn County Multi-Jurisdictional Hazard Mitigation Planning team will accomplish as a result of implementing this plan.

- Maximize the use of all resources by promoting intergovernmental coordination, partnerships in the public and private sectors.
- Harden our communities against the impacts of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proven effective.
- Reduce and where possible eliminate repetitive damage, loss of life and property from disasters.
- Bring greater awareness throughout the community about potential hazards and the need for community preparedness.

2.1 History and Map

Freeborn County is known as the southern gateway of Minnesota. Located in the heart of the County at the intersection of Interstate Highways 90 and 35, is the County Seat of Albert Lea. The 720 square miles of rolling land, beautiful lakes, and rich soil have historically attracted people to Freeborn County, and today the County has a population of 33,000 within 14 cities and 20 townships. Freeborn County offers a highly productive agricultural trade center, excellent school systems, a variety of industrial and retail establishments, cultural and recreational activities, low cost of living and a safe environment.

Figure 2-1 Location Map of Freeborn County MN



2.2 Government

Freeborn County is governed by a five member Board of Commissioners that are elected by popular vote. There are fourteen cities in Freeborn County that include City of Albert Lea, City of Alden, City of Clarks Grove, City of Conger, City of Emmons, City of Freeborn, City of Geneva, City of Glenville, City of Hartland, City of Hayward, City of Hollandale, City of Manchester, City of Myrtle, and the City of Twin Lakes. There are twenty townships in Freeborn County that include Albert Lea Township, Alden Township, Bancroft Township, Bath Township, Carlston Township, Freeborn Township, Freeman Township, Geneva Township, Hartland Township, Hayward Township, London Township, Manchester Township, Mansfield Township, Moscoe Township, Newry Township, Nunda Township, Oakland Township, Pickerel Township, Riceland Township, and Shell Rock Township.



Figure 2-2 Political Boundaries in Freeborn County

2.3 Demographics

The following is statistical data from the U. S. Census Bureau that represents the demographics of Freeborn County, Minnesota.

Table 2-1 Demographics

| People Quick Facts | Freeborn County | Minnesota |
|---|--------------------|-----------|
| Population, 2006 estimate | 31,636 | 5,167,101 |
| Population, percent change, April 1, 2000 to July 1, 2006 | -2.9% | 5.0% |

COUNTY PROFILE

| People Quick Facts | Freeborn County | Minnesota |
|--|--------------------|-----------|
| Population, 2000 | 32,584 | 4,919,479 |
| Persons under 5 years old, percent, 2006 | 5.8% | 6.7% |
| Persons under 18 years old, percent, 2006 | 21.9% | 24.3% |
| Persons 65 years old and over, percent, 2006 | 19.1% | 12.1% |
| Female persons, percent, 2006 | 50.6% | 50.3% |
| Caucasian, percent, 2006 (a) | 98.0% | 89.3% |
| African American persons, percent, 2006 (a) | .5% | 4.5% |
| American Indian and Alaska Native persons, percent, 2006 | 0.2% | 1.2% |
| Asian persons, percent, 2006 (a) | .6% | 3.5% |
| Native Hawaiian and Other Pacific Islander, percent, 2006 | 0 | 0.1% |
| Persons reporting two or more races, percent, 2006 | .7% | 1.5% |
| Persons of Hispanic or Latino origin, percent, 2006 (b) | 6.6% | 3.8% |
| Caucasian, not of Hispanic/Latino origin, percent, 2006 | 91.6% | 85.9% |
| Living in same house in 1995 and 2000, pct age 5+ | 64.3% | 57.0% |
| Foreign born persons, percent, 2000 | 3.1% | 5.3% |
| Language other than English spoken at home, pct age 5+, 2000 | 7.0% | 8.5% |
| High school graduates, percent of persons age 25+, 2000 | 81.2% | 87.9% |
| Bachelor's degree or higher, pct of persons age 25+, 2000 | 12.8% | 27.4% |
| Persons with a disability, age 5+, 2000 | 5,744 | 679.236 |
| Mean travel time to work (minutes), workers age 16+, 2000 | 18.1% | 21.9% |
| Housing units, 2006 | 14,145 | 2,283,453 |
| Homeownership rate, 2000 | 78.7% | 74.6% |
| Housing units in multi-unit structures, percent, 2000 | 15.5% | 22.3% |
| Median value of owner-occupied housing units, 2000 | \$71,400 | \$122,400 |

Section 2

| People Quick Facts | Freeborn County | Minnesota |
|--------------------------------------|--------------------|-----------|
| Households, 2000 | 13,356 | 1,895,127 |
| Persons per household, 2000 | 2.40 | 2.52 |
| Median household income, 2004 | \$39,865 | \$51,2002 |
| Per capita money income, 1999 | \$18,325 | \$23,198 |
| Persons below poverty, percent, 2004 | 8.7% | 8.1% |

| Business Quick Facts | Freeborn County | Minnesota |
|---|--------------------|-------------|
| Private nonfarm establishments, 2005 | 892 | 892 |
| Private nonfarm employment, 2005 | 11,510 | 11,510 |
| Private nonfarm employment, percent change 2000-2005 | -13.5% | -13.5% |
| Nonemployer establishments, 2005 | 2,010 | 373,419 |
| Total number of firms, 2002 | 2,606 | 443,827 |
| Black-owned firms, percent, 2002 | F | 1.8% |
| American Indian and Alaska Native owned firms, percent 2002 | F | .6% |
| Asian-owned firms, percent, 2002 | F | 1.7% |
| Native Hawaiian and Other Pacific Islander owned firms, percent, 2002 | F | S |
| Hispanic-owned firms, percent, 2002 | F | .9% |
| Women-owned firms, percent, 2002 | 23.1% | 27.9% |
| Manufacturers shipments, 2002 (\$1000) | 538,030 | 80,623,873 |
| Wholesale trade sales, 2002 (\$1000) | 272,496 | 108,388,816 |
| Retail Sales, 2002 (\$1000) | 350,390 | 60,015,531 |
| Retail sales per capita, 2002 | \$10,908 | \$11,943 |
| Accommodation and food services sales, 2002 (\$1000) | 29,364 | 7,959,590 |
| Building permits, 2006 | 41 | 26,352 |
| Federal spending, 2004 (\$1000) | 181,975 | 28,790,741 |

| Geography Quick Facts | Freeborn County | Minnesota |
|--------------------------------|------------------------------|-----------|
| Land area, 2000 (square miles) | 707.64 | 79,610.08 |
| Persons per square mile, 2000 | 46.0 | 61.8 |
| Metropolitan Area | Albert Lea, MN Micro Area | |
| FIPS Code | 047 | 27 |

* Includes persons reporting only one race

* Hispanics may be of any race, so also are included in applicable race categories

- * F Fewer than 100 firms
- * S Suppressed; does not meet publication standards

2.4 Economy

Freeborn County history is rich. From a bountiful countryside to a thriving retail and commercial hub, the culture and growth are boundless. Surrounded by picturesque lakes and landscapes, the community continues to thrive.

Known for extremely fertile soils, Freeborn County is a state leader in corn, soybean, hog, and potato production. Agriculture is a thriving industry, providing a strong base for the area's economy.

Numerous businesses have made the Albert Lea – Freeborn County area their home because of its key location at the intersection of Interstates 35 and 90. Shopping abounds with a major shopping mall and new strip malls. A thriving historic downtown retail district contributes charm and provides ample shopping opportunities with plenty of character.

2.5 Climate

Freeborn County climate is considered severe, especially in the winter months. Freeborn County averages 31 inches of rain per year and 38 inches of snow a year with average temperatures ranging from a high of 83 degrees in summer to a low of 4 degree in winter. This equates to an average temperature of 46 degrees and consists of warm summers and cold winters. Residents of Freeborn County experience four distinct seasons. Weather conditions can be extreme during the winter months. These will be discussed in greater detail in this plan.

2.6 Physical Features

Freeborn County is a county located in the U.S., in the State of Minnesota. As of 2000, the population was 32,584. Its county seat is Albert Lea. According to the U.S.

Census Bureau, the county has a total square area of 723 square miles, of which, 708 square miles of it is land and 15 square miles is water. The Le Sueur River, a tributary of the Minnesota River, starts in the northern part of the county. Freeborn County has 16 lakes, mostly in the western half of the county. They include:

- Albert Lea Lake: Albert Lea Township and Hayward Township
- Bear Lake: Nunda Township
- Church Lake: Pickerel Lake Township
- Fountain Lake: Albert Lea Township and Bancroft Township
- Freeborn Lake: Carlston Township and Freeborn Township
- Geneva Lake: Geneva Township and Bath Township
- Goose Lake: Albert Lea Township
- Halls Lake: Manchester Township
- Hickory Lake: Moscow Township
- Lower Twin Lake: Nunda Township
- Pickerel Lake: Albert Lea Township and Pickerel Township
- School Section Lake: Manchester Township
- State Line Lake: Nunda Township
- Sugar Lake: Manchester Township
- Upper Twin lake: Pickerel Township and Nunda Township
- White Lake: Pickerel Lake Township and Albert Lea Township

Freeborn County boasts abundant natural beauty. Several Lakes throughout the county provide recreation, fishing, wildlife watching, and scenic beauty. Myre-Big Island State Park features hiking trails to observe glacial formations and spectacular examples of the vanishing oak savanna landscape.

The Blazing Star Bike Trail explores the beautiful countryside and will soon connect to several rural communities adjacent to Albert Lea and Freeborn County.

Events and activities schedules throughout the year make Freeborn County an ideal place to visit or live. Take a step back in time as you visit the Freeborn County Museum and Historical Village, or attend the Big Island Rendezvous & Festival. Enjoy peace and tranquility aboard the Pelican Breeze II Cruise Boat. Walk the Blazing Star Bike Trail, or take in the natural beauty of our Myre-Big Island State Park.

Experience the thrill of zooming over 250 miles of groomed snowmobile trails during the winter months. Community Theatre, unique events, specialty shopping, two museums, and much more make Albert Lea and Freeborn County the perfect place to call home. Source:

2.7 Freeborn County Cities

Albert Lea

Albert Lea is the southern gateway of Minnesota, conveniently located at the intersection of Interstates 35 and 90. The population of Albert Lea was 18,356 at the 2000 census. As the largest city and County Seat, Albert Lea thrives with a variety of manufacturing, service, and retail businesses. It is on the shores of Fountain Lake, Pickerel Lake, Albert Lea Lake, Goose Lake, School Lake, and Lake Chapeau. Fountain Lake and Albert Lea Lake are part of the Shell Rock River flowage. Albert Lea is a thriving community of commercial enterprises, including the manufacturing of store fixtures, processed meat/food products, deli foods and condiments, machined parts, wood and packaging products, and many others. Albert Lea is the site of the city that was originally mapped on expeditions by Lieutenant Albert Lea of the United States Dragoons in 1835. In appreciation for the quality of the maps, the explorer Nicollet renamed Lea's Fox Lake to Lake Albert Lea for which the settlement and city were subsequently named. The city was platted in 1856.

The city's early growth was based upon agriculture, farming support services and manufacturing and was a significant rail center. At one time it was the site of Cargill's headquarters. Other manufacturing included Edwards Manufacturing (barn equipment), Scotsman Ice Machines, Streater Store Fixtures, and Universal Milking Machines. Like many U.S. cities much of the manufacturing base had diminished. A long-time center of the city's job opportunity was the Wilson & Company meat packing plant, later known as Farmstead and Farmland. This facility was destroyed by fire. The largest employer is currently Albert Lea Medical Center/Mayo with over 1,500 jobs.

According to the United States Census Bureau, the city has a total area of 12.6 square miles of which, 10.8 square miles of it is land and 1.8 square miles of it is water. The total area is 14.17% water.

As of the census of 200, there were 18,356 people, 7.785 households, and 4,826 families residing in the city. The population density was 1,702.5 people per square mile. There were 8,133 housing units at an average density of 754.3/sq mi. The racial makeup of the city was 92.8% White, 0.37% African American, 0.29% Native American, .80% Asian, .03% Pacific Islander, 4.54% from other races, and 1.18% from two or more races. 9/48% of the populations were Hispanic or Latino of any race.

Of the 7,785 households, 26.9% had children under the age of 18 living with them, 49.5% were married couples living together, 9.1% had a female householder with no husband present, and 38% were non-families. 33% of all households were made up of individuals and 16.8% had someone living alone who was 65 years of age or older. The average household size was 2.28 and the average family size was 2.88.

23% of Albert Lea's population were under the age of 18, 7.9% were 18 to 24, 24.6% were 25 to 44, 23.2% were from 45 to 64, and 21.3% were 65 years of age or older.

The median age was 41 years. For every 100 females there were 90.2 males. For every 100 females age 18 and over there were 87.6 males.

The median income for a household I the city was \$32,841, and the median income for a family was \$42,407. Males had a median income of \$31,383 versus \$21,114 for females. The per capita income for the city was \$17,979. 10.2% of the population and 6.9% of families were below the poverty line. 10.6% of those under the age of 18 and 10.9% of those 65 and older were living below the poverty line.

Alden

The City of Alden lies west of Albert Lea on I-90 and is located on the shores of Morin Lake. The population was 652 at the 2000 census. Alden is on the western edge of Freeborn County and is in the midst of an extremely rich agriculural area. Alden's development corporation was developed in the early 1960s and offers guidance, impetus and assistance to those interested in increasing the economic, industrial, cultural and social growth of Alden.

According to the United States Census Bureau, the city has a total area of 1.0 square miles, of which, 1.0 square miles of it is land and 0.04 square miles of it (3.06%) is water.

Minnesota State Highway 109 and Interstate 90 are two of the main routes in the community.

As of the census-of 2000, there were 652 people, 272 households, and 187 families residing in the city. The population density was 680.1 people per square mile. There were 295 housing units at an average density of 307.7/sq mi. The racial makeup of the city was 97.70% White, 0.92% Asian, 1.23% from other races, and 0.15% from two or more races. Hispanic or Latino of any race was 3.07% of the population.

There were 272 households out of which 29.4% had children under the age of 18 living with them, 59.9% were married couples living together, 5.5% had a female householder with no husband present, and 31.3% were non-families. 29.0% of all households were made up of individuals and 17.6% had someone living alone who was 65 years of age or older. The average household size was 2.40 and the average family size was 2.91.

In the city the population was spread out with 24.8% under the age of 18, 6.7% from 18 to 24, 28.8% from 25 to 44, 18.7% from 45 to 64, and 20.9% who were 65 years of age or older. The median age was 39 years. For every 100 females there were 94.0 males. For every 100 females age 18 and over, there were 87.7 males.

The median income for a household in the city was \$40,000, and the median income for a family was \$42,250. Males had a median income of \$32,125 versus \$20,909 for females. The per capita income for the city was \$17,689. About 3.7% of families and 6.0% of the population were below the poverty line, including 1.3% of those under age 18 and 12.4% of those ages 65 or over.

Clarks Grove

Clarks Grove lies directly north of Albert Lea, just west of I-35, and is home to several family-owned businesses. Clarks Grove was named after a grove of trees owned by J. Mead Clark, and settled by Danish Baptists. The community was long known for having the first cooperative creamery in the state. The population was 734 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.4 square miles, all of it land.

As of the census of 2000, there were 734 people, 283 households, and 206 families residing in the city. The population density was 1,717.4 people per square mile. There were 296 housing units at an average density of 692.6/sq mi. The racial makeup of the city was 98.50% White, 0.27% Asian, 0.95% from other races, and 0.27% from two or more races. Hispanic or Latino of any race was 5.31% of the population.

There were 283 households out of which 39.2% had children under the age of 18 living with them, 59.0% were married couples living together, 10.2% had a female householder with no husband present, and 27.2% were non-families. 24.0% of all households were made up of individuals and 10.6% had someone living alone who was 65 years of age or older. The average household size was 2.59 and the average family size was 3.04.

In the city the population was spread out with 29.0% under the age of 18, 7.9% from 18 to 24, 29.6% from 25 to 44, 20.0% from 45 to 64, and 13.5% who were 65 years of age or older. The median age was 35 years. For every 100 females there were 103.9 males. For every 100 females age 18 and over, there were 104.3 males.

The median income for a household in the city was \$40,179, and the median income for a family was \$47,000. Males had a median income of \$33,542 versus \$20,000 for females. The per capita income for the city was \$16,491. About 3.6% of families and 6.7% of the population were below the poverty line, including 5.8% of those under age 18 and 7.7% of those ages 65 or over.

Conger

Conger is located about seven miles west of Albert Lea. The city is home to 133 residents, and growing. The city's beginnings go back to 1901 when a depot was erected by the New Germainia Rail Line, later the Rock Island line. The area was named Conger in 1902, in tribute to the honorable E.H. Conger, an Iowa legislator, who served as U.S. Minister to China. Shortly after the depot was erected, there followed a creamery, grain and coal company, hardware store, bank, blacksmith shop, lumberyard, and stockyards. Today there are approximately 12-15 businesses in and around Conger.

According to the United States Census Bureau, the city has a total area of 0.1 square miles, all of it land.

As of the census-of 2000, there were 133 people, 59 households, and 42 families residing in the city. The population density was 1,133.0 people per square mile. There were 62 housing units at an average density of 528.2/sq mi. The racial makeup of the city was 99.25% White and 0.75% African American.

There were 59 households out of which 18.6% had children under the age of 18 living with them, 62.7% were married couples living together, 6.8% had a female householder with no husband present, and 28.8% were non-families. 28.8% of all households were made up of individuals and 11.9% had someone living alone who was 65 years of age or older. The average household size was 2.25 and the average family size was 2.76.

In the city the population was spread out with 17.3% under the age of 18, 7.5% from 18 to 24, 26.3% from 25 to 44, 21.1% from 45 to 64, and 27.8% who were 65 years of age or older. The median age was 45 years. For every 100 females there were 90.0 males. For every 100 females age 18 and over, there were 89.7 males.

The median income for a household in the city was \$32,500, and the median income for a family was \$41,250. Males had a median income of \$26,875 versus \$18,125 for females. The per capita income for the city was \$17,944. There were 3.8% of families and 4.1% of the population living below the poverty line, including no under eighteens and 10.3% of those over 64.

Emmons

"The Gateway to Minnesota" is a small community that is nestled between Albert Lea and the Iowa border. This scenic town is small-town living at its best.

Freeborn

Freeborn is located along the north shore of beautiful Freeborn Lake, one of southern Minnesota's largest lakes. The village was originally platted in 1857, and was incorporated as a city in 1949. The population was 305 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.2 square miles, all of it land.

As of the census of 2000, there were 305 people (The population grows to 450 persons every summer thanks to the Jewish Chabad summer Yeshiva there named YKM), 131 households, and 88 families residing in the city. The population density was 1,706.2 people per square mile. There were 136 housing units at an average density of 760.8/sq mi. The racial makeup of the city was 99.02% White, 0.33% Native American, and 0.66% from two or more races. Hispanic or Latino of any race was 0.33% of the population.

There were 131 households out of which 23.7% had children under the age of 18 living with them, 59.5% were married couples living together, 4.6% had a female householder with no husband present, and 32.8% were non-families. 28.2% of all households were made up of individuals and 14.5% had someone living alone who

was 65 years of age or older. The average household size was 2.33 and the average family size was 2.81.

In the city the population was spread out with 20.0% under the age of 18, 7.5% from 18 to 24, 27.2% from 25 to 44, 25.2% from 45 to 64, and 20.0% who were 65 years of age or older. The median age was 41 years. For every 100 females there were 99.3 males. For every 100 females age 18 and over, there were 103.3 males.

The median income for a household in the city was \$38,500, and the median income for a family was \$47,031. Males had a median income of \$32,321 versus \$20,000 for females. The per capita income for the city was \$18,149. About 2.4% of families and 6.3% of the population were below the poverty line, including 5.3% of those under the age of eighteen and 6.5% of those sixty five or over.

Freeborn has a small town newspaper called the Freeborn Frisbee. The paper contains stories of local events, the residents and history of Freeborn. It is produced and edited quarterly.

Geneva

Geneva is one of the state's oldest towns, located about 13 miles north of Albert Lea; just east off of I-35 on County Road 35. Geneva is home for about 449 people. The city is part of the New Richland-Hartland-Ellendale-Geneva School district.

According to the United States Census Bureau, the city has a total area of 0.4 square miles, all of it land.

The population density was 1,097.3 people per square mile. There were 186 housing units at an average density of 454.5/sq mi. The racial makeup of the city was 99.55% White, 0.22% Native American and 0.22% Asian. Hispanic or Latino of any race was 0.45% of the population.

There were 184 households out of which 29.3% had children under the age of 18 living with them, 62.0% were married couples living together, 4.9% had a female householder with no husband present, and 31.5% were non-families. 28.3% of all households were made up of individuals and 14.7% had someone living alone who was 65 years of age or older. The average household size was 2.40 and the average family size was 2.95.

In the city the population was spread out with 25.4% under the age of 18, 8.0% from 18 to 24, 27.4% from 25 to 44, 22.9% from 45 to 64, and 16.3% who were 65 years of age or older. The median age was 38 years. For every 100 females there were 96.1 males. For every 100 females age 18 and over, there were 105.5 males.

The median income for a household in the city was \$39,375, and the median income for a family was \$50,893. Males had a median income of \$32,000 versus \$25,375 for females. The per capita income for the city was \$17,129. About 2.3% of families and 5.2% of the population were below the poverty line, including 3.5% of those under age 18 and 10.0% of those ages 65 or over.

Glenville

Glenville is a small town located just north of the Minnesota-Iowa border in Freeborn County, south of Albert Lea on Highway 65. Glenville has a long history in Freeborn County, being the home town of the county's first primary school established in 1856. The population was 720 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 2.2 square miles, of which, 2.2 square miles of it is land and 0.04 square miles of it is water.

As of the census of 2000, there were 720 people, 295 households, and 210 families residing in the city. The population density was 330.4 people per square mile. There were 312 housing units at an average density of 143.2/sq mi. The racial makeup of the city was 98.89% White, 0.14% Native American, 0.28% Asian, 0.42% from other races, and 0.28% from two or more races. Hispanic or Latino of any race was 0.69% of the population.

There were 295 households out of which 30.8% had children under the age of 18 living with them, 60.7% were married couples living together, 6.8% had a female householder with no husband present, and 28.5% were non-families. 24.1% of all households were made up of individuals and 8.5% had someone living alone who was 65 years of age or older. The average household size was 2.44 and the average family size was 2.92.

In the city the population was spread out with 25.3% under the age of 18, 7.2% from 18 to 24, 27.4% from 25 to 44, 24.3% from 45 to 64, and 15.8% who were 65 years of age or older. The median age was 38 years. For every 100 females there were 102.2 males. For every 100 females age 18 and over, there were 101.5 males.

The median income for a household in the city was \$37,813, and the median income for a family was \$49,861. Males had a median income of \$34,063 versus \$21,083 for females. The per capita income for the city was \$17,663. About 7.2% of families and 9.4% of the population were below the poverty line, including 13.6% of those under age 18 and 8.8% of those ages 65 or over.

In the November 4, 1985 issue of Sports Illustrated, Glenville High School was featured in the issue for the football team's losing streak. The team broke the 70-game streak a year later, on Sept. 6, 1986. At the time, it was the second-longest streak ever, surpassed only by Iberia, Missouri's 72-game skid in the 1960s and 70s.

On May 1, 2001, Glenville, Minnesota was subject to an F2 Tornado at or about 7:00 PM CST. A second tornado formed around 7:15 pm about 8 miles southwest of Austin, MN, hitting several farms as it tracked northeast. Several hog farms were destroyed. This tornado crossed Interstate 90 between mile markers 173 and 174 west of Austin, tracked just southeast of Oakland, MN and continued toward the community of Lansing, MN before lifting about 4 miles north of Austin.

Many businesses and families were affected, and the Minnesota National Guard and Red Cross helped the stranded victims. There were no casualties, other than minor injuries.

Hartland

Hartland derives its name from a small town on the Connecticut River in Windsor County, Vermont. Hartland was settled in 1857, and was incorporated as a city in 1893. For many years Hartland has been noted for its excellent marching band, its excellent baseball teams, and its progressive attitude. The population was 288 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.3 square miles, all of it land.

Minnesota State Highway 13 serves as a main route in the community.

As of the census of 2000, there were 288 people, 134 households, and 84 families residing in the city. The population density was 1,052.0 people per square mile. There were 144 housing units at an average density of 526.0/sq mi. The racial makeup of the city was 98.61% White, 1.39% from other races. Hispanic or Latino of any race was 1.39% of the population.

There were 134 households out of which 23.1% had children under the age of 18 living with them, 52.2% were married couples living together, 6.0% had a female householder with no husband present, and 37.3% were non-families. 32.8% of all households were made up of individuals and 13.4% had someone living alone who was 65 years of age or older. The average household size was 2.15 and the average family size was 2.74.

In the city the population was spread out with 20.5% under the age of 18, 7.6% from 18 to 24, 31.3% from 25 to 44, 21.9% from 45 to 64, and 18.8% who were 65 years of age or older. The median age was 39 years. For every 100 females there were 108.7 males. For every 100 females age 18 and over, there were 108.2 males.

The median income for a household in the city was \$37,500, and the median income for a family was \$46,250. Males had a median income of \$29,792 versus \$26,458 for females. The per capita income for the city was \$22,429. About 5.1% of families and 3.8% of the population were below the poverty line, including none of those under the age of eighteen or sixty five or over.

Hayward

Hayward was named after early settler David Hayward. It was settled in 1857 and platted in 1877. Hayward is noted for its unique businesses, including Nick's Meats, famous for their award-winning meat products. The population was 249 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.6 square miles, all of it land.

As of the census of 2000, there were 249 people, 111 households, and 74 families residing in the city. The population density was 400.4 people per square mile. There were 116 housing units at an average density of 186.6/sq mi. The racial makeup of the

city was 95.98% White, 4.02% from other races. Hispanic or Latino of any race was 4.02% of the population.

There were 111 households out of which 24.3% had children under the age of 18 living with them, 55.0% were married couples living together, 8.1% had a female householder with no husband present, and 34.2% were non-families. 34.2% of all households were made up of individuals and 22.5% had someone living alone who was 65 years of age or older. The average household size was 2.24 and the average family size was 2.84.

In the city the population was spread out with 23.3% under the age of 18, 6.4% from 18 to 24, 20.1% from 25 to 44, 30.1% from 45 to 64, and 20.1% who were 65 years of age or older. The median age was 46 years. For every 100 females there were 93.0 males. For every 100 females age 18 and over, there were 91.0 males.

The median income for a household in the city was \$33,750, and the median income for a family was \$52,500. Males had a median income of \$30,536 versus \$22,361 for females. The per capita income for the city was \$19,750. About 4.4% of families and 5.0% of the population were below the poverty line, including 10.9% of those under the age of eighteen and 6.5% of those sixty five or over.

Extreme Makeover: Home Edition had built a house for a family in Hayward. The episode will air on television in December of 2009.

Hollandale

Hollandale is located in the northeast part of Freeborn County, just off of I-35. The community was developed as farmland, after its 15,000 acres of swampland was drained in 1923. The Hollandale Christian School is known for its excellent faith-based education for young students in kindergarten through eighth grade. The population was 292 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.4 square miles, all of it land.

As of the census of 2000, there were 292 people, 131 households, and 88 families residing in the city. The population density was 677.0 people per square mile. There were 137 housing units at an average density of 317.6/sq mi. The racial makeup of the city was 95.55% White, 4.45% from other races. Hispanic or Latino of any race was 8.22% of the population.

There were 131 households out of which 25.2% had children under the age of 18 living with them, 55.0% were married couples living together, 6.1% had a female householder with no husband present, and 32.8% were non-families. 32.1% of all households were made up of individuals and 16.0% had someone living alone who was 65 years of age or older. The average household size was 2.23 and the average family size was 2.73.

In the city the population was spread out with 22.9% under the age of 18, 5.8% from 18 to 24, 25.3% from 25 to 44, 19.5% from 45 to 64, and 26.4% who were 65 years of

age or older. The median age was 42 years. For every 100 females there were 86.0 males. For every 100 females age 18 and over, there were 89.1 males.

The median income for a household in the city was \$26,250, and the median income for a family was \$41,875. Males had a median income of \$33,214 versus \$20,313 for females. The per capita income for the city was \$15,972. About 11.8% of families and 15.2% of the population were below the poverty line, including 28.9% of those under the age of eighteen and 4.7% of those sixty five or over.

Manchester

Manchester, originally platted in 1882, received its name from an Illinois settler named Mathias Anderson and is located on Minnesota Highway 13. The population was 81 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.1 square miles, all of it land.

Minnesota State Highway 13 serves as a main route in the community, and Interstate 90 is nearby.

As of the census of 2000, there were 81 people, 32 households, and 23 families residing in the city. The population density was 910.2 people per square mile. There were 33 housing units at an average density of 370.8/sq mi. The racial makeup of the city was 100.00% White.

There were 32 households out of which 28.1% had children under the age of 18 living with them, 43.8% were married couples living together, 15.6% had a female householder with no husband present, and 28.1% were non-families. 18.8% of all households were made up of individuals and 6.3% had someone living alone who was 65 years of age or older. The average household size was 2.53 and the average family size was 2.96.

In the city the population was spread out with 23.5% under the age of 18, 11.1% from 18 to 24, 23.5% from 25 to 44, 24.7% from 45 to 64, and 17.3% who were 65 years of age or older. The median age was 36 years. For every 100 females there were 97.6 males. For every 100 females age 18 and over, there were 100.0 males.

The median income for a household in the city was \$26,786, and the median income for a family was \$49,375. Males had a median income of \$35,833 versus \$19,375 for females. The per capita income for the city was \$15,392. There were 15.8% of families and 15.6% of the population living below the poverty line, including 19.2% of under eighteens and none of those over 64.

Myrtle

Myrtle is named after Mrs. Myrtle Lane, who was the postmistress of a small post office located about a mile east of the present town form 1886 to 1900. The building of the Illinois Central Railroad in 1900 between Cedar Rapids, Iowa, and Albert Lea resulted in the building of a depot in Section Seven of London Township.

In 1901, Albert A. Schuhmacher had a portion of his nearby farm surveyed and platted into lots. This resulted in the start of the present community. This community became the center for the Bohemian (Czech) settlement in Freeborn County. This was emphasized with the location of what was once the ZCBJ Wooden Hall, and the present historic Brick Hall on County Road 30 north of Myrtle. The population was 63 at the 2000 census.

According to the United States Census Bureau, the city has a total area of 0.1 square miles, all of it land.

As of the census of 2000, there were 63 people, 30 households, and 15 families residing in the city. The population density was 606.2 people per square mile. There were 36 housing units at an average density of 346.4/sq mi. The racial makeup of the city was 96.83% White and 3.17% Asian.

There were 30 households out of which 20.0% had children under the age of 18 living with them, 40.0% were married couples living together, 3.3% had a female householder with no husband present, and 50.0% were non-families. 43.3% of all households were made up of individuals and 16.7% had someone living alone who was 65 years of age or older. The average household size was 2.10 and the average family size was 3.07.

In the city the population was spread out with 19.0% under the age of 18, 9.5% from 18 to 24, 25.4% from 25 to 44, 31.7% from 45 to 64, and 14.3% who were 65 years of age or older. The median age was 42 years. For every 100 females there were 125.0 males. For every 100 females age 18 and over, there were 121.7 males.

The median income for a household in the city was \$23,125, and the median income for a family was \$43,125. Males had a median income of \$20,833 versus \$18,750 for females. The per capita income for the city was \$13,164. None of the population and none of the families were below the poverty line.

Twin Lakes

Twin Lakes is located six miles south of Albert Lea in Nunda Township. The first village of Twin Lakes was platted in 1858 and developed in 1869. The village was incorporated by popular vote on April 3, 1957. The first election took place one month later. Twin Lakes is the home of 168 people, with 47 homes and a 25 unit trailer park.

According to the United States Census Bureau, the city has a total area of 0.5 square miles, of which, 0.5 square miles of it is land and 0.04 square miles of it is water.

As of the census of 2000, there were 168 people, 80 households, and 44 families residing in the city. The population density was 350.4 people per square mile. There were 83 housing units at an average density of 173.1/sq mi. The racial makeup of the city was 99.40% White and 0.60% Native American. Hispanic or Latino of any race was 1.79% of the population.

There were 80 households out of which 22.5% had children under the age of 18 living with them, 46.3% were married couples living together, 7.5% had a female householder with no husband present, and 45.0% were non-families. 38.8% of all households were made up of individuals and 16.3% had someone living alone who was 65 years of age or older. The average household size was 2.10 and the average family size was 2.77.

In the city the population was spread out with 19.0% under the age of 18, 11.3% from 18 to 24, 24.4% from 25 to 44, 29.2% from 45 to 64, and 16.1% who were 65 years of age or older. The median age was 41 years. For every 100 females there were 97.6 males. For every 100 females age 18 and over, there were 109.2 males.

The median income for a household in the city was \$31,250, and the median income for a family was \$34,688. Males had a median income of \$30,625 versus \$22,321 for females. The per capita income for the city was \$16,258. About 8.1% of families and 15.2% of the population were below the poverty line, including 25.0% of those under the age of eighteen and 9.5% of those sixty five or over.

2.8 Freeborn County Townships

Alden Township

Alden Township is a township in Freeborn County, Minnesota, United States. The population was 338 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.3 square miles, all of it land.

Bancroft Township

Bancroft Township is a township in Freeborn County, Minnesota, United States. The population was 1,065 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 33.7 square miles, of which, 33.7 square miles of it is land and 0.03% is water.

Bath Township

Bath Township is a township in Freeborn County, Minnesota, United States. The population was 479 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.8 square miles, of which, 35.7 square miles of it is land and 0.1 square miles of it is water.

Carlston Township

Carlston Township is a township in Freeborn County, Minnesota, United States. The population was 332 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.0 square miles, of which, 33.1 square miles of it is land and 2.9 square miles of it is water.

Freeman Township

Freeman Township is a township in Freeborn County, Minnesota, United States. The population was 528 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.9 square miles, of which, 35.9 square miles of it is land and 0.04 square miles of it is water.

Geneva Township

Geneva Township is a township in Freeborn County, Minnesota, United States. The population was 439 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.6 square miles, of which, 33.0 square miles of it is land and 2.6 square miles of it is water.

Hartland Township

Hartland Township is a township in Freeborn County, Minnesota, United States. The population was 298 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.9 square miles, of which, 35.9 square miles of it is land and 0.04 square miles of it is water.

Hayward Township

Hayward Township is a township in Freeborn County, Minnesota, United States. The population was 438 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.6 square miles, of which, 34.6 square miles of it is land and 1.0 square miles of it is water.

Manchester Township

Manchester Township is a township in Freeborn County, Minnesota, United States. The population was 469 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.0 square miles, of which, 35.7 square miles of it is land and 0.3 square miles of it is water.

Mansfield Township

Mansfield Township is a township in Freeborn County, Minnesota, United States. The population was 289 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.1 square miles, of which, 36.1 square miles of it is land and 0.04 square miles of it is water.

Moscow Township

Moscow Township is a township in Freeborn County, Minnesota, United States. The population was 605 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.2 square miles, of which, 36.1 square miles of it is land and 0.1 square miles of it is water.

Newry Township

Newry Township is a township in Freeborn County, Minnesota, United States. The population was 500 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.1 square miles, all of it land.

Nunda Township

Nunda Township is located in southern Freeborn County on the Iowa border. The township has a total area of 34.8 square miles of which 32.9 square miles of it is land and 1.9 square miles of it is water.

Oakland Township

Oakland Township is a township in Freeborn County, Minnesota, United States. The population was 430 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 36.0 square miles, all of it land.

Pickerel Lake Township

Pickerel Lake Township is a township in Freeborn County, Minnesota, United States. The population was 746 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 35.6 square miles, of which, 34.8 square miles of it is land and 0.9 square miles of it is water.

Shell Rock Township

Shell Rock Township is a township in Freeborn County, Minnesota, United States. The population was 430 at the 2000 census.

According to the United States Census Bureau, the township has a total area of 33.7 square miles, of which, 33.7 square miles of it is land and 0.03% is water.

2.9 Transportation

2.9.1 Vehicle Traffic

Albert Lea is located at the point where two major interstates intersect; I-35 running north and south and I-90 traveling east and west.

Access to these major transportation systems makes it convenient to commute virtually anywhere in the nation, and makes Albert Lea the "Crossroads of the Upper Midwest." Other highways include U.S. Highways 65 and 69, Minnesota State Highways 13, 109, and 251.

Freeborn County's transportation network offers a variety of today's necessities. Three railroad lines and seven local/regional trucking firms serve the area.


Figure 2-3 Major Transportation Routes in Freeborn County

2.9.2 Rail

Three active railway systems pass through Freeborn County. They are the Union Pacific Railroad, the Iowa, Chicago and Eastern Railroad and the Dakota, Minnesota and Eastern Railroad. All these railroads are for transportation of goods and commodities. There are no passenger railway systems in Freeborn County.

2.9.3 Air Service

The Albert Lea Airport has local air service including private and charter services. In addition, Albert Lea is 90 minutes or less from the following regional commercial airports: Mason City, Iowa; Minneapolis, Minnesota; and Rochester, Minnesota.

2.10 Utilities

Internet and telephone are provided by (depending on the community) Qwest, Winnebago Cooperative, Cannon Valley, Hartland Manchester, McLeoud USA, and Telecom. All communities have broadband internet service available.

2.10.1 Electricity

Electric service providers for Freeborn County are Xcel Energy, Alliant, Freeborn-Mower Cooperative, and Dairyland.

2.10.2 Natural Gas

CenterPoint Energy oversees the natural gas services throughout Freeborn County. Gas services in Freeborn County and throughout Minnesota allows for gas marketers to sell natural gas in Freeborn County. CenterPoint Energy still oversees gas services and is the primary emergency response agency in addition to local public safety agencies. Alliant Energy and Aquile are also natural providers in Freeborn County.

2.10.3 Water

Freeborn County has both private and public water systems. There is excellent water supply throughout the county.

2.10.4 Wastewater Services

Most cities have expanded their waste water treatment facilities or will do so in the near future.

2.10.5 Solid Waste

Freeborn County has one landfill that is located in the City of Albert Lea. There is one county transfer station which is located between Albert Lea and the City of Clarks Grove. The landfill accepts yard waste that is chipped and then recycled as mulch. All solid waste collections from homes and businesses are done through individual waste collection companies.

2.10.6 Communications

Freeborn County's hard-line phone service is provided by (depending on the community) Qwest, Winnebago Cooperative, Cannon Valley, Hartland Manchester, McLeod USA, and Telecom.. There are backup facilities in Freeborn County. These facilities provide primary and battery backup phone capabilities. All major cell phone providers have cell towers and capabilities in Freeborn County.

Freeborn County public safety agencies currently communicate through UHF radios through a repeater system. Freeborn County operates under a centralized dispatch center that is located in the City of Albert Lea.

Freeborn County has many media outlets that consist of print, radio, and television. Local print media consists of the daily newspaper out of Albert Leal. Freeborn County is served by various radio stations such as 1450 KATE AM and KAPR 96.1 FM. There are three television stations in Freeborn that operate. They are; KIMT Channel 3 out of Mason City, MN; KAAL Channel 6 out of Austin, MN; and KTTC Channel 10 out of Rochester, MN. All Twin Cities television stations broadcast in Freeborn County such as WCCO CBS Channel 4, KMSP Channel 9 FOX, KARE NBC Channel 11, and KSPT ABC Channel 5.

2.11 Healthcare

With over 1,300 employees, more than 50 physicians and a strong volunteer base, Albert Lea Medical Center – Mayo Health System with specialists in Dermatology, ENT, Neurology, OB/GYN, Oncology, Ophthalmology, Orthopedics, Podiatry, Psychiatry and Urology, Mayo Clinic specialists also provide outreach services in several specialties.

As a comprehensive regional healthcare organization with satellite clinics located throughout the County, Albert Lea Medical Center – Mayo Health System offers expanded programs and services, from hospital and clinic to a chemical dependency treatment center, physical medicine and rehab center, nursing home, cancer center and related programs, such as occupational health.

2.12 Education

Albert Lea Area Schools has four elementary schools that serve students in kindergarten through sixth grade. Southwest Middle School serves seventh through eighth grade. Albert Lea High School (ALHS) serves students in grades ninth through 12th.

An area Learning Center for at-risk students' serves grades eighth through 12th. Community Education includes Adult Basic Ed/ESL/GED classes, early childhood, and youth experiential education programs.

The district is an arts partner school with the Perpich Center for Arts Education, providing kindergarten through 12^{th} students, and teachers with an unusually rich variety of local and statewide arts opportunities.

Other school districts that serve Freeborn County include the following: Alden-Conger Public Schools-District 242 Grades K-12, Glenville-Emmons Public Schools-District 2886 Grades K-12, Hollandale Christian School, New Richland-Hartland-Ellendale-Geneva Public Schools-District 2168 Grades K-12, Saint Theodore's Catholic School, and United South Central Schools-District 2134 Grades K-12.

Riverland Community College is a comprehensive community college that provides adult learners a wide range of educational opportunities to enhance personal growth and economic vitality.

3.1 The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee

At the direction of the Freeborn County Board of Commissioners, Mark Roche, Director of the Freeborn County Emergency Management was tasked with developing the Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee. This Committee has been tasked with the development and completion of this plan as required per state and federal guidelines. The Freeborn County Emergency Management, will oversee the project, organize the data, set meeting dates, document in-kind services, and work with the Minnesota Division of Homeland Security and Emergency Management to complete this plan. The Mitigation Planning Team is comprised of the following officials representing their respective organizations and political jurisdictions:

- Mark Behrends, Freeborn County
- Steven Hannegrefs, City of Manchester
- Paul Hansen, London Township
- Kiven Lukes, London Township
- Karen Nelson, Riceland Township
- Don Hauge, Albert Lea Medical Center
- Lois Ahern, Freeborn County
- Wayne Sorensen, Freeborn County
- Randy Tuchtenhagen, Freeborn County
- Mark Harig, Freeborn County
- Steve Seipp, City of Freeborn
- Val Seipp, City of Conger
- Brad Niebuhr, Freeborn County
- Paul Henschel, City of Emmons
- Mark Roche, Director, Freeborn County Emergency Management

3.1.1 Additional Partners

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee relied on the assistance of various public and private organizations in compiling the data, maps and other vital components of the plan.

3.2 Plan Organization

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee relied on the assistance of various public and private organizations in compiling the data, maps and other vital components of the plan.

A range of stakeholders were invited and encouraged to participate in the development of the Hazard Mitigation Plan. Stakeholder involvement was encouraged through notifications and invitations to agencies and individuals to participate. These included representatives from Freeborn County and each participating jurisdiction, LEPC, private sector businesses, voluntary agencies, citizens and surrounding counties. In addition to the mitigation steering committee meetings, Freeborn County encouraged open and widespread participation in the mitigation planning process through the publication of newspaper notices promoting open public meetings. These media advertisements and survey instruments provided local officials, residents, businesses, academia, and other private interests in Freeborn County the opportunity to be involved and offer input throughout the local mitigation planning process.

Freeborn County encouraged continued stakeholder involvement by reminding all participating jurisdictions to make announcements and notifications consistent with their existing local plan adoption procedures. It will be the responsibility of each participating jurisdiction and its local governing body to determine if and how any additional specific stakeholder groups or individuals should be involved in the planning process.

Many departments, agencies, and individuals became mini-stakeholders when contacted to provide information as the committee gathered data for capability and vulnerability assessments, these "external participants" played a vital role in the completion of this Plan.

3.3 Planning Team Goals & Objectives

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee, early in the process, established a set of goals and objectives in order to ensure the effectiveness of this plan. These goals and objectives established the paradigm for the planning process. These goals and objectives are as follow:

- To actively involve and gain support from all city and township governments and Freeborn County for the reduction of disasters in our community.
- Prioritize identified mitigation projects.
- Seek and implement any grant funding for the reduction of disasters in Freeborn County and its cities and townships.
- Monitor, evaluate, and update the progress of the plan as needed.

• To form partnerships among local, state, and federal agencies to make Freeborn County more resistant to the effects of disasters.

3.4 Multi-Jurisdictional Considerations

Freeborn County like many counties in Minnesota has numerous cities and townships. All cities and townships were notified in July of 2008 of the requirement concerning the Hazard Mitigation Plan and process. The Cities of Albert Lea, Alden, Clarks Grove, Conger, Emmons, Freeborn, Geneva, Glenville, Hartland, Hayward, Hollandale, Manchester, Myrtle, and Twin Lakes and the Townships of Albert Lea, Alden, Bancroft, Bath, Carlston, Freeborn, Freeman, Geneva, Hartland, Hayward, Manchester, Mansfield, Moscow, Newry, Nunda, Oakland, Pickerel, London. Riceland, Shell Rock and Freeborn County have a documented commitment to the planning process. Representatives from all cities and townships and the County participated in the general session meeting on July 15, 2008, at the Freeborn County Government Center and have worked collectively over the past months to gather data that included known hazards, flood prone areas, areas of vulnerability, existing mitigation plans and projects, and technical information for the plan. The data was forwarded to the County's Emergency Management Director for review and plan development. Subsequent meetings have been held in an effort to ensure that all information is correct and that all agencies and organizations input were included as presented. Letters documenting each jurisdictions support for the Hazard Mitigation Plan are included in this plan. Listed below is a chronology of meetings and events.

| Date | Task |
|-----------------------------|---|
| July, 2008 | Letter requesting support for the plan to all interested parties. |
| July 15, 2008 | Kickoff meeting and public meeting of Mitigation Process |
| | Meeting with Freeborn County Board of Commissioners to discuss appointing Mitigation Steering Committee |
| July – October, 2008 | Sent out mitigation surveys to cities, townships and public |
| July – August, 2008 | Meeting with cities and townships to go over data collection forms |
| July 15, 2008 | Conducted open meeting with cities and townships to discuss plan |
| July, 2008 – February, 2009 | Data collection by cities/townships and County personnel |
| March – April, 2009 | First draft written |
| April, 2009 | Review and revisions by EMA Director |
| May, 2009 | Meetings and review by Cities/Townships and County |
| May, 2009 | State review |

Table 3-1 Calendar of Events

| Date | Task |
|----------------|---|
| May, 2009 | Crosswalk review with the State Hazard Mitigation Coordinator |
| May, 2009 | Revisions made to draft plan |
| May, 2009 | Freeborn County Public Hearing and submit to MN Homeland Security and Emergency Management |
| May 2009 | Submit to FEMA |
| November, 2009 | Anticipate approval by FEMA by November 2009 |
| November 2009 | Formal adoption by County and all municipalities |
| December 2009 | Plan Implementation |

3.5 Review of Existing Technical/Planning Information

An important aspect of the planning process involved the review of existing federal, state, and local plans, studies, reports, and technical information, as well as the ordinances, regulations, and resolutions of each participating jurisdiction for incorporation into the Freeborn County Hazard Mitigation Plan. Plans and documents reviewed by various members of the committee include:

- Flood Plain Ordinances
- Development Regulations
- Existing Plans for Drainage and Flood Prevention Projects
- Storm Water Retention Regulations
- Dam Construction Regulations
- Zoning Ordinances
- Technical Review Meeting Minutes
- Hazardous Materials Locations
- Emergency Services and Response
- Development Trends

These documents are on file at Freeborn County Emergency Management Agency in electronic or hard copy format, provided valuable guidance in the planning process.

Some served to acquaint committee members with the many roles of emergency management. Planning guides helped to tie together the phases of mitigation planning for committee members from a broad range of backgrounds outside mitigation and emergency management.

State and federal response and homeland security documents were referenced to ensure Freeborn County's goals supported these plans and promoted compliance with requirements. The State of Minnesota Hazard Mitigation Plan formed the basis for identifying and analyzing the natural hazards and man-made hazards that could affect Freeborn County and participating jurisdictions. The Freeborn County Emergency Operations Plan provided insight into the jurisdictional response to disasters and was used to develop and validate mitigation goals, objectives, and actions.

3.6 Public Outreach

To be an effective plan, input from the public is vital. The Multi-Jurisdictional Hazard Mitigation Planning Committee recognizes the valuable contribution that the public can provide to the contents and accuracy of this plan. As required, the Multi-Jurisdictional Hazard Mitigation Planning Committee conducted public meetings in an effort to allow the public to provide comments on the plan. The following cities and municipalities held meetings to discuss the Multi-Jurisdictional Hazard Mitigation Plan for Freeborn County and their involvement in the process. See Meeting Minutes in Section 8 – Supporting Documents of this plan. A public survey was sent out to the public, cities and townships on hazard mitigation. The survey and the results are located in Section 8 – Supporting Documents of this plan. In the public survey, 55 responses were received from citizens in Freeborn County. The survey was handed out at various public events, one being the Freeborn County Fair where the HMSC had a booth and assisted citizens in filling out the survey. Below is a breakdown of responses received from each jurisdiction:

- City of Albert Lea 5
- Albert Lea Township 35
- City of Alden
- Alden Township 1
- City of Clarks Grove
- Bancroft Township 2
- City of Conger
- Bath Township
- City of Emmons
- Carlston Township
- City of Freeborn
- Freeborn Township 4
- City of Geneva 2
- Freeman Township
- City of Glenville

- Geneva Township
- City of Hartland
- Hartland Township 2
- City of Hayward
- Hayward Township
- City of Hollandale
- London Township
- City of Manchester
- Manchester Township 2
- City of Myrtle
- Mansfield Township
- City of Twin Lakes
- Moscow Township
- Newry Township
- Nunda Township
- Oakland Township
- Pickerel Township 2
- Riceland Township
- Shell Rock Township

The following questions and their results were asked in the surveys:

1. Have you ever experienced or been impacted by a disaster?

No - 51%

2. How concerned are you about the possibility of your community being impacted by a disaster?

Somewhat - 49%

Extremely Concerned – 13%

Not Concerned – 10%

3. What do you consider to be the top three hazards for Freeborn County?

Tornado - #1; Severe Summer Storms - #2, Flooding - #3

4. Is there another hazard you are concerned not listed previously?

No - 50%

5. Is you home located in a floodplain?

Don't Know – 10%

Yes-2%

No - 82 %

6. Do you have flood insurance?

No-80%

Yes - 3%

Don't know – 15%

7. If no, why not?

Not located in a floodplain – 31%

Not necessary – 14%

8. Have you taken any actions to make your community more resistant to disasters?

No-78%

9. Are you interested in learning how to make your community more resistant to disasters?

No - 58%

10. What is the most effective way for you to receive information about ways to make your community more disaster resistant?

Mail - 30%

TV-24%

Newspaper – 22%

Radio-16%

Internet – 14%

4.1 The Risk Assessment Process

The Multi-Jurisdictional Hazard Mitigation Planning Committee conducted a comprehensive hazard, risk and vulnerability assessment of Freeborn County. The Assessment will form the basis for the plan. The Assessment includes the following components for each hazard.

Critical Facilities: These will be defined as facilities that are critical to the continuity of Freeborn County government and economy. These facilities if damaged or destroyed would have an impact on the delivery of public safety and governmental services to the public. The loss of all or part of these facilities would also have a devastating effect on the economy, response capabilities, and the well being of Freeborn County and its citizens.

Hazard Identification: The Multi-Jurisdictional Hazard Mitigation Planning Committee has identified eight natural and five man-made hazards that have consistently affected Freeborn County and its cities and townships. These hazards were identified by using statistical data and records from a variety of sources including presidential disaster declarations, maps, and hazardous materials response data. The lists of hazards are based upon frequency, severity, probability, potential loss and vulnerability, and large scale affects on Freeborn County.

The following natural hazards were not addressed:

- **Coastal Erosion** due to the geographical location of Freeborn County, coastal erosion is not an identified hazard for the county.
- Land Subsidence/Landslides due to the topography and makeup of the area, and having not historical evidence of land subsidence/landslides in Freeborn County, this hazard was not addressed in this plan.

Profile of Hazards: Each hazard will be profiled as to how it will or has affected Freeborn County. This will include areas prone to specific hazards and the effects that they have had on Freeborn County infrastructure.

Vulnerability Assessment: The plan compares and identified hazards with the inventory of affected critical facilities and the effects on the population that is exposed to each hazard. This section will also include vulnerability assessment for future development such as schools, water and waste treatment facilities and other critical infrastructure. This section will also include a cost benefit analysis and analysis of the effects of identified hazards.

Damage Assessment: This component of the plan will estimate the damage and loss projections in a geographical area of Freeborn County based on the disaster. The

information in the Damage Assessment section was derived from a combination of Critical Facility information and data from the Freeborn County Tax Assessors Office.

Land Use Plans and Development Trends: This component of the plan identifies land use trends, the County's land use and development plans, and reference current plans and regulations are in place in Freeborn County regarding land use plans and trends that could prevent the impact of the disaster.

4.1.1 Multi Jurisdictional Concerns

Multi-jurisdictional concerns explain what geographic areas will be affected by the particular disaster.

4.1.2 Hazard Summary

The Hazard Summary summarizes the findings of the particular hazard.

4.2 Identification of Natural Hazards

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee collected data related to all natural hazards that have historically affected the county. The types of events, which were determined to have a significant, impact included floods, tornadoes, thunderstorm winds and lightning, and winter storms.

4.3 Nature of Hazard - Flooding

Flooding is the accumulation of water within a body of water (e.g., stream, river, lake and reservoir) and the overflow of excess water onto adjacent floodplains. Floods are natural events that are considered hazards only when people and property are affected. Nationwide, hundreds of floods occur each year, making it one of the most common hazards in all 50 states and U.S. territories (FEMA, 1997).

There are a number of categories of floods in the U.S., including the following:

- Riverine flooding, including overflow from a river channel, flash floods, alluvial fan floods, ice-jam floods, and dam break floods
- Local drainage or high groundwater levels
- Fluctuating lake levels
- Coastal flooding, including storm surges
- Debris Flow
- Subsidence

The most common type of flooding event is riverine flooding, also known as overbank flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of mountainous and hilly regions, to wide flat areas, in plains and coastal

regions. The amount of water in the floodplain is a function of the size and topography of the contributing watershed, the regional and local climate, and land use characteristics. In steep valleys, flooding is usually rapid and deep, but of short duration, while flooding in flat areas is typically slow, relatively shallow, and may last for long periods of time.

The cause of flooding in large rivers is typically prolonged periods of rainfall from weather systems covering large areas. These systems may saturate the ground and overload the rivers and reservoirs in numerous smaller basins that drain into larger rivers. Localized weather systems (i.e., thunderstorms), may cause intense rainfall over smaller areas, leading to flooding in smaller rivers and streams. Annual spring floods, due to the melting of snowpack, may affect both large and small rivers and areas.

While there is no sharp distinction between Riverine floods, flash floods, ice-jam floods, and dam-break floods, these types of floods are widely recognized and maybe helpful in considering the range of flood risk and appropriate responses.

4.4 Flooding

Hazard Identification - Overflow of rivers and streams due to severe storms or torrential rains occur frequently due to the numerous lakes and streams in Freeborn County. Freeborn County consists of 54 square miles of water with 7.51% of the county being covered by water. Different variables impact flooding, topography, ground saturation, previous rainfall, soil types, drainage, basin size, drainage patterns of streams, and vegetative cover. Flooding may occur slowly or become a flash flood. The Freeborn County Multi-Jurisdictional Hazard Mitigation Committee researched historical data from the National Weather Service, National Climatic Data Center, Minnesota Department of Homeland Security and Emergency Management, local newspapers, and interviews during its research on the effects of floods in Freeborn County. After extensive research the Committee was unable to locate any accurate data regarding flooding events prior to 1965. See Table 4-1 Significant Flood Events in Freeborn County.

Hazard Profile - There are 9 significant flooding events on record at the National Climatic Data Center for Freeborn County in the past twenty years. This equates to a 50% chance of flooding occurring in any given year.

The latest significant flooding event was recorded in 2003; this event caused widespread flooding and damage totaling over \$500,000 to homes and businesses. There were also five (5) deaths and two (2) injuries as a result of the flooding. The flood of 2003 was called the 100 year flood. Roads were washed out in the county and townships.

There are periodic flood events throughout the County especially in the City of Albert Lea.

4.5 Freeborn County Flood Plain Map by Jurisdiction

Vulnerability Assessment – There are relatively numerous assets within Freeborn County, which are exposed to flooding hazards. There are currently 10,888 residential properties, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County. Continued enforcement of development regulations and the land use plan will significantly reduce vulnerability and prevent future development projects and building critical infrastructure in flood prone areas.

Assets Exposed to Hazard - There are two areas in Freeborn County that have repetitive flood losses. These include the City of Albert Lea (non-residential) and the Southeast portion of Freeborn County (single family in Glenville, MN). The City of Albert Lea sustained significant damage in 2008. The Southeast portion of the county suffered significant damages with flooding in 2004. The data was collected from the various municipalities and the Freeborn County Tax Assessors Office. Additional information on repetitive losses properties can be found in Section 10.

Damage Assessment - Complete losses of those properties located within flood zones in Freeborn County would result in significant losses and damages.

Land Use and Development Trends - Freeborn County has and continues to make significant efforts to eliminate the placement of structures identified in flood hazard areas. Freeborn County and the following municipalities participate in the National Flood Insurance Program (NFIP). The County and all municipalities have enacted and vigorously enforce land use plans. These land use plans provide guidance for the prevention of development within flood prone areas. The county promotes the safety and general welfare by regulating land use, the location, height and size of buildings, the density of population and the division of the county into districts for residential, industrial and agricultural uses, thereby ensuring orderly future development outside the limits of incorporated municipalities. The county also promotes the safety and community welfare through building plan review, permit requirement, inspection of construction and application of International and State of Minnesota Building Codes. The following are participants in the NFIP in Freeborn County:

Freeborn County NFIP Participation as of 2/24/2009:

- CID Community Name Current Effective Map Date
- 270135# ALBERT LEA, CITY OF 05/03/82
- 275330# ALDEN, CITY OF 05/03/05
- 270657# EMMONS, CITY OF 05/03/82
- 270134# FREEBORN, COUNTY OF 05/03/82
- 270136# GENEVA, CITY OF 06/08/84
- 270137# GLENVILLE, CITY OF 03/03/82
- 270139# TWIN LAKES, CITY OF 05/03/82

Does NOT Participate in NFIP

- No CID # Issued Clarks Grove, City of
- No CID # Issued Conger, City of
- No CID # Issued Freeborn, City of
- No CID # Issued Hartland, City of
- No CID # Issued Hayward, City of
- No CID # Issued Hollandale, City of
- No CID # Issued Manchester, City of
- No CID # Issued Myrtle, City of

The above municipalities do not participate in the NFIP due to not being sanctioned and not being mapped for floodplain at this time. Also depending on staff levels in the future may wish to participate in the NFIP and the feasibility of participation for the individual jurisdictions.

Multi-Jurisdictional Concerns – All jurisdictions within Freeborn County can potentially be affected by flooding. There are many areas throughout the county where localized flooding has been an issue (due to flash floods). There are also lakes, rivers and streams throughout the entire county. All mitigation efforts will focus on countywide improvements. Freeborn County has developed and implemented the 2006-2015 Comprehensive Water Plan and is participating in the Minnesota Elevation Mapping Project to further enhance floodplain management in Freeborn County. In April, 2009 the Sanitary Sewage Treament System Ordinace was implemented to further address sewage treatment issues with regards to flooding throughout Freeborn County.

Hazard Summary – Floods pose a significant threat in Freeborn County. The Multi-Jurisdictional Hazard Mitigation Planning Committee has identified mitigation efforts related to flooding. Freeborn County and its cities and townships have worked hard to mitigate the loss of life and property in our community from flood hazards. This has been accomplished by taking a countywide approach to code enforcement and seeking mitigation grant funding to reduce flood hazards. Flood mitigation goals & objectives are located in Chapter 5, Section 5.2 of this document.

| | Location or County | Date | Туре | Magnitude | Death | Injuries | Property Damage |
|---|-----------------------|---------|-------------------|-----------|-------|----------|--------------------|
| 1 | Countywide | 8/14/93 | Flash Flooding | N/A | 0 | 1 | 400,000 |
| 2 | Albert Lea | 8/20/98 | Urban Flooding | N/A | 0 | 0 | 0 |
| 2 | Countywide | 4/01/01 | Flooding | N/A | 0 | 0 | 0 |

 Table 4-1

 Significant Floods Events in Freeborn County

| | Location or County | Date | Туре | Magnitude | Death | Injuries | Property Damage |
|---|---|---------|--------------------|-----------|-------|----------|--------------------|
| 3 | Albert Lea | 6/14/01 | Flash Flooding | N/A | 0 | 0 | 10,000 |
| 4 | Albert Lea | 7/21/02 | Street Flooding | N/A | 0 | 0 | 0 |
| 5 | Southeast Portion of County | 7/05/04 | Flash Flooding | N/A | 0 | 0 | 0 |
| 6 | Countywide - Albert Lea, Emmons, Hollandale, Riceland Township, and Shell Rock Township | 9/14/04 | Flooding | N/A | 0 | 0 | 2.1 million |
| 7 | Countywide | 7/25/05 | Flooding | N/A | 0 | 0 | 0 |
| 8 | Countywide | 4/07/06 | Flash Flooding | N/A | 0 | 0 | 0 |
| 9 | Albert Lea | 6/12/08 | Flooding | N/A | 5 | 2 | 500,000 |
| | | | | TOTAL | 5 | 3 | 2.9 million |

4.6 Nature of Hazard - Tornado

A tornado is a violently rotating column of air that extends toward the ground from the base of a convective cloud. Tornadoes can form in many environments. Three of those environments include: within intense squall lines, within super cell thunderstorms, and in the right front quadrant of land falling hurricanes. Tornadoes may or may not be visible to the naked eye. The funnel can be transparent or can be hidden by falling rain around it. Often times the only way to detect the presence of a tornado is by the damage it has left behind. Most tornadoes do not touch the ground, but when the lower tip of a tornado touches the earth, it can cause extensive damage. Most tornadoes last less than 30 minutes, but can exist for more than an hour. The majority of tornadoes are classified in the F0 to F1 category. The path of a tornado can range from a few hundred feet to miles, and tornado widths may range from tens of yards to more than a quarter of a mile.

4.7 Tornadoes

Hazard Identification - Violent whirling wind accompanied by a funnel-shaped cloud is classified as a tornado. Severe weather conditions, such as a thunderstorm or hurricane, can produce a tornado. The extension may be up to 50 miles and move at speeds of 10 to 50 miles per hour. Through combined action of strong rotary winds and the impact of wind-born debris destruction occurs. The official tornado season begins in March and continues through August, but may occur at any given time. The

Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee researched historical data from the National Weather Service, National Climatic Data Center, Minnesota Department of Homeland Security and Emergency Management, local newspapers, and interviews during its research on the effects of tornadoes on Freeborn County.

Hazard Profile – Thirty-seven tornadoes have been recorded since 1952 in Freeborn County. The county has experienced several tornados in the last 25 years. This equates to approximately a 60% chance of a tornado occurring in any given year in Freeborn County.

Vulnerability Assessment - All assets within Freeborn County are exposed to the hazards of tornados. There are currently 10,888 residential properties in Freeborn County, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County. This constitutes all of the properties in Freeborn County. Tornadoes in Freeborn County have not followed a particular path. All structures and critical infrastructure is susceptible to damage from tornados.

Assets Exposed to Hazard - All of Freeborn County is susceptible to tornadoes as they are unpredictable in nature and do not follow any given pattern.

Damage Assessment - Because all facilities within the county are subject to potential losses via tornadoes, estimations were done assuming 25%, 50%, 75%, and 100%.

| Structure Type Amount of Structures | Total Value | 75% | 50% | 25% |
|--|----------------|----------------|----------------|----------------|
| Residential # 10,888 | \$ 971,992,600 | \$ 728,994,450 | \$ 485,996,300 | \$ 242,998,150 |
| Commercial # 759 | \$ 105,211,100 | \$ 78,908,325 | \$ 52,605,550 | \$ 26,302,775 |
| Industrial # 109 | \$ 68,342,200 | \$ 51,256,650 | \$ 34,171,100 | \$ 17,085,550 |
| Agricultural # 2,017 | \$ 180,942,600 | \$ 135,706,950 | \$ 90,471,300 | \$ 45,235,650 |
| Religious/non-profit # 154 | \$ 95,677,000 | \$ 71,757,750 | \$ 47,838,500 | \$ 23,919,250 |
| Government # 130 | \$ 66,816,200 | \$ 50,112,150 | \$ 33,408,100 | \$ 16,704,050 |
| Educational # 12 | \$ 61,080,800 | \$ 45,810,600 | \$ 30,540,400 | \$ 15,270,200 |

Table 4-2Tornadoes - Damage Assessment

Land Use and Development Trends - Continued development in Freeborn County will result in an increase in the potential for damage from tornados. The County and its cities and townships have a land use plan that clearly identifies future development. The Freeborn County Building Department and the various municipalities enforce the

2000 International Building Code. The use and enforcement of these codes provides reasonable protection from most natural hazards including tornados. Updating building codes and the adoption of these codes will reduce vulnerability and damage from tornados.

Multi-Jurisdictional Concerns - There is not sufficient data to identify a preferred path that tornados seek in Freeborn County. All of Freeborn County is vulnerable to the effects of a tornado. All mitigation projects will consider a countywide approach. Freeborn County and its municipalities use the 2000 International Building Code and enforcement policy.

Hazard Summary - Freeborn County does have a history with tornado activity. For this reason, the identified mitigation projects are seen as a priority need especially for the protection of vulnerable populations. Tornado specific mitigation actions are provided in Chapter 5, Section 5.3.

| Location or County | Date | Time | Туре | Magnitude | Property Damage |
|--------------------|----------|------|---------|-----------|--------------------|
| 1. Countywide | 7/27/52 | 1825 | Tornado | F2 | 25,000 |
| 2. Countywide | 5/10/53 | 1700 | Tornado | F2 | 3,000 |
| 3. Countywide | 6/22/57 | 1000 | Tornado | F | 0 |
| 4. Countywide | 6/25/57 | 1900 | Tornado | F1 | |
| 5. Countywide | 7/19/57 | 1800 | Tornado | F | |
| 6. Countywide | 9/05/58 | 1800 | Tornado | F1 | 3,000 |
| 7. Countywide | 5/19/60 | 1733 | Tornado | F0 | |
| 8. Countywide | 10/14/66 | 1255 | Tornado | F2 | |
| 9. Countywide | 4/30/67 | 1805 | Tornado | F3 | 25 million |
| 10. Countywide | 4/30/67 | 1823 | Tornado | F4 | 25 million |
| 11. Countywide | 4/30/67 | 1830 | Tornado | F4 | 25 million |
| 12. Countywide | 4/30/67 | 1852 | Tornado | F4 | 25 million |
| 13. Countywide | 5/15/68 | 1600 | Tornado | F0 | |
| 14. Countywide | 6/18/73 | 0740 | Tornado | F1 | 250,000 |
| 15. Countywide | 7/25/74 | 1528 | Tornado | F0 | 3,000 |
| 16. Countywide | 5/29/80 | 1812 | Tornado | F1 | 250,000 |
| 17. Countywide | 5/17/82 | 1502 | Tornado | F3 | 250,000 |

 Table 4-3

 Tornado Events in Freeborn County

| Location or County | Date | Time | Туре | Magnitude | Property Damage |
|--------------------|---------|------|---------|-----------|--------------------|
| 18. Countywide | 5/17/82 | 1520 | Tornado | F3 | 250,000 |
| 19. Countywide | 6/07/84 | 1815 | Tornado | F1 | 250,000 |
| 20. Countywide | 6/07/84 | 1819 | Tornado | F3 | 25 million |
| 21. Countywide | 6/07/84 | 1825 | Tornado | F1 | 2.5 million |
| 22. Countywide | 6/22/86 | 0115 | Tornado | F0 | 0 |
| 23. Countywide | 5/24/89 | 1803 | Tornado | F0 | 0 |
| 24. Countywide | 5/24/89 | 1753 | Tornado | F0 | 0 |
| 25. Countywide | 5/24/89 | 1803 | Tornado | F0 | 0 |
| 26. Countywide | 5/24/89 | 1810 | Tornado | F1 | 0 |
| 27. Manchester | 6/30/94 | 2127 | Tornado | F0 | 0 |
| 28. Clarks Grove | 6/15/98 | 1445 | Tornado | F0 | 0 |
| 29. Albert Lea | 6/16/98 | 1400 | Tornado | F0 | 0 |
| 30. Oakland | 6/26/98 | 1750 | Tornado | F0 | 0 |
| 31. Oakland | 6/26/98 | 1753 | Tornado | F0 | 0 |
| 32. Hayward | 6/27/98 | 1730 | Tornado | F1 | 0 |
| 33. Glenville | 5/01/01 | 1802 | Tornado | F2 | 2 million |
| 34. Oakland | 5/01/01 | 1815 | Tornado | F2` | 2 million |
| 35. Oakland | 5/01/01 | 1829 | Tornado | F1 | 50,000 |
| 36. Freeborn | 6/11/04 | 1626 | Tornado | F1 | 0 |
| 37. Hartland | 6/11/04 | 1640 | Tornado | F0 | 0 |
| | | | | TOTALS | 132 million |

4.8 Nature of Hazard – Severe Summer Storms

Severe summer storms include hair storms, thunderstorms; high winds; lightning and excessive heat events.

A hailstorm is an outgrowth of severe thunderstorms and develops within a lowpressure front as warm air rises rapidly in to the atmosphere and is subsequently cooled, leading to the formation of ice crystals. These are bounced about by high velocity updraft winds and accumulate into frozen droplets, falling as precipitation after developing enough weight, (FEMA 1997). The National Weather Services (NWS) defines severe thunderstorms as those with downdraft winds in excess of 58 miles an hour and/or hail 0.75 inch in diameter or greater. While only about 10 percent of thunderstorms are classified as severe, all thunderstorms are dangerous because they produce numerous dangerous conditions, including one or more of the following: hail, strong winds, lightning, tornadoes, and flash flooding (NWS, Flagstaff).

Extreme summer heat is the combination of very high temperatures and exceptionally humid conditions. If such conditions persist for an extended period of time, it is called a heat wave (FEMA, 1997). Heat stress can be indexed by combining the effects of temperature and humidity.

In addition to affecting people, severe heat places significant stress on animals and plants. The effects of severe heat on agricultural products, such as cotton, may include reduced yields and even loss of crops (Brown and Zeiher, 1997). Similarly, cows may become overheated, leading to reduce milk production and other problems (Garcia, September 2002).

Lightning typically occurs as a by-product of a thunderstorm. The action of rising and descending air in a thunderstorm separates positive and negative charges, with lightning the result of the buildup and discharge of energy between negative and positive charge areas. Water and ice particles may also affect the distribution of the electrical charge. In only a few millionths of a second, the air near a lightning strike is heated to 50,000 degree F, a temperature hotter than the surface of the sun. Thunder is the result of the very rapid heating and cooling of the air near the lightning that causes a shock wave. The hazard posed by lightning is severely underrated. High winds, rainfall, and a darkening cloud cover are the warning signs for possible cloud-to-ground lightning strikes. While many lightning deaths occur after a thunderstorm has passed. The lightning threat diminishes after the last sound of thunder, but may persist for more than 30 minutes. When thunderstorms are in the area, but not overhead, the lightning threat can exist when skies are clear. Lightning has been known to strike more than 10 miles from the storm in an area with clear sky above.

According to the National Oceanic and Atmospheric Administration (NOAA), an average of 20 million cloud-to-ground flashes has been detected every year in the continental United States. About half of all flashes have more than one ground strike point, so at least 30 million points on the ground are struck on the average each year. In addition, there are roughly 5 to 10 times as many cloud-to-cloud flashes as there are cloud-to-ground flashes (NOAA, July 7, 2003).

Lightning is the most dangerous and frequently encountered weather hazard that most people in the United States experience annually. Lightning is the second most frequent killer in the U.S., behind floods and flash floods, with nearly 100 deaths and 500 injuries annually. These number are likely to underestimate of the actual number of casualties because of the under reporting of suspected lightning deaths and injuries. Electrical current may be conducted through the ground to a person after lightning strikes a nearby tree, antenna, or other tall object. The current may also travel through power lines, telephone, or plumbing lines to a person who is contact with an electric appliance, telephone, or plumbing fixture. Lightning may use similar processes to damage property or cause fires.

Winds in excess of 58 miles per hour, excluding tornadoes, are windstorms. Windstorms are among the nation's most severe natural hazards in terms of both lives Severe winds can damage and destroy roofs, toss lost and property damaged. manufactured homes off their pier foundations, and tear light-framed houses apart. There are several different types of windstorms. A "downburst" is a rather underrated thunderstorm threat defined as a strong downdraft with an outrush of damaging winds on or near the earth's surface. When people experience property damage from a downburst, they often do not believe that "just wind" could have caused the damage, and they assume that they were struck by a tornado. Downbursts may have wind gusts to nearly 130 mph and are capable of the same damage as a medium-sized tornado. A "gust front" is the leading edge of a thunderstorm downdraft air. It is most prominent near the rain-free cloud base and on the leading edge of an approaching thunderstorm is usually marked by blowing dust. The gust often precedes the thunderstorm "Straight-line winds," when associated with a precipitation by several minutes. thunderstorm, are most frequently found with the gust front. These winds originate as downdraft air reaches the ground and rapidly spreads out, becoming strong horizontal flow.

4.9 Severe Summer Storms

Hazard Identification - Thunderstorm winds tend to be short in duration involving straight-line winds and/or gusts in excess of 50 mph. By definition, all thunderstorms are accompanied by lightning. Lightning strikes precede from cloud to cloud, cloud to ground and ground to cloud. The Freeborn County Hazard Mitigation Planning Committee researched data from the National Climatic Data Center and the National Weather Service for this hazard.

Hazard Profile - Thunderstorms are the most prevalent natural hazard in Freeborn County. Over the past 20 years, at least 93 occurrences of thunderstorm winds have been reported. This equates to pretty much a 100% chance of severe summer storms occurring in Freeborn County in any given year. Freeborn County is extremely vulnerable to severe thunderstorm that are accompanied by frequent lighting and straight line winds. These events, especially lightning are responsible for numerous fatalities and injuries and cause millions of dollars in property damages. These are mainly from lighting strikes and resulting structure fires.

Vulnerability Assessment - All assets within Freeborn County are exposed to the hazards of severe thunderstorms. There are currently 10,888 residential properties, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County. This constitutes all of the properties in Freeborn County. Severe thunderstorms cause significant damage in Freeborn County and have not followed a particular path. All structures and critical infrastructure is susceptible to damage from severe thunderstorms.

Assets Exposed to Hazards - There is no way to estimate the facilities most likely to be damaged by thunderstorm winds and lightning due to their widespread nature.

Damage Assessment - Because all facilities within the county are subject to potential losses via thunderstorm winds and lightning, estimations were done assuming 25%, 50%, 75%, and 100% damages.

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|----------------|----------------|----------------|----------------|
| Residential # 10,888 | \$ 971,992,600 | \$ 728,994,450 | \$ 485,996,300 | \$ 242,998,150 |
| Commercial # 759 | \$ 105,211,100 | \$ 78,908,325 | \$ 52,605,550 | \$ 26,302,775 |
| Industrial # 109 | \$ 68,342,200 | \$ 51,256,650 | \$ 34,171,100 | \$ 17,085,550 |
| Agricultural # 2,017 | \$ 180,942,600 | \$ 135,706,950 | \$ 90,471,300 | \$ 45,235,650 |
| Religious/non-profit # 154 | \$ 95,677,000 | \$ 71,757,750 | \$ 47,838,500 | \$ 23,919,250 |
| Government # 130 | \$ 66,816,200 | \$ 50,112,150 | \$ 33,408,100 | \$ 16,704,050 |
| Educational # 12 | \$ 61,080,800 | \$ 45,810,600 | \$ 30,540,400 | \$ 15,270,200 |

Table 4-4Severe Summer Storms - Damage Assessment

Land Use and Development Trends - Continued development in Freeborn County will increase the potential for damage from severe thunderstorms. Freeborn County and its municipalities strictly enforce the 2000 International Building Code that provides construction standards and reasonable structure protection from most natural hazards including thunderstorm wind and lightning.

Multi-Jurisdictional Concerns - All of Freeborn County and its municipalities are subject to severe storms and therefore should be included in any prospective mitigation projects.

Hazard Summary - Severe storms are the most prevalent natural hazards in Freeborn County. They have the capability of producing widespread property damage, injuries and even death. Mitigation projects must be considered which reduce the overall damage due to thunderstorm winds and lightning. Mitigation plans in relation to severe storms are contained in Chapter 5, Section 5.4.

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|-----------|-----------|-------|----------|
| 1. Countywide | 11/17/58 | 1855 | Tstm/Wind | 0 | 0 | 0 |
| 2. Countywide | 5/31/59 | 0100 | Tstm/Wind | 0 | 0 | 0 |
| 3. Countywide | 07/22/60 | 1700 | Hail | .75 in. | 0 | 0 |
| 3. Countywide | 08/03/60 | 0400 | Tstm/Wind | 0 | 0 | 0 |
| 4. Countywide | 08/03/60 | 0400 | Tstm/Wind | 53 kts. | 0 | 0 |
| 5. Countywide | 05/22/62 | 1630 | Tstm/Wind | 0 | 0 | 0 |
| 6. Countywide | 05/22/62 | 1718 | Tstm/Wind | 0 | 0 | 0 |
| 7. Countywide | 06/28/63 | 1530 | Tstm/Wind | 87 kts. | 0 | 0 |
| 8. Countywide | 07/18/63 | 1700 | Tstm/Wind | 0 | 0 | 0 |
| 9. Countywide | 5/8/64 | 1510 | Tstm/Wind | 50 kts. | 0 | 0 |
| 10. Countywide | 10/14/66 | 1500 | Hail | 2.75 in. | 0 | 0 |
| 11. Countywide | 10/14/66 | 1500 | Hail | 2.75 in | 0 | 0 |
| 12. Countywide | 6/08/67 | 2045 | Hail | .75 in. | 0 | 0 |
| 10. Countywide | 6/15/67 | 0025 | Tstm/Wind | 0 | 0 | 0 |
| 11. Countywide | 6/23/68 | 0100 | Tstm/Wind | 0 | 0 | 0 |
| 12. Countywide | 06/27/67 | 1535 | Hail | .75 in | 0 | 0 |
| 12. Countywide | 7/21/68 | 1500 | Tstm/Wind | 0 | 0 | 0 |
| 13. Countywide | 08/06/68 | 1730 | Tstm/Wind | 0 | 0 | 0 |
| 14. Countywide | 07/13/69 | 0800 | Tstm/Wind | 0 | 0 | 0 |
| 15. Countywide | 06/25/70 | 2100 | Tstm/Wind | 0 | 0 | 0 |
| 16. Countywide | 06/25/70 | 2130 | Tstm/Wind | 52 kts. | 0 | 0 |
| 17. Countywide | 05/31/71 | 1740 | Tstm/Wind | 0 | 0 | 0 |
| 18. Countywide | 05/31/71 | 1805 | Tstm/Wind | 0 | 0 | 0 |
| 19. Countywide | 06/28/71 | 1745 | Hail | 1.75 in. | 0 | 0 |
| 20. Countywide | 06/27/72 | 1820 | Hail | .75 in. | 0 | 0 |
| 21. Countywide | 05/28/74 | 1945 | Hail | 2.00 in. | 0 | 0 |

 Table 4-5

 Thunderstorm, Lightning and High Wind Events in Freeborn County

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|--------------------|---------------------|-------|----------|
| 22. Countywide | 06/18/74 | 1840 | Hail | 1.50 in. | 0 | 0 |
| 19. Countywide | 06/20/74 | 1350 | Tstm/Wind | 52 kts. | 0 | 0 |
| 20. Countywide | 06/20/74 | 1410 | Tstm/Wind/ Hail | ,75 in. | 0 | 0 |
| 21. Countywide | 05/23/75 | 1112 | Tstm/Wind | 85 kts. | 0 | 0 |
| 22. Countywide | 05/26/77 | 1300 | Tstm/Wind | 52 kts. | 0 | 0 |
| 23. Countywide | 05/25/78 | 1430 | Tstm/Wind | 0 | 0 | 0 |
| 24. Countywide | 07/12/78 | 2212 | Hail | .75 in. | 0 | 0 |
| 25. Countywide | 08/01/78 | 2020 | Hail | 1.00 in. | 0 | 0 |
| 26. Countywide | 08/01/78 | 2300 | Hail | 1.75 in. | 0 | 0 |
| 24. Countywide | 06/19/79 | 1921 | Tstm/Wind | 0 | 0 | 0 |
| 25. Countywide | 06/19/79 | 2015 | Tstm/Wind | 0 | 0 | 0 |
| 26. Countywide | 06/19/79 | 2100 | Tstm/Wind | 0 | 0 | 0 |
| 27. Countywide | 06/26/79 | 1830 | Hail | 2.50 in. | 0 | 0 |
| 27. Countywide | 08/04/79 | 0430 | Tstm/Wind | 0 | 0 | 0 |
| 28. Countywide | 05/29/80 | 1835 | Hail | 2.75 in. | 0 | 0 |
| 28. Countywide | 07/19/80 | 2034 | Tstm/Wind | 0 | 0 | 0 |
| 29. Countywide | 06/23/81 | 1620 | Tstm/Wind | 56 kts. | 0 | 0 |
| 30. Countywide | 06/23/81 | 1700 | Tstm/Wind/ Hail | 86 kts. 1.50 in. | 0 | 0 |
| 31. Countywide | 07/11/81 | 0610 | Tstm/Wind | 0 | 0 | 0 |
| 32. Countywide | 05/17/82 | 1545 | Tstm/Wind | 0 | 0 | 0 |
| 33. Countywide | 07/01/83 | 0230 | Tstm/Wind | 59 kts. | 0 | 0 |
| 34. Countywide | 06/07/84 | 1825 | Tstm/Wind | 70 kts. | 0 | 0 |
| 35. Countywide | 06/22/84 | 1544 | Tstm/Wind | 52 kts. | 0 | 0 |
| 36. Countywide | 06/22/84 | 1600 | Tstm/Wind | 52 kts. | 0 | 0 |
| 37. Countywide | 07/16/84 | 1711 | Tstm/Wind | 55 kts. | 0 | 0 |
| 38. Countywide | 09/08/85 | 1742 | Hail | 1.75 in. | 0 | 0 |
| 38. Countywide | 06/01/87 | 1717 | Tstm/Wind | 70 kts. | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|--------------------|---------------------|-------|----------|
| 39. Countywide | 06/23/87 | 1440 | Tstm/Wind | 57 kts. | 0 | 0 |
| 40. Countywide | 07/11/87 | 1647 | Tstm/Wind | 0 | 0 | 0 |
| 41. Countywide | 05/24/89 | 1822 | Tstm/Wind | 0 | 0 | 0 |
| 42. Countywide | 05/30/89 | 0725 | Hail | 1.75 in. | 0 | 0 |
| 42. Countywide | 06/12/89 | 2345 | Tstm/Wind | 0 | 0 | 0 |
| 43. Countywide | 06/13/90 | 0115 | Tstm/Wind | 0 | 0 | 0 |
| 44. Countywide | 04/26/91 | 1235 | Tstm/Wind | 0 | 1 | 0 |
| 45. Countywide | 04/26/91 | 1400 | Tstm/Wind | 0 | 0 | 0 |
| 46. Countywide | 06/19/91 | 1700 | Hail | 1.75 in | 0 | 0 |
| 47. Countywide | 06/19/91 | 1748 | Hail | 1.50 in. | 0 | 0 |
| 46. Countywide | 06/17/92 | 0115 | Tstm/Wind | 0 | 0 | 0 |
| 47. Southern MN | 04/15/94 | 0900 | High Wind | 0 | 0 | 0 |
| 48. Albert Lea | 05/23/94 | 1008 | Hail | .75 in. | 0 | 0 |
| 49. Albert Lea | 05/23/94 | 1014 | Hail | .75 in. | 0 | 0 |
| 48. Hartland | 06/17/94 | 1818 | Tstm/Wind/ Hail | 52 kts .75 in. | 0 | 0 |
| 49. Albert Lea | 06/17/94 | 1836 | Tstm/Wind | 59 kts. | 0 | 2 |
| 50. Twin Lakes | 06/30/94 | 2140 | Tstm/Wind/ Hail | 61 kts. 1.75 in. | 0 | 0 |
| 51. Alden | 06/30/94 | 2213 | Tstm/Wind/ Hail | 0 .75 in. | 0 | 0 |
| 52. Emmons | 05/13/95 | 0700 | High Wind | 0 | 0 | 0 |
| 53. Albert Lea | 06/25/95 | 1055 | Tstm/Wind | 50 kts. | 0 | 0 |
| 54. Hartland | 06/25/95 | 1130 | Tstm/Wind | 50 kts. | 0 | 0 |
| 55. Albert Lea | 08/13/95 | 2140 | Tstm/Wind | 0 | 0 | 0 |
| 56. Albert Lea | 05/19/96 | 0100 | Tstm/Wind | 65 kts. | 0 | 0 |
| 57. Freeborn | 05/19/96 | 1240 | Tstm/Wind | 65 kts. | 0 | 0 |
| 58. Hartland | 06/05/96 | 0820 | Tstm Wind | 61 kts. | 0 | 0 |
| 59. Albert Lea | 06/05/97 | 1035 | Hail | 1.00 in. | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|--------------------|---------------------|-------|----------|
| 60. Twin Lakes | 06/05/97 | 1045 | Hail | .75 in. | 0 | 0 |
| 61. Albert Lea | 07/13/97 | 1943 | Hail | 2.00 in. | 0 | 0 |
| 62. Albert Lea | 03/29/98 | 1452 | Hail | 1.25 in. | 0 | 0 |
| 63. Hartland | 03/29/98 | 1510 | Hail | .88 in. | 0 | 0 |
| 64. Albert Lea | 03/29/98 | 1535 | Hail | 1.75 in. | 0 | 0 |
| 59. Manchester | 06/20/98 | 1135 | Tstm/Wind/ Hail | 52 kts. 1.00 in. | 0 | 0 |
| 60. Alden | 06/26/98 | 1700 | Tstm/Wind | 52 kts. | 0 | 0 |
| 61. Hartland | 06/27/98 | 1715 | Tstm/Wind | 60 kts. | 0 | 0 |
| 62. Emmons | 06/27/98 | 1725 | Tstm/Wind | 60 kts. | 0 | 0 |
| 63. Albert Lea | 06/27/98 | 1735 | Tstm/Wind/ Hail | 55 kts. 2.75 in. | 0 | 0 |
| 64. Newry | 06/27/98 | 1758 | Tstm/Wind | 60 kts. | 0 | 0 |
| 65. Alden | 06/05/99 | 1925 | Tstm/Wind | 52 kts. | 0 | 0 |
| 66. Geneva | 06/05/99 | 1905 | Tstm/Wind | 52 kts. | 0 | 0 |
| 67. Albert Lea | 07/08/99 | 1830 | Tstm/Wind/ Hail | 55 kts. .75 in. | 0 | 0 |
| 68. Conger | 07/30/99 | 1755 | Hail | 1.50 in. | 0 | 0 |
| 69. Alden | 05/11/00 | 0555 | Hail | 1.75 in. | 0 | 0 |
| 70. Myrtle | 05/17/00 | 0935 | Hail | .75 in. | 0 | 0 |
| 71. Myrtle | 05/17/00 | 0940 | Hail | 1.00 in. | 0 | 0 |
| 72. Alden | 05/31/00 | 2136 | Hail | 1.00 in. | 0 | 0 |
| 73. Countywide | 05/31/00 | 2216 | Hail | .75 in | 0 | 0 |
| 68. Oakland | 05/01/01 | 1813 | Tstm/Wind/ Hail | 52 kts. 1.75 in. | 0 | 0 |
| 69. Hartland | 06/01/01 | 2420 | Tstm/Wind/ Hail | 52 kts. .75 in. | 0 | 0 |
| 70. Albert Lea | 06/01/01 | 1240 | Hail | .75 in. | 0 | 0 |
| 71. Albert Lea | 09/20/01 | 1327 | Hail | .75 in. | 0 | 0 |
| 72. Emmons | 09/20/01 | 1348 | Hail | 1.75 in. | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|-----------|-----------|-------|----------|
| 73. Glenville | 09/20/01 | 1410 | Hail | 2.00 in. | 0 | 0 |
| 74. Albert Lea | 09/20/01 | 1413 | Hail | 1.75 in. | 0 | 0 |
| 70. Albert Lea | 07/27/02 | 1800 | Tstm/Wind | 52 kts. | 0 | 0 |
| 71. Manchester | 06/27/03 | 1817 | Hail | .75 in. | 0 | 0 |
| 71. Freeborn | 07/04/03 | 0120 | Tstm/Wind | 55 kts. | 0 | 0 |
| 72. Myrtle | 07/04/03 | 0130 | Tstm/Wind | 52 kts. | 0 | 0 |
| 73. Albert Lea | 05/09/04 | 2211 | Hail | .75 in. | 0 | 0 |
| 74. Countywide | 05/21/04 | 2048 | Hail | .75 in. | 0 | 0 |
| 75. Alden | 05/21/04 | 2050 | Hail | .75 in. | 0 | 0 |
| 76. Clarks Grove | 06/11/04 | 1645 | Hail | .75 in. | 0 | 0 |
| 73. Hartland | 04/17/04 | 2120 | Tstm/Wind | 52 kts. | 0 | 0 |
| 74. Clarks Grove | 06/11/04 | 1645 | Tstm/Wind | 52 kts. | 0 | 0 |
| 75. Geneva | 06/11/04 | 1650 | Tstm/Wind | 52 kts. | 0 | 0 |
| 76. Geneva | 06/11/04 | 1655 | Tstm/Wind | 55 kts. | 0 | 0 |
| 77. Albert Lea | 08/01/04 | 0440 | Tstm Wind | 52 kts. | 0 | 0 |
| 78. Albert Lea | 05/26/05 | 1400 | Tstm/Wind | 59 kts. | 0 | 0 |
| 79. Albert Lea | 06/20/05 | 1540 | Tstm/Wind | 52 kts. | 0 | 0 |
| 80. Albert Lea | 08/09/05 | 1615 | Tstm/Wind | 54 kts. | 0 | 0 |
| 81. Albert Lea | 10/04/05 | 1415 | Hail | 1.00 in. | 0 | 0 |
| 82. Twin Lakes | 10/04/05 | 1435 | Hail | 1.00 in. | 0 | 0 |
| 83. Emmons | 10/04/05 | 1445 | Hail | 1.75 in. | 0 | 0 |
| 84. Alden | 10/04/05 | 1653 | Hail | .88 in. | 0 | 0 |
| 81. Geneva | 08/01/06 | 2110 | Tstm/Wind | 55 kts. | 0 | 0 |
| 82. Clarks Grove | 08/24/06 | 2015 | Hail | 1.00 in | 0 | 0 |
| 83. Albert Lea | 08/24/06 | 2122 | Hail | 1.00 in. | 0 | 0 |
| 82. Albert Lea | 09/16/06 | 2301 | Tstm/Wind | 60 kts. | 0 | 0 |
| 83. Emmons | 10/04/06 | 0202 | Hail | 2.00 in. | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|---------------------|----------|------|--------------------|--------------------|-------|----------|
| 84. Glenville | 10/04/06 | 0210 | Hail | 2.75 in. | 0 | 0 |
| 85. Albert Lea | 05/29/07 | 1739 | Hail | .75 in. | 0 | 0 |
| 86. Clarks Grove | 06/16/07 | 1943 | Hail | 1.00 in. | 0 | 0 |
| 83. Geneva | 06/16/07 | 1950 | Tstm/Wind | 52 kts. | 0 | 0 |
| 84. Clarks Grove | 06/20/07 | 2255 | Hail | .75 in. | 0 | 0 |
| 85. Glenville | 06/21/07 | 1552 | Hail | .75 in. | 0 | 0 |
| 86. Hartland | 07/03/07 | 1732 | Hail | 1.00 in. | 0 | 0 |
| 84. Albert Lea | 07/03/07 | 1745 | Tstm/Wind | 52 kts. | 0 | 0 |
| 85. Alden | 07/26/07 | 1916 | Tstm/Wind | 50 kts. | 0 | 0 |
| 86. Albert Lea | 08/11/07 | 2230 | Tstm/Wind/ Hail | 56 kts. .88 in. | 0 | 0 |
| 87. Albert Lea | 08/11/07 | 2234 | Tstm/Wind | 50 kts. | 0 | 0 |
| 88. Glenville | 08/21/07 | 1940 | Hail | 1.00 in. | 0 | 0 |
| 89. Alden | 04/24/08 | 1639 | Hail | .75 in. | 0 | 0 |
| 88. Albert Lea | 05/02/08 | 1454 | Tstm/Wind | 54 kts. | 0 | 0 |
| 89. Newry | 05/31/08 | 1530 | Hail | .75 in. | 0 | 0 |
| 90. Alden | 06/07/08 | 0720 | Hail | .88 in. | 0 | 0 |
| 91. Albert Lea Arpt | 06/07/08 | 0740 | Hail | .88 in. | 0 | 0 |
| 92. Emmons | 06/07/08 | 1502 | Hail | .75 in. | 0 | 0 |
| 93. Emmons | 06/07/08 | 1530 | Hail | 1.00 in. | 0 | 0 |
| 94. Twin Lakes | 06/07/08 | 1540 | Hail | .88 in. | | |
| 89. Emmons | 06/11/08 | 2215 | Tstm/Wind | 60 kts. | 0 | 0 |
| 90. Albert Lea | 06/27/08 | 1548 | Tstm/Wind/ Hail | 54 kts. .88 in. | 0 | 0 |
| 91. London | 07/07/08 | 1305 | Hail | .75 in. | 0 | 0 |
| 92. Countywide | 07/11/08 | 2111 | Hail | .88 in. | 0 | 0 |
| 93. Countywide | 07/11/08 | 2114 | Hail | .75 in. | 0 | 0 |
| 91. Albert Lea | 07/11/08 | 2154 | Tstm/Wind | 58 kts. | 0 | 0 |
| 92. Hartland | 07/17/08 | 1006 | Hail | .88 in. | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|-----------|-----------|-------|----------|
| 92. Manchester | 07/31/08 | 0760 | Tstm/Wind | 52 kts. | 0 | 0 |
| 93. Countywide | 07/31/08 | 0730 | Hail | .75 in. | 0 | 0 |
| | | | | TOTALS | 0 | 2 |

4.10 Nature of Hazard – Extreme Winter Storms

Winter storms vary in size and strength and include heavy snowstorms, blizzards, freezing rain, sleet, ice storms, extreme low temperatures, and blowing and drifting snow conditions. Extremely cold temperatures and accompanied by strong winds can result in wind chills that cause bodily injury such as frostbite and death. Severe winter and ice storms can cause unusually heavy rain or snowfall, high winds, extreme cold, and ice storms throughout the continental United States.

Winter storm occurrences tend to be very disruptive to transportation and commerce. Trees, cars, roads, and other surfaces develop a coating or glaze of ice, making even small accumulations of ice extremely hazardous to motorists and pedestrians. The most prevalent impacts of heavy accumulations of ice are slippery roads and walkways that lead to vehicle and pedestrian accidents; collapsed roofs from fallen trees and limbs and heavy ice and snow loads; and felled trees, telephone poles and lines, electrical lines, and communication towers. As a result of severe ice storms, telecommunications and power lines can be disrupted for days and weeks. Such storms can cause exceptionally high rainfall that persists for days, resulting in heavy flooding.

Winter storms present a serious threat to the health and safety of affected citizens and can result in significant damage to property. Heavy snow or accumulated ice can cause the structural collapse of buildings, down power lines, or isolate people from assistance or service.

The wind chill temperature is how cold people and animals feel when outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature. Therefore, the wind makes it feel colder. If the temperature is 0 degrees F and the wind is blowing at 15 mph, the wind chill is - 19F. At this wind chill temperature, exposed skin can freeze in 30 minutes. The NWS issues a Wind Chill Advisory for Minnesota when widespread wind chills of -40F or lower with winds at least 10 mph are expected. A Wind Chill Warning is issues when widespread wind chills of -60F or lower with winds greater than 10 mph are expected.

4.11 Extreme Winter Storms

Hazard Identification - A freezing rain or ice storm occurs when the surface temperature falls below freezing. High winds accompanied by freezing rain are more

likely to become an ice storm. Liquid that falls and freezes on impact results in a coat of ice glazed on exposed objects. An ice storm may range from a thin glaze to a heavy coating. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines. Streets and highways become extremely hazardous to motorists and pedestrians, trees fall, and power outages occur.

Hazard Profile – There have been 48 snow and ice events recorded since 1991 for Freeborn County. This equates to an almost 100% chance of an extreme winter storm occurring in any given year in Freeborn County. These events have ranged in magnitude from $\frac{1}{2}$ inch to 8" of snow and ice that fell and devastated Freeborn County in the ice/snow storm of 2002. The snow/ice storm caused extensive damage and economic hardship across Minnesota and Freeborn County. This and other winter storms have resulted in a Presidential Disaster Declaration.

Vulnerability Assessment - All assets within Freeborn County are exposed to the hazards of winter storms. There are currently 10,888 residential properties, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County. This constitutes all of the properties in Freeborn County. Winter storms cause significant damage in Freeborn County. Damage to public electrical utilities from accumulating ice and trees falling on power lines causes wide spread power outages and significant damage to electrical transmission lines as well as personal and economic hardship on our community. These winter storms have not followed a particular path and all structures and critical infrastructure are susceptible to damage.

Assets Exposed to Hazard - All assets within the county are susceptible to winter storms. Mitigation projects focusing on back-up power sources and debris removal should be given high priority county wide.

Damage Assessment - Because all facilities within the county are subject to potential losses due to winter storms, estimations were done assuming 25%, 50%, 75%, and 100% damages.

| Structure Type Amount of Structures | Value | 75% | 50% | 25% | |
|--|----------------|----------------|----------------|----------------|--|
| Residential # 10,888 | \$ 971,992,600 | \$ 728,994,450 | \$ 485,996,300 | \$ 242,998,150 | |
| Commercial # 759 | \$ 105,211,100 | \$ 78,908,325 | \$ 52,605,550 | \$ 26,302,775 | |
| Industrial # 109 | \$ 68,342,200 | \$ 51,256,650 | \$ 34,171,100 | \$ 17,085,550 | |
| Agricultural # 2,017 | \$ 180,942,600 | \$ 135,706,950 | \$ 90,471,300 | \$ 45,235,650 | |
| Religious/non-profit # 154 | \$ 95,677,000 | \$ 71,757,750 | \$ 47,838,500 | \$ 23,919,250 | |

 Table 4-6

 Extreme Winter Storms - Damage Assessment

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|---------------|---------------|---------------|---------------|
| Government # 130 | \$ 66,816,200 | \$ 50,112,150 | \$ 33,408,100 | \$ 16,704,050 |
| Educational # 12 | \$ 61,080,800 | \$ 45,810,600 | \$ 30,540,400 | \$ 15,270,200 |

Land Use and Development Trends - Future development throughout Freeborn County will result in the potential for damage from winter storms. The Freeborn County Building Department and the various municipalities enforce the 2000 International Building Codes that provide for reasonable protection from most natural hazards including winter storms.

Multi-Jurisdictional Concerns - All of Freeborn County is subject to winter storms and therefore should be included in any prospective mitigation projects.

Hazard Summary - When winter storms hit the Midwestern United States, they generally are devastating due to the lack of individual preparedness. Power outages from fallen tree limbs and trees cause tremendous challenges for emergency managers and other response organizations. Icy conditions also challenge emergency response vehicles responding to the increase of calls due to winter storms. Winter Storm related mitigation activities can be viewed in Chapter 5, Section 5.5.

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------------|----------|------|-------------------|-----------|-------|----------|
| 1. Emmons | 10/31/91 | 1030 | Ice Storm | N/A | 0 | 0 |
| 1. Extreme South Central | 02/22/94 | 1700 | Heavy Snow | N/A | 0 | 0 |
| 2. Central and South MN | 12/08/95 | 0300 | Heavy Snow | N/A | 0 | 0 |
| 3. Countywide | 04/28/94 | 0400 | Heavy Snow/Ice | N/A | 0 | 0 |
| 4. Countywide | 11/27/94 | 0500 | Heavy Snow/Ice | N/A | 0 | 0 |
| 5. Countywide | 03/06/95 | 0000 | Heavy Snow | N/A | 0 | 0 |
| 6. Central and South MN | 12/08/95 | 0300 | Heavy Snow | N/A | 0 | 0 |
| 7. Central and South MN | 12/13/95 | 0200 | Glaze | N/A | 0 | 0 |
| 8. Countywide | 01/17/96 | 1400 | Heavy Snow | N/A | 0 | 0 |
| 9. Countywide | 03/23/96 | 2100 | Heavy Snow | N/A | 0 | 0 |
| 10. Countywide | 11/14/96 | 2200 | Ice Storm | N/A | 0 | 0 |

 Table 4-7

 Extreme Winter Storms in Freeborn County

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|------------|------|-----------------|-----------|-------|----------|
| 11. Countywide | 11/20/96 | 0200 | Heavy Snow | N/A | 0 | 0 |
| 12. Countywide | 11/22/96 | 2100 | Heavy Snow | N/A | 0 | 0 |
| 13. Countywide | 12/14/96 | 1300 | Heavy Snow | N/A | 0 | 0 |
| 14. Countywide | 12/23/96 | 0500 | Winter Storm | N/A | 0 | 0 |
| 15. Countywide | 01/22/97 | 0400 | Winter Storm | N/A | 0 | 0 |
| 16. Countywide | 02/04/97 | 0200 | Heavy Snow | N/A | 0 | 0 |
| 17. Countywide | 03/13/97 | 1200 | Winter Storm | N/A | 0 | 0 |
| 18. Countywide | 01/04/98 | 1400 | Ice Storm | N/A | 0 | 0 |
| 19. Countywide | 01/01/99 | 1100 | Heavy Snow | N/A | 0 | 0 |
| 20. Countywide | 01/17/99 | 2100 | Winter Storm | N/A | 0 | 0 |
| 21. Countywide | 01/22/99 | 0100 | Winter Storm | N/A | 0 | 0 |
| 22, Countywide | 01/19/2000 | 0530 | Heavy Snow | N/A | 0 | 0 |
| 23. Countywide | 12/18/2000 | 1200 | Winter Storm | N/A | 0 | 0 |
| 24. Countywide | 12/28/2000 | 0200 | Winter Storm | N/A | 0 | 0 |
| 25. Countywide | 01/29/01 | 1900 | Winter Storm | N/A | 0 | 0 |
| 26. Countywide | 02/24/01 | 1700 | Winter Storm | N/A | 0 | 0 |
| 27. Countywide | 03/11/01 | 2300 | Heavy Snow | N/A | 0 | 0 |
| 28. Countywide | 0131/02 | 2400 | Winter Storm | N/A | 0 | 0 |
| 29. Countywide | 02/01/02 | 1200 | Winter Storm | N/A | 0 | 0 |
| 30. Countywide | 02/09/02 | 0700 | Winter Storm | N/A | 0 | 0 |
| 31. Countywide | 03/08/02 | 1800 | Winter Storm | N/A | 0 | 0 |
| 32. Countywide | 04/07/03 | 1200 | Winter Storm | N/A | 0 | 0 |
| 33. Countywide | 12/09/03 | 0300 | Winter Storm | N/A | 0 | 0 |
| 34. Countywide | 01/24/04 | 2100 | Winter Storm | N/A | 0 | 0 |

| Location or County | Date | Time | Туре | Magnitude | Death | Injuries |
|--------------------|----------|------|-----------------|-----------|-------|----------|
| 35. Countywide | 02/01/04 | 0200 | Winter Storm | N/A | 0 | 0 |
| 36. Countywide | 03/05/04 | 1200 | Winter Storm | N/A | 0 | 0 |
| 37. Countywide | 01/01/05 | 1000 | Winter Storm | N/A | 0 | 0 |
| 38. Countywide | 03/18/05 | 1200 | Winter Storm | N/A | 0 | 0 |
| 39. Countywide | 12/13/05 | 2000 | Heavy Snow | N/A | 0 | 0 |
| 40; Countywide | 02/15/06 | 1900 | Winter Storm | N/A | 0 | 0 |
| 41. Countywide | 03/12/06 | 2400 | Winter Storm | N/A | 0 | 0 |
| 42. Countywide | 11/10/06 | 0115 | Heavy Snow | N/A | 0 | 0 |
| 43. Countywide | 01/14/07 | 1300 | Heavy Snow | N/A | 0 | 0 |
| 44. Countywide | 04/10/07 | 1815 | Heavy Snow | N/A | 0 | 0 |
| 45. Countywide | 12/01/07 | 0700 | Winter Storm | N/A | 0 | 0 |
| 46. Countywide | 12/09/08 | 0030 | Winter Storm | N/A | 0 | 0 |
| 47. Countywide | 12/19/08 | 0300 | Winter Storm | N/A | 0 | 0 |
| 48. Countywide | 12/20/08 | 1300 | Winter Storm | N/A | 0 | 0 |
| | | | | TOTALS | 0 | 0 |

4.12 Nature of Hazard - Wildfires

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed, spread quickly, and are usually signaled by dense smoke that may fill the area for miles around. Wildfires can be human-caused through acts such as arson or campfires, or can be caused by natural events, such as lightning. Wildfires can be categorized into three types:

- Wild land fires are fueled primarily by natural vegetation: grasslands, brush lands and forests.
- Interface or intermix fires occur in areas where both vegetation and structures provide fuel. These are also referred to as wild land/urban interface fires.
- **Firestorms** occur during extreme weather (e.g., high temperatures, low humidity, and high winds) with such intensity that fire suppression is virtually impossible. These events typically burn until the conditions change or the fuel is exhausted.

• **Prescribed fires** and prescribed natural fires are intentionally set or natural fires that are allowed to burn for beneficial purposes.

The following factors contribute significantly to wildfire behavior:

- **Topography:** As slope increases, that is the divergence of the terrain from horizontal, the rate of wildfire spread increases. South facing slopes are also subject to greater solar radiation, making them drier and thereby intensifying wildfire behavior. However, ridge tops may mark the end of wildfire spread, since fire spreads more slowly or may even be unable to spread downhill.
- **Fuel:** Size class, moisture content and volume are the methods of classifying fuel, with volume also referred to as fuel loading (measured in tons of vegetative material per acre). As fuel loading increases, fire intensity (energy released) and flame length increase, making fire suppression more difficult. Fuels with low moisture content ignite easier than wet fuels. The fuel's continuity is also an important factor, both horizontally and vertically.
- Weather: The most variable factor affecting wildfire behavior is weather. Important weather variables are temperature, humidity, wind, and lightning. Weather events ranging in scale from localized thunderstorms to large fronts can have major effects on wildfire occurrence and behavior. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildfire activity. By contrast, cooling and higher humidity often signals reduced wildfire occurrence and easier containment.

If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives, resources, and destroy improved properties. It is also important to note than in addition to affecting people, wildfires may severely affect livestock, and pets. Such events may require the emergency watering/feeding, sheltering, evacuation, and even burying of animals.

The indirect effect of wildfires can also be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil and waterways. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams thereby enhancing flood potential, harming aquatic life and degrading water quality. Lands stripped of vegetation are also subject to increased landslide hazards.

Wildfires can occur at any time of day and during any month of the year; however, the greatest wild land fire activity usually occurs from snow melt in March of April, through green up in late May or early June. Careless fire use, arson, equipment use and weather conditions such as wind, low humidity, and lack of precipitation are the chief factors determine the number of fires and acreage burned. Generally, fires are more likely when vegetation is formant or after extended drought periods.

Wildfires are capable of causing significant injury, death, and damage to property. The potential for property damage from fire increases each year as more recreational properties are developed on wooded land and increased numbers of people use these
areas. Fires can extensively impact the economy of an affected area, especially the logging, recreation and tourism industries.

4.13 Wildfires

Hazard Identification – Wild Fires have occurred across Freeborn County. These fires have damaged structures and utilities as well as hundreds of acres of woodlands. At the present time Freeborn County does participate in the Fire Wise program. Freeborn County and the cities and townships with Freeborn County have made great progress in lowering their ISO ratings across the entire county.

Hazard Profile – There are approximately 5 (40-100 acres) wildfires across Freeborn County each year. Property damage in the past has been minimal, usually less than \$1,000.00 per fire. Most fires occur and are contained easily with resources within the county.

Vulnerability Assessment – All assets within Freeborn County are susceptible to being affected by a wildfire. There are currently 10,888 residential properties, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County. A majority of the wildfires in Freeborn County are by human hands as opposed to nature causing the wildfires. Rural areas of the county are more prone to wildfires than the urban areas.

Assets Exposed to Hazards – All assets in Freeborn County are exposed to the threat of wildfires. Any of the assets could be lost during a wildfire. The amount of loss would vary from facility to facility.

Damage Assessment - Because all facilities within the county are subject to potential losses due to wildfires, estimations were done assuming 25%, 50%, 75%, and 100% damages.

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|----------------|----------------|----------------|----------------|
| Residential # 10,888 | \$ 971,992,600 | \$ 728,994,450 | \$ 485,996,300 | \$ 242,998,150 |
| Commercial # 759 | \$ 105,211,100 | \$ 78,908,325 | \$ 52,605,550 | \$ 26,302,775 |
| Industrial # 109 | \$ 68,342,200 | \$ 51,256,650 | \$ 34,171,100 | \$ 17,085,550 |
| Agricultural # 2,017 | \$ 180,942,600 | \$ 135,706,950 | \$ 90,471,300 | \$ 45,235,650 |
| Religious/non-profit # 154 | \$ 95,677,000 | \$ 71,757,750 | \$ 47,838,500 | \$ 23,919,250 |
| Government # 130 | \$ 66,816,200 | \$ 50,112,150 | \$ 33,408,100 | \$ 16,704,050 |

Table 4-8Wildfires - Damage Assessment

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|---------------|---------------|---------------|---------------|
| Educational # 12 | \$ 61,080,800 | \$ 45,810,600 | \$ 30,540,400 | \$ 15,270,200 |

Land Use and Development Trends - Future development throughout Freeborn County will result in the potential for damage from winter storms. The Freeborn County Building Department and the various municipalities enforce the 2000 International Building Codes that provide for reasonable protection from most natural hazards including winter storms. As more development occurs the trend has been to ensure that the green space is maintained. This could cause urban wildfire interface in these areas of the county.

Multi-Jurisdictional Concerns - All of Freeborn County is subject to wildfires and therefore should be included in any prospective mitigation projects.

Hazard Summary – Wildfires have occurred across the entire Freeborn County area.

4.14 Nature of Hazard - Earthquakes

An earthquake is "a sudden motion or trembling caused by an abrupt release of accumulated strain in the tectonic plates that comprise the earths crust." These rigid plates, known as tectonic plates, are some 50 to 60 miles in thickness and move slowly and continuously over the earth's interior. The plates meet along their edges, where they move away, past or under each other at rates varying from less than a fraction of an inch up to five inches per year. While this sounds small, at a rate of two inches per year, a distance of 30 miles would be covered in approximately one million years (FEMA, 1997).

The tectonic plates continually bump, slide, catch, and hold as they move past each other which causes stress to accumulate along faults. When this stress exceeds the elastic limit of the rock, an earthquake occurs, immediately causing sudden ground motion and seismic activity. Secondary hazards may also occur, such as surface faulting, sinkholes, and landslides. While the majority of earthquakes occur near the edges of the tectonic plates, earthquakes may also occur at the interior of plates.

The vibration or shaking of the ground during an earthquake is described by ground motion. The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. The following are the two kinds of seismic waves:

P (primary) waves are longitudinal or compression waves similar in character to sound waves that cause back-and-forth oscillation along the direction no travel (vertical motion), with particle motion in the same direction as wave travel. They move through the earth at approximately 15,000 mph.

S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side-to-side (horizontal motion) due to particle motion at right-angles to the direction of wave travel. Unreinforced buildings are more easily damaged by S waves.

There are also two kinds of surface waves, Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

Seismic activity is commonly described in terms of magnitude and intensity. Magnitude (M) describes the total energy released and intensity (I) subjectively describes the effects at a particular location. Although an earthquake has only one magnitude, its intensity varies by location.

4.15 Earthquakes

Hazard Identification – While Minnesota and especially Freeborn County are not typically known for seismic activity, documented incidents in the State of Minnesota have shown minor to moderate earthquakes. According to Minnesota Geological Survey (MGS), Minnesota has one of the lowest occurrences of earthquakes in the United States; only 19 small to moderate earthquakes have been documented since 1860. MGS further notes that although weak to moderate earthquakes do occur occasionally in Minnesota, a severe earthquake is very unlikely.

Hazard Profile – There have been no documented earthquakes occurring in Freeborn County. There is a less than 1% chance of an earthquake occurring in Freeborn County.

Vulnerability Assessment – All assets within Freeborn County are susceptible to being affected by an earthquake if one were to occur. There are currently 10,888 residential properties, 759 commercial properties, 109 office & industrial facilities, 154 religious, 130 government owned buildings, 12 educational and non-profit institutional facilities, and 2,017 agricultural areas located within Freeborn County.

Assets Exposed to Hazards – All assets in Freeborn County are exposed to the threat of earthquakes. Any of the assets could be damaged or destroyed during an earthquake depending on the magnitude and intensity.

Damage Assessment - Because all facilities within the county are subject to potential losses due to earthquakes, estimations were done assuming 25%, 50%, 75%, and 100% damages.

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|----------------|----------------|----------------|----------------|
| Residential # 10,888 | \$ 971,992,600 | \$ 728,994,450 | \$ 485,996,300 | \$ 242,998,150 |

Table 4-9Earthquakes - Damage Assessment

| Structure Type Amount of Structures | Value | 75% | 50% | 25% |
|--|----------------|----------------|---------------|---------------|
| Commercial # 759 | \$ 105,211,100 | \$ 78,908,325 | \$ 52,605,550 | \$ 26,302,775 |
| Industrial # 109 | \$ 68,342,200 | \$ 51,256,650 | \$ 34,171,100 | \$ 17,085,550 |
| Agricultural # 2,017 | \$ 180,942,600 | \$ 135,706,950 | \$ 90,471,300 | \$ 45,235,650 |
| Religious/non-profit # 154 | \$ 95,677,000 | \$ 71,757,750 | \$ 47,838,500 | \$ 23,919,250 |
| Government # 130 | \$ 66,816,200 | \$ 50,112,150 | \$ 33,408,100 | \$ 16,704,050 |
| Educational # 12 | \$ 61,080,800 | \$ 45,810,600 | \$ 30,540,400 | \$ 15,270,200 |

Land Use and Development Trends - Future development throughout Freeborn County will result in the potential for damage from earthquakes. The Freeborn County Building Department and the various municipalities enforce the 2000 International Building Codes that provide for reasonable protection from most natural hazards including earthquakes. As more development occurs the trend has been to ensure that the green space is maintained.

Multi-Jurisdictional Concerns - All of Freeborn County is subject to earthquakes and therefore should be included in any prospective mitigation projects.

Hazard Summary – The absence of major earthquakes, together with the infrequency of earthquakes in general, implies a low risk level for the State of Minnesota as well as for Freeborn County.

4.16 Nature of Hazard - Drought

Drought is a normal part of virtually every climate on the planet, including areas of both high and low normal rainfalls. Drought is the result of a natural decline in the expected precipitation over an extended period of time, typically one or more seasons in length. The severity of drought can be aggravated by other climatic factors, such as prolonged high winds and low relative humidity (FEMA, 1997). Drought is a complex natural hazard which is reflected in the following four definitions commonly used to describe it:

- Meteorological drought is defined solely on the degree of dryness, expressed as a departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
- **Hydrological drought** is related to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
- Agricultural drought is defined principally in terms of soil moisture deficiencies relative to water demands of plant life, usually crops.

Socioeconomic drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply as a result of weather-related supply shortfall. They may also be called a water management drought.

A drought's severity depends on numerous factors, including duration, intensity, and geographic extent as well as regional water supply demands by humans and vegetation. Due to its multi-dimensional nature, drought is difficult to define in exact terms and also poses difficulties in terms of comprehensive risk assessments.

4.17 Drought

Hazard Identification - A drought is a prolonged period without rain. It can range from two weeks to six months or more and affects water availability and quality. In Minnesota, droughts affect municipal and industrial water supplies, stream-water quality, recreation at reservoirs, hydropower generation, navigation, agricultural, wells, structural and wild land firefighting efforts and forest resources.

Hazard Profile - Five drought events have been recorded since 1911 in Freeborn County. In August 2007, Freeborn County was one of 24 counties designated as a primary natural disaster area from the United States Department of Agriculture (USDA) because of drought from May 1, 2007 and continuing. In 1987-89 new "average low precipitation" and "average high temperature" records were established statewide, including Freeborn County. Farmers lost most, if not all of the year's crops. Power production, forest products, public water supplies and fish and wildlife dependent upon adequate surface water were affected. 1976-77 also saw dry conditions, drought, affecting Freeborn County and other counties statewide. There is a less than 1% chance of a Drought occurring/effecting Freeborn County in any given year.

Vulnerability Assessment - All assets within Freeborn County are exposed to the hazards of drought. The County's and municipal leaders have anticipated droughts and focused on building water storage capacity to insure that communities have adequate water supplies to meet the growing population during times of drought. During previous droughts the County enacted water restrictions as a way on conserving water and ensuring adequate capacity. These actions with the additional storage capacity should significant reduce the effects of drought in Freeborn County.

Assets Exposed to Hazard - The exposure of assets to drought related hazards are generally indirect. The occurrence of a drought drastically increases the risks of fire and a direct economic impact and could impede the fire departments ability to suppress structure and brush fires.

Damage Assessment - There is no estimated damage to facilities due to droughts. All impact would be secondary in nature.

Land Use and Development Trends - Freeborn County and the various municipalities continue to develop land according to their land use plans. Continued

development will increase consumption of raw water reserves throughout the County. Many residents still rely on wells for water for residential housing. Drought has and will continue to affect those utilizing wells for water consumption. Freeborn County has adequate water reserves for the foreseeable future and implements water restriction during times of drought as a way of conserving water.

Multi-Jurisdictional Concerns - The highest occurrence of losses due to drought will be in the rural areas of Freeborn County. The entire county should be included in drought planning.

Hazard Summary - Although droughts do not generally have an immediate effect, they cause many problems through secondary means such as wildfires, reduction in water supplies and economic and development stress.

4.18 Identification of Technological Hazards

Technological hazards include hazards that are of a technical nature and manmade. Although rare, hazardous material releases do occur in fixed industrial sites.

The following items are listed below are the technological or manmade hazards that could possibly affect Freeborn County.

4.19 Dam Failure

Hazard Identification – There are nine dams listed in Freeborn County. They include: Albert Leak Lake Dam, Bear Lake Dam, Fountain Lake Dam, Freeborn Lake Dam, Geneva Lake Dam, Johnson Pool Dam, Pestorious Fish Pond Dam, Pickerel Lake Dam, and State Line Lake Dam.

Flooding resulting from dam failures is becoming an increasing concern in Freeborn County.

| Name of Dam | Dam Type | Physical Location Latitude/Longitude | Owner | Use |
|----------------------|----------|---|----------------------|------------------------------|
| Albert Lea Lake | Gravity | Lat: 43-36'42"N Long: 093-16'19"W | Freeborn County | Other |
| Bear Lake | Stone | Lat: 43-32'18"N Long: 093-29'36"W | MNDNR - Fisheries | Flood Control Storm Water |
| Fountain Lake Dam | Unknown | Lat: 43-39'06"N Long: 093-21'37"W | City of Albert Lea | Recreation |
| Freeborn Lake | Unknown | Lat: 43-45'16"N Long: 093-43'48"W | Freeborn County | Other |
| Geneva Lake | Unknown | Lat: 43-46'17"N Long: 093-16'19"W | Freeborn County | Other |
| Johnson Pool | Gravity | Lat: 43-44'12"N Long: 093-06'31"W | Private | Flood Control Recreation |

Table 4-10 Freeborn County Dams

| Name of Dam | Dam Type | Physical Location Latitude/Longitude | Owner | Use |
|-------------------------|----------|---|-----------------|------------|
| Pestorious Fish Pond | Gravity | Lat: 43-39'12"N Long: 093-27'19"W | Private | Recreation |
| Pickeral Lake | Unknown | Unknown | | Unknown |
| State Line Lake | Unknown | Unknown | Freeborn County | Unknown |

Hazard Profile - These dams are a serious potential hazard. Due to the fact that a dam failure has never occurred in Freeborn County, there is a less than 1% chance of a dam failure occurring in the county.

Multi-Jurisdictional Hazard Differences - There are no multi-jurisdictional hazard difference concerns at this time.

Hazard Summary - Of greatest concern to Freeborn County are the numerous older high-hazard dams located throughout the county which are not being monitored, regulated, or maintained. In some cases, they may not even by inventoried. It is unknown how many of these could cause loss of life and property damage in the event of a catastrophic failure, but the number is potentially significant. Mapping of impacted areas from the identified dams will be addressed later in the plan.

4.20 Hazardous Materials Releases

Hazard Identification - A major source of hazardous material accidents are released along roadways, railways, pipelines, and into lakes, rivers and streams. Hazardous materials are substances, which are harmful to the health and safety of people and property. Jurisdictions with facilities that produce process or store hazardous materials are at risk, as are facilities that treat, or dispose of hazardous wastes. Mitigation of this hazard may be accomplished by adhering to state and federal, and manufacture safety standards. Proper packaging, storage, and handling will assist in elimination of hazardous materials incidents. Historical data was collected from Freeborn County Fire and Emergency Services, county fire departments, and the Freeborn County Emergency Management Agency.

Hazard Profile - Freeborn County has been fortunate that major hazardous material releases have not occurred in Freeborn County. Due to the fact, there is a less than 10% chance of a major hazardous material release in the county in any given year.

| Date | Hazardous Material | Location | |
|-----------|-----------------------|---|--|
| 1/15/2004 | Possible Soy Bean oil | 1/2 mile south of Alden County 46 and Hwy 109 | |
| 3/16/2004 | Gasoline | I 35 mile marker 21 North bound – Albert Lea | |

Table 4-11Hazardous Material Releases Freeborn County

| Date | Hazardous Material | Location |
|------------|------------------------------------|--|
| 3/20/2004 | Gasoline | Bridge Ave and Clark St - Albert Lea |
| 4/8/2004 | Gasoline | Bridge Ave and Clark St - Albert Lea |
| 5/4/2004 | Harness and Marksman (straight) | Sec 7 Geneva TWP - Geneva |
| 6/2/2004 | Gasoline | 2222 East Main – Albert Lea |
| 7/3/2004 | #2 Diesel Fuel | 23087 State Hwy 13 – Albert Lea |
| 8/15/2004 | Gasoline | 906 Front St – Albert Lea |
| 9/17/2004 | Diesel Fuel | 411 S 1st Ave – Albert Lea |
| 10/7/2004 | 18-46-0 and 0060/DAP and potash | Freeborn CR 1 between sections 27 & 34 - London |
| 11/27/2004 | Diesel fuel | Between Walters and Alden - Walters |
| 3/25/2005 | Diesel fuel | I-35 north at Hwy 251 – Clarks Grove |
| 6/2/2005 | Anhydrous Ammonia | 200th St between 820th and 830th Avenues - Hayward |
| 6/8/2005 | Diesel Fuel | sb I-35 just north of I-90 – Clarks Grove |
| 11/8/2005 | Diesel Fuel | Hwy 65 south of Albert Lea 1.5 miles east on CR 84 – Albert Lea |
| 11/13/2005 | Anhydrous Ammonia | 201 West Main St West – Clarks Grove |
| 4/17/2006 | Diesel Fuel | 820 Happy Trail Lane – Albert Lea |
| 8/18/2006 | Corn Mash | 15300 780th Ave – Albert Lea |
| 8/24/2006 | Mash | 15300 780th Ave – Albert Lea |
| 9/12/2006 | Mash, fermentors ethanol product | RR 3 Box 474 – Albert Lea |
| 10/3/2006 | Bio solid | Corner 840th Avenue & 180th Street – Albert Lea |
| 12/19/2006 | Fuel Oil | 79003-325th St - Ellendale |
| 1/31/2007 | Sodium Methylate Liquid | CR 13 - Glenville |
| 2/2/2007 | #2 Fuel Oil | 210 Northwest 5th Street, Box 178 - Geneva |
| 3/13/2007 | Anhydrous Ammonia | Glenville |
| 4/23/2007 | 10-30-40 fertilizer | 101 Redwood Ave – Myrtle |
| 4/27/2007 | Soluable Potash | 201 West Main- PO Box 90 – Clarks Grove |

| Date | Hazardous Material | Location | |
|------------|---------------------------------|---|--|
| 8/6/2007 | CSS1H Pack Emulsion | Junction Freeborn County 30 & Freeborn County 19 – Albert Lea | |
| 9/7/2007 | Sodium Hypochlorite Solution | 15300-780th Avenue – Albert Lea | |
| 3/24/2008 | Gasoline | 1210 East Main Street – Albert Lea | |
| 6/9/2008 | Corn Mash | 15300 780th Avenue Albert Lea 56007 – Glenville | |
| 9/11/2008 | Diesel fuel, Milk | 5 miles west of Albert Lea West Bound I 90 | |
| 10/11/2008 | Fuel Oil | 14684-630th Ave - Mansfield | |
| 2/2/2009 | Hydrochloric Acid | 15200 780th Avenue – Albert Lea | |
| 2009 | Fuel Oil | 86744 140th Street - Glenville | |

Vulnerability Assessment - Freeborn County is 45.61% residential with a population of approximately 114,787.

Freeborn County has three active railroads that pass through the County that hauls commodities/goods which include hazardous materials. Approximately 6% of hazardous materials shipments are transported via these rail lines each year. Those shipments include liquefied petroleum gas, anhydrous ammonia, asphalt, molten sulphur, and gasoline. If a major derailment occurs certain segments of the population would be affected.

The highways in Freeborn County are primary transportation routes for the delivery and pass through of hazardous materials. These interstates and state highways provide access to the entire county. These routes and the homes and businesses along these routes are vulnerable to possible technological hazards.

Assets Exposed to Hazard - The most prevalent asset damaged during a hazardous materials release is the environment. Waterways and storm water runoff are impacted most by hazardous material releases. Certain areas of the population could be impacted by release of certain chemicals. Due to security concerns that information is available only by request.

Damage Assessment - The damage to the environment due to hazardous materials releases cannot be estimated. The permanent damage to a critical facility due to a fixed facility release has not been recorded. A release of certain types of chemicals in certain areas would have catastrophic effects on the population.

Land Use and Development Trends - There are currently land use and development trends directly relating to placement of industries that use hazardous materials. By following land use plans response organizations are able to better plan for major industrial hazardous material incidents.

Multi-Jurisdictional Concerns - Hazardous materials incidents have been recorded in all of the Freeborn County jurisdictions. Those jurisdictions that have fixed industrial facilities are most susceptible to releases of hazardous material.

Hazard Summary - Hazardous materials releases are a relatively uncommon occurrence in Freeborn County. Major hazardous material releases would impact our environment and could have serious consequences should one occur. Mitigation plans must be executed to reduce the threat to lives and property as a result of hazardous materials releases. Mitigation strategies specific to this threat can be found in Chapter 5, Section 5.9.

4.21 Major Fixed Hazardous Material Facilities in Freeborn County

| Facility | Jurisdiction | Chemical |
|--|--------------|---|
| SCHWEIGERT FOODS 702 13TH ST ALBERT LEA 56007 | ALBERT LEA | AMMONIA, ANHYDROUS CARBON DIOXIDE, REFRIGERATED LIQUID PROPANE (LIQUIFIED PETROLEUM GAS) SULFURIC ACID |
| STREATER, INC. 411 S 1ST AVE ALBERT LEA 56007 | ALBERT LEA | HIGH SOLIDS ENAMEL PAINTS (FORMALDEHYDE) PROPANE (LIQUIFIED PETROLEUM GAS) RC SOLVENT |
| INTERSTATE MEAT SERVICE INC 2309 MYERS ROAD ALBERT LEA 56007 | ALBERT LEA | AMMONIA |
| ALBERT LEA ELECTROPLATING, INC 808 12TH ST BOX 89 ALBERT LEA 56007 | ALBERT LEA | HYDROCHLORIC ACID (HYDROGEN CHLORIDE) NICKEL NITRIC ACID SODIUM CYANIDE SODIUM HYDROXIDE SULFURIC ACID ZINC |
| PESTORIOUS, INC. 20770 707TH AVE ALBERT LEA 56007 | ALDEN | ACETOCHLOR AMMONIUM SULFATE ATRAZINE |

Table 4-12Major Fixed Hazardous Material Facilities

| Facility | Jurisdiction | Chemical |
|---|--------------|---|
| | | COUNTER (TERBUFOS) DUAL (METACHLOR) |
| QWEST COMMUNICATIONS 143 E MAIN ST ALBERT LEA 56007 | ALBERT LEA | LEAD SULFURIC ACID |
| MINNESOTA FREEZER WAREHOUSE CO ALBERT LEA 820 E 13TH ST ALBERT LEA 56007 | ALBERT LEA | AMMONIA, ANHYDROUS SULFURIC ACID |
| VENTURA FOODS, LLC 919 14TH ST ALBERT LEA 56007 | ALBERT LEA | AMMONIA FUEL OIL SODIUM CHLORIDE SULFURIC ACID |
| KERRY INGREDIENTS 517 ADAMS AVE ALBERT LEA 56007 | ALBERT LEA | NITRIC ACID PROPANE (LIQUIFIED PETROLEUM GAS) SODIUM HYDROXIDE SULFURIC ACID |
| UNIVERSAL COOPERATIVES, INC 600 14TH ST ALBERT LEA 56007 | ALBERT LEA | LEAD SULFURIC ACID |
| AGRA RESOURCES COOP DBA POET 78242 150TH ST ALBERT LEA 56007 | GLENVILLE | AMMONIA, ANHYDROUS CAUSTIC SODA (50%) DENATURANT (NATURAL GASOLINE) DENATURED ETHANOL (MIXED WITH 5% DENATURANT) ETHYL ALCOHOL ETHYL ALCOHOL (190 PROOF) SULFURIC ACID |
| ALAMCO WOOD PRODUCTS 1410 W 9TH ST ALBERT LEA 56007 | ALBERT LEA | CASCOPHEN LT-5212 |
| ALBERT LEA CENTRAL WATER PLANT 105 N NEWTON AVE ALBERT LEA 56007 | ALBERT LEA | CHLORINE |
| ALBERT LEA NORTH WATER PLANT 501 RICHWAY DR ALBERT LEA 56007 | ALBERT LEA | CHLORINE |
| ALBERT LEA WEST WATER PLANT 700 4TH AVE S ALBERT LEA 56007 | ALBERT LEA | CHLORINE |
| ALBERT LEA SOUTH WATER PLANT 1623 MARGARETHA AVE | ALBERT LEA | CHLORINE |

Section 4

| Facility | Jurisdiction | Chemical |
|--|--------------|---|
| ALBERT LEA 56007 | | |
| HI YIELD PRODUCTS, INC. 23282 620TH AVE ALDEN 56009 | ALDEN | AMMONIA, ANHYDROUS |
| CITY OF ALDEN PUMP HOUSE 120 LINCOLN ALDEN 56009 | ALDEN | CHLORINE |
| NORTHERN COUNTRY COOP FIRST AVE W ALDEN 56009 | ALDEN | AMMONIA, ANHYDROUS BUCCANEER PLUS HERBICIDE (TENKOZ) FURADAN 4F INSECTICIDE – 02 NEMATICIDE HARNESS HERBICIDE KEYSTONE LA HERBICIDE OUTLOOK (TM) HERBICIDE ROUNDUP WEATHERMAX HERBICIDE STERLING PLUS AMMONIA |
| MANSFIELD STORE 63025 150TH ST ALDEN 56009 | WALTERS | ANIMONIA, ANHYDROUS HARNESS LORSBAN SULFUR |
| WATONWAN FARM SERVICE INDEPENDENCE AVE BOX 90 CLARKS GROVE 56016 | CLARKS GROVE | AMMONIA, ANHYDROUS |
| UAP MIDWEST 78053 STATE HIGHWAY 251 CLARKS GROVE 56016 | CLARKS GROVE | ACETOCHLOR AMMONIUM SULFATE ATRAZINE CARBOFURAN ENDOSULFAN GLYPHOSATE GLYPHOSATE, ISOPROPYLAMINE SALT PARAQUAT DICHLORIDE PENDIMETHALIN POTASSIUM SALT OF GLYPHOSATE S-METOLCHLOR SULFUR |

| Facility | Jurisdiction | Chemical |
|---|--------------|---|
| | | TERBUFOS TRIFI URALIN |
| WATONWAN FARM SERVICE 201 WEST MAIN STREET CLARKS GROVE 56016 | CLARKS GROVE | COMMAND 3MC COUNTER CR DUAL II MAGNUM FRONTIER 6.0 HARNESS LUMAX MARKSMAN PROWL 3.3 ROUNDUP ULTRA HERBICIDE ROUNDUP WEATHERMAX |
| EMMONS PUMP HOUSE & WATER CO RD 14, MAIN ST BOX 46 EMMONS 56029 | EMMONS | CHLORINE |
| EMMONS WASTEWATER TREATMENT PLANT CO RD 4, 1/8 MI W OF EMMONS EMMONS 56029 | EMMONS | CHLORINE |
| WATONWAN FARM SERVICE 101 4TH AVE E BOX 172 FREEBORN 56032 | FREEBORN | FURADAN 4F HARNESS ROUNDUP ULTRA HERBICIDE |
| CITY OF FREEBORN - CITY WELL #1 200 3RD AVE FREEBORN 56032-0151 | FREEBORN | CHLORINE |
| CITY OF FREEBORN - CITY WELL #2 406 PARK STREET FREEBORN 56032 | FREEBORN | CHLORINE |
| GLENVILLE WELL HOUSE 1ST AVE NW GLENVILLE 56036 | GLENVILLE | CHLORINE |
| KROWN, INC. DBA HI-YIELD RAILROAD ST HARTLAND 56042 | HARTLAND | AMMONIA, ANHYDROUS |
| HAYWARD COOP COMMERCIAL ST HAYWARD 56043 | HAYWARD | AMMONIA, ANHYDROUS |
| CITY OF HAYWARD WATER TREATMENT 20532 810 AVENUE HAYWARD 56043-0484 | HAYWARD | CHLORINE FLUORIDE HYDROFLUOROSILICIC ACID |
| CITY OF TWIN LAKES WATER PLANT 101 W MAIN ST TWIN LAKES 56089 | TWIN LAKES | CHLORINE |

4.22 Methamphetamine Laboratory Incidents

Hazard Identification – Methamphetamine Labs have had a substantial impact on the Freeborn County area. Methamphetamine Labs are also responsible for deputy injuries and user injuries. Methamphetamine Labs are a danger to the environment, emergency responders and the general public. Mitigation of this hazard may be accomplished by enforcement measures and education of the emergency responders and the public on identification and location of potential methamphetamine labs.

Hazard Profile – Over the past 15 years, methamphetamine labs have had a significant impact on the county. Since 2001 there have been 26 methamphetamine labs throughout Freeborn County.

| Date | Location | Assets Damaged |
|------|--------------|----------------|
| 2001 | Albert Lea | Unknown |
| 2001 | Twin Lakes | Unknown |
| 2003 | Albert Lea | Unknown |
| 2003 | Albert Lea | Unknown |
| 2003 | Hayward | Unknown |
| 2003 | Albert Lea | Unknown |
| 2003 | Albert Lea | Unknown |
| 2003 | Albert Lea | Unknown |
| 2003 | Myrtle | Unknown |
| 2004 | Twin Lakes | Unknown |
| 2004 | Twin Lakes | Unknown |
| 2004 | Maple Island | Unknown |
| 2004 | Albert Lea | Unknown |
| 2005 | Albert Lea | Unknown |

 Table 4-13

 Methamphetamine Laboratories

| Date | Location | Assets Damaged |
|------|------------------|----------------|
| 2005 | Albert Lea | Unknown |
| 2006 | Freeman Township | Unknown |
| 2006 | Albert Lea | Unknown |
| 2007 | Alden | Unknown |
| 2007 | Hollandale | Unknown |
| 2008 | Albert Lea | Unknown |

Vulnerability Assessment – Methamphetamine Labs have had a substantial impact on the environment in Freeborn County. All areas within Freeborn County are susceptible to be affected by a methamphetamine lab.

Assets Exposed to Hazard - The most prevalent assets damaged during a methamphetamine lab response is to the emergency responders and the environment. Lakes, waterways and storm water runoff can be impacted. Certain areas of the population could be impacted by release of certain chemicals. Due to security concerns that information is available only by request.

Damage Assessment - The damage to the environment and contamination of homes due to methamphetamine labs cannot be estimated. The permanent damage to a home and the environment due to a methamphetamine lab has not been recorded. Over the past 15 years, methamphetamine lab cleanup costs are up to or over a million dollars to dispose of contaminated/hazardous materials that are in the methamphetamine lab. Methamphetamine labs are also responsible for deputy injuries and user injuries. Deputy exposure during dismantling is always a risk. Two deputies have been taken to the emergency room, treated and released, however, the long term damages are not yet known. There have also been two users who sustained severe burns to their body from exposures to the methamphetamine lab they were working.

Land Use and Development Trends – As more and more development occurs the exposure to methamphetamine labs will exist.

Multi-Jurisdictional Concerns – Methamphetamine lab incidents have been recorded throughout the Freeborn County jurisdictions. No one area is less susceptible to the other due to the effects from methamphetamine labs.

Hazard Summary – Methamphetamine labs incidents have become a common occurrence throughout Freeborn County. Methamphetamine lab incidents do have an impact on the environment and have serious consequences should when one occurs.

Mitigation plans must be executed to reduce the threat to lives and property as a result of methamphetamine lab incidents. Mitigation strategies specific to this threat can be found in Chapter 5, Section 5.9.

4.23 Pandemics/Epidemic Incidents

Hazard Identification – A widespread pandemic/epidemic incident is a plausible incident(s) in the Freeborn County area. Pandemic/.epidemic incidents are a danger to the emergency responders and the general public. This can include influenza, polio, smallpox, and SARS and other health related events. Bioterrorism incidents can also be included in this identified hazard area.

Hazard Profile – Since the 1800s there has been two documented pandemics/epidemic events in Freeborn County. The health hazard of pandemic influenza would have the greatest impact on the community. A bioterrorism event has never occurred in Freeborn County, but the potential for widespread human illness and death is a concern after the 9/11/01 attack against the United States. In December, 2006, 77 persons developed E. coli illnesses associated with food consumed at Taco John restaurants in Mason City, IA, Austin and Albert Lea, MN (50 Iowans and 27 Minnesotans). Twenty-six MN residents were hospitalized. No deaths occurred. Lettuce grown in California was identified as the source of the infection. Local impact included severe illnesses in several people, loss of confidence in the level of food safety in local restaurants, loss of business revenue for local food establishments. Food borne illness could occur anytime. West Nile Virus was found in two horses in 2002.

| Location or County | Date | Туре | Magnitude | Death | Injuries |
|--------------------|---------|-----------------------|-----------|-------|----------|
| 1. Countywide | 08/02 | West Nile | | 0 | Unknown |
| 1. Albert Lea | 12/2005 | Food Borne Illness | Medium | 0 | 77 |
| | | | TOTAL | 0 | 77 |

Table 4-14 Pandemic/Epidemic Events

Vulnerability Assessment – All populations within Freeborn County are susceptible to pandemic/epidemic events that occur in the county.

Assets Exposed to Hazard – The impact of human resources would suffer the most with the potential of 30 % of the workforce becoming ill. Freeborn County's current just-in-time economy would suffer major set backs in community infrastructure such as public water supply, food, trucking, health care delivery, and energy resources.

Damage Assessment – Although the diseases of Polio and Smallpox have largely been eradicated from the world and tuberculosis under control, past historical complications on human health were devastating and any new infectious disease introduced to the world could have health emergency implications. Recent SARS and

seasonal influenza cases demonstrate that health emergencies are unpredictable, can irrupt quickly, and have significant impact on communities including Freeborn County as history has shown.

Land Use and Development Trends – As more and more people move into populated areas, all of Freeborn County is susceptible to outbreaks of pandemics/epidemics.

Multi-Jurisdictional Concerns – No one area in Freeborn County is less susceptible to the other from the effects of a pandemic/epidemic event. Of course, the more densely populated the area is the greater threat of the spread of the pandemic/epidemic.

Hazard Summary – Pandemics/epidemics do pose a threat to all of Freeborn County. The impact of human resources would suffer the most with the potential of 30% of the workforce becoming ill. Mitigation strategies specific to this threat can be found in Chapter 5, Section 5.9.

| Hazard Event | Fatality and Injury | Economic Loss | Probability of Occurrence | Vulnerability Score | Priority |
|------------------------------|------------------------|---------------|------------------------------|------------------------|----------|
| Flooding | 3 | 4 | 3 | 3 | 4 |
| Tornados | 1 | 4 | 4 | 4 | 3 |
| Severe Summer Storms | 2 | 2 | 5 | 5 | 2 |
| Extreme Winter Storms | 0 | 1 | 4 | 4 | 5 |
| Wildfires | 4 | 4 | 5 | 5 | 6 |
| Earthquakes | 0 | 1 | 0 | 0 | 10 |
| Drought | 1 | 4 | 3 | 3 | 7 |
| Hazardous Materials Releases | 2 | 3 | 3 | 3 | 8 |
| Methamphetamine Laboratories | 5 | 5 | 5 | 5 | 1 |
| Pandemics/Epidemics | 1 | 0 | 1 | 1 | 9 |

 Table 4-15

 Freeborn County Future Hazard Assessment

Probablity once in 100 years -0

Probablity once in 50 years -1

Probablity once in 10 years -2

Probablity once in 5 years -3

Probablity once in 1 year -4

Probablity more than once in 1 year - 5

5.1 Natural Hazard Mitigation Goals and Objectives

The foundation of this plan is the identification of strategies through which Freeborn County implement natural hazard mitigation goals, objectives and actions. As identified in Chapter 4, Risk Assessment the Multi-Jurisdictional Hazard Mitigation Planning Committee has a clear understanding of the community's hazards and risks. The next step is to develop a mitigation strategy. The Multi-Jurisdictional Hazard Mitigation Goals, Objectives and actions are listed in this chapter are listed in order of priority. The methodology that was used to determine the priority of projects was based on repetition of the event, monetary loss, anticipated costs, and the potential for loss of life. For each of the hazards identified in Chapter 4 Risk Assessment the Multi-Jurisdictional Hazard Mitigation Planning Committee has outlined below our goals and objectives as part of the mitigation strategy. Mitigation actions for all the citie and townships within Freeborn County are incorporated in Freeborn County's goals, objectives, and actions. Table 5-1 below shows the prioritization of projects for the hazard events identified to impact Freeborn County. The hazards were rated on a scale of 0-5 and took into account the repetition of event, economic loss for the county, ancticipated costs, potential for loss of life and then a final number assigned to the priority of the hazard. The total priority ranges from 1 being the most identified event to 10 being the least.

| Hazard Event | Repetition of Event | Economic Loss | Anticipated Costs | Potential for Loss of Life | Priority |
|------------------------------|------------------------|---------------|----------------------|-------------------------------|----------|
| Flooding | 4 | 4 | 4 | 4 | 4 |
| Tornados | 4 | 4 | 4 | 4 | 3 |
| Severe Summer Storms | 5 | 4 | 4 | 4 | 1 |
| Extreme Winter Storms | 4 | 3 | 3 | 3 | 6 |
| Wildfires | 4 | 2 | 3 | 4 | 5 |
| Earthquakes | 0 | 4 | 4 | 4 | 7 |
| Drought | 3 | 3 | 3 | 0 | 8 |
| Hazardous Materials Releases | 2 | 2 | 3 | 1 | 9 |
| Methamphetamine Laboratories | 5 | 4 | 4 | 4 | 2 |
| Pandemics/Epidemics | 1 | 1 | 2 | 4 | 10 |

Table 5-1Freeborn County Priority of Projects

Probablity once in 100 years – 0 Probablity once in 50 years – 1 Probablity once in 10 years – 2 Probablity once in 5 years – 3 Probablity once in 1 year – 4 Probablity more than once in 1 year - 5

5.2 Previous Hazard Mitigation Accomplishments

Freeborn County has made previous efforts to mitigate hazards in our community. Some have been significant and have been beneficial to reducing loss of life and property from disasters throughout Freeborn County. Among them are:

- Changed and updated building codes to higher standards.
- Strict enforcement of land use plans.
- Placed NOAA Weather Radios in all public buildings, churches, nursing homes, and day care centers.

5.3 Flooding

Mitigation Goals - As noted in Chapter 2, Section I, flooding has caused significant damage throughout the years in Freeborn County. There are two major locations throughout the county where localized flooding is a problem during heavy rains. Mitigation strategies, which reduce the negative effects of flooding, must be considered.

Range of Mitigation Options - The mitigation options to reduce the effects of flooding in Freeborn County and within the cities and townships include continual updates of policies and procedures, enhanced data collection, and efforts to reduce localized flooding.

Mitigation Strategies for Flooding:

<u>Mitigation Goal # 1</u> – To improve and implement preventive measure of Nunda Township drainage system, and all other township, city and county drainage systems.

<u>Mitigation Goal #2</u> – Repair Bridge L9632, Bridge L5627, and Bridge L5626 in Freeborn Township. All bridges in need of repairs in County are completed.

<u>Mitigation Goal #3</u> - Identify and map all structures located in the identified floodplain in Freeborn County.

<u>Objective #1</u> – Identify affected drainage infrastructure that needs repair/replacing.

<u>Objective #2</u> – Identify repairs needed for Bridge L9632, Bridge L5627, and Bridge L5626 in Freeborn Township. Repair all bridges in county.

Objective #3 -

Identify all residential and commercial structures in the floodplain throughout Freeborn County.

Action Steps:

Evaluate entire drainage system in the Nunda Township infrastructure to restore and implement preventative measures to reduce future impact on the drainage system.

| Responsible Organization | (Nunda)Townships/City/County |
|---------------------------|----------------------------------|
| Coordinating Organization | (Nunda) Townships/City/County |
| Timeline | Current – 2010 |
| Approximate Cost | \$700,000 |
| Funding Sources | General funds, Mitigation Grants |

Repair/replace Bridge L9632 in Freeborn Township. Upgrade all bridges in county in need.

| Responsible Organization | Freeborn Township/Freeborn County |
|---------------------------|--------------------------------------|
| Coordinating Organization | Freeborn Township/County |
| Timeline | 2010-2012 |
| Approximate Cost | \$125,000.00 |
| Funding Sources | Federal, state and/or local grants |

Study trends and continue to develop storm water management plan for Freeborn County and the City of Albert Lea.

| Responsible Organization | Freeborn County Engineering and the City of Albert Lea engineering departments |
|---------------------------|--|
| Coordinating Organization | Freeborn County Water Engineering and City of Albert Lea engineering departments |
| Timeline | 2009 - 2015 |
| Approximate Cost | unknown |
| Funding Sources | General Funds and Grant Funding |

Have sand bags available and manpower ready when a flood occurrence occurs in the cities of Albert Lea, Emmons, Glenville, Hartland, Twin Lakes, Albert Lea Township, Geneva Township, Newry Township, and Riceland Township.

| Responsible Organization | Freeborn County EMA individual cities |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2009 - 2011 |
| Approximate Cost | unknown |
| Funding Sources | Individual cities general funds and Freeborn County general funds |

• Evaluate and identify all residential and commercial structures located in floodplain in Freeborn County.

| Responsible Organization | Freeborn County GIS and Emergency Management |
|---------------------------|---|
| Coordinating Organization | Freeborn County GIS and Emergency Management |
| Timeline | 2009 - 2015 |
| Approximate Cost | unknown |
| Funding Sources | General Funds and Grant Funding |

Multi-Jurisdictional Considerations - Flooding events have affected all areas of Freeborn County. The cities of Albert Lea, Alden, Emmons, Geneva, Glenville, Twin Lakes and the County of Freeborn participate in the National Flood Insurance Program (NFIP) participate in flood mitigation activities and are part of the National Flood Insurance Program and the Community Rating System. Freeborn County and the participating cities plan to continue and encourage non-participating cities/townships to participate in the NFIP and CRS program by developing and implementing public awareness campaigns, further identification of critical infrastructure in floodplains, promotion of storm water management plans and/or activities, assure that building sites are reasonably safe from flooding, determine if damaged buildings are substantially damaged, carefully consider requests for variances, advise FEMA when updates to flood maps are needed and continuation of updating of flood maps for all of Freeborn County.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified public awareness campaigns to ensure that the citizens of Freeborn County are informed of the hazards affecting them and about the mitigation efforts that taking place to mitigate flooding situations.

5.4 Tornadoes

Mitigation Goals - The potential for significant damages to property, injuries and/or deaths are often associated with tornadoes. There is a need for advanced planning due to major consequences this type of event. There are several courses of action below that could increase the survival chances of vulnerable populations while also reducing the overall damage to critical infrastructure.

Range of Mitigation Options - The suggested mitigation options for tornadoes in Freeborn County provide enhanced sheltering, advanced warning and as well as options for more sustainable facilities.

Mitigation Strategy for Tornadoes:

<u>Mitigation Goal #1</u> - "To minimize the losses of life and property due to tornadoes in Freeborn County."

<u>Mitigation Goal #2</u> – "To develop policies and plans to handle reconstruction from wind and storm damage."

<u>Mitigation Goal #3</u> – "To provide back up generators in identified critical facilities the City of Emmons (and other cities in need).

<u>Objective #1</u> - To provide advanced severe weather warning and to protect the residents and their property from the effects of tornadoes in Freeborn County.

<u>Objective #2</u> – To provide safe rooms and/or community shelters needed for mobile home parks, recreation/open areas.

<u>Objective #3</u> – To provide information on benefits of tie-down straps for mobile homes.

<u>Objective #4</u> – To minimize the wait time for residents and business owners to get building permits and inspections of construction activities.

<u>Objective #5</u> – To provide automatic emergency power in identified critical facilities in the City of Emmons (and other cities in need).

Action Steps:

• Encourage retrofitting of existing and future public schools with special high wind resistant films for doors and windows.

| Responsible Organization | Freeborn County Board of Education |
|---------------------------|---------------------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 |
| Approximate Cost | Unknown |
| Funding Sources | General funds |

 Identify facilities throughout Freeborn County that need back up generators to provide emergency power in case of power outages due to tornadoes/storms.

| Responsible Organization | Freeborn County EMA |
|---------------------------|--|
| Coordinating Organization | City of Albert Lea, City of Manchester, Bath Township, Moscow Township, Freeborn County EMA |
| Timeline | 2009-2010 |
| Approximate Cost | Unknown |
| Funding Sources | General funds and/or State and federal grants |

Educate individual communities and county on tornado safety with open houses at local police, sheriff, and fire departments. This would include the cities of Alden, Clarks Grove, Conger, Freeborn, Geneva, Hayward, Hollandale, Manchester, and Myrtle.

| Responsible Organization | Individual Cities, Freeborn County EMA and local law enforcement |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2009 - 2010 |
| Approximate Cost | minimal |
| Funding Sources | Individual Cities General Funds and County General Funds |

■ Provide auxiliary power generator to fire station in the City of Emmons.

| Responsible Organization | City of Emmons |
|---------------------------|--|
| Coordinating Organization | City of Emmons Fire Department and the City of Emmons Administration |
| Timeline | 2009 - 20112 |
| Approximate Cost | \$25,000 |
| Funding Sources | FEMA Grant Funding |

 Provide auxiliary power generator to American Red Cross shelter in the City of Emmons.

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Responsible Organization | City of Emmons |
|---------------------------|-------------------------------|
| Coordinating Organization | City of Emmons Administration |
| Timeline | 2009 - 20112 |
| Approximate Cost | \$15,000 |
| Funding Sources | FEMA Grant Funding |

 Provide auxiliary power generator to sewer plant/water tower in the City of Emmons.

| Responsible Organization | City of Emmons Maintenance |
|---------------------------|---|
| Coordinating Organization | City of Emmons Maintenance Department and the City of Emmons Administration |
| Timeline | 2009 - 20112 |
| Approximate Cost | \$50,000 |
| Funding Sources | FEMA Grant Funding |

Multi-Jurisdictional Considerations - Tornadoes can affected all areas of Freeborn County. All of the cities and townships in Freeborn County should be participants in tornado mitigation activities.

Public Information and Awareness Strategies - The Freeborn County Hazard Mitigation Steering Committee has identified many public awareness campaigns to ensure that the citizens of Freeborn County have advanced warning of the hazards affecting them and the about the mitigation efforts in place to mitigate potential tornado situations.

5.5 Severe Summer Storms

Mitigation Goals - Thunderstorm winds and lightning has caused numerous injuries and deaths as well as millions of dollars in property damages in Freeborn County over the past 45 years. There is a great need to reduce the risk to lives and property due to this hazard. There are many similarities for mitigating thunderstorm winds and tornadoes. This section identifies mitigation solutions to lightning events and severe thunderstorms.

Range of Mitigation Options - Possible mitigation options for severe storms include early warning devices and property protection systems. The early warning devices should allow residents to take shelter before the storm approaches.

Mitigation Strategy for Thunderstorm Wind and Lightning:

<u>Mitigation Goal #1</u> - "To minimize the losses of life and property due to thunderstorm winds and lightning in Freeborn County."

<u>Objective #1</u> - To adequately warn and protect the people and property from the effects of thunderstorm winds and lightning of Freeborn County.

Action Steps:

• Equip all county and city town halls with adequate early severe weather warning devices and lightning detection devices.

| Responsible Organization | Freeborn County, individual City Town Halls, Freeborn County EMA |
|---------------------------|--|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2009 - Ongoing |
| Approximate Cost | unknown |
| Funding Sources | Grants, general fund |

 Develop a public awareness program about the installation of lightning grounding systems on critical infrastructure, residential and business properties.

| Responsible Organization | County and city governments, private business and homeowners |
|---------------------------|--|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2009 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | General funds |

Develop and distribute flyers by mail to citizens to promote and educate citizens on severe summer storms issues to include the cities of Albert Lea, Alden, Clarks Grove, Conger, Emmons, Freeborn, Geneva, Glenville, Hartland, Hayward, Hollandale, Manchester, Myrtle and all townships in Freeborn County.

| Responsible Organization | Individual Cities, Townships and Freeborn County EMA |
|---------------------------|---|
| Coordinating Organization | Individual Cities, Townships and Freeborn County EMA |
| Timeline | 2009 - 2010 |
| Approximate Cost | minimal |
| Funding Sources | Individual Cities General Funds and County General Funds |

Multi-Jurisdictional Considerations - All of Freeborn County should be considered when developing mitigation strategies related to thunderstorm winds and lightning. Thunderstorms with associated lightning have caused significant damage in all areas of the county.

Public Information and Awareness Strategies - The Freeborn County public safety community is taking an all hazards approach to community awareness programs. Thunderstorm winds and lightning events are inclusive of this all hazards program. All jurisdictions have implemented more than 25 NOAA weather radios in public buildings, critical infrastructure, major businesses, nursing homes, and day care centers as a public information strategy. Local fire departments have distributed severe weather information to bring awareness of the potential of severe weather. All jurisdictions and the Freeborn County Board of Education participate in the statewide tornado drill as an exercise each year.

5.6 Extreme Winter Storms

Mitigation Goals - Winter storms are a frequent occurrence in Freeborn County, and have the potential to cause extensive problems when they occur. Freeborn County and its cities and townships do have the proper equipment to efficiently deal with snow and ice removal.

Range of Mitigation Goals - The major mitigation need for Freeborn County in relation to winter storms is to educate and prepare residents of our community for winter storms.

Mitigation Strategy for Winter Storms:

<u>Mitigation Goal #1</u> - "To minimize the losses of lives and property due to winter storms in Freeborn County."

<u>Objective #1</u> - To educate and prepare the residents of Freeborn County for effects of winter storms.

<u>Objective #2</u> – To reduce power failure due to winter storms (high winds, heavy snow and ice).

Action Steps:

Develop and implement an education and preparedness strategy such as a Citizens Emergency Response Team (CERT) in an effort to reduce the effects of winter storms on our citizenry.

| Responsible Organization | Freeborn County EMA, Fire Departments |
|---------------------------|--|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - ongoing |
| Approximate Cost | Unknown |

 Identify and retrofit electrical lines in danger of being affected from the effects of a winter storm (high winds, heavy snow/ice).

| Responsible Organization | Freeborn County EMA and the individual Cities/Electric Coops |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA/Coops |
| Timeline | 2010 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | General funds |

Multi-Jurisdictional Considerations - Winter storms have affected all areas of Freeborn County. All of the cities and townships in Freeborn County should participate in winter storm mitigation and preparedness activities.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified and implemented many public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to reduce the severity of winter storm situations.

5.7 Wildfires

Mitigation Goals - Wildfires have had severe effects upon Freeborn County during the last few years.

Range of Mitigation Goals - The main areas where mitigation projects are needed for wildfire conditions include expanding and enhancing fire department response capabilities, enhancing the wildfire equipment as well as increasing the public awareness about wildfires.

Mitigation Strategy for Wildfire:

Mitigation Goal #1 - "To minimize the effects of wildfires in Freeborn County."

<u>Objective #1</u> - Protect people and property from the effects of wildfires by ensuring an adequate response capability in Freeborn County and educating communities in becoming members of the MN Firewise Program and National Firewise Program.

Action Steps:

■ Utilize FireWise program to increase public awareness about wildfires.

|--|

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Coordinating Organization | Freeborn County EMA |
|---------------------------|---------------------|
| Timeline | 2009 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | General funds |

• Stricter enforcement of countywide outdoor burning regulations from May through October to prevent wild land fires.

| Responsible Organization | Various Fire Departments |
|---------------------------|--------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 20010 - ongoing |
| Approximate Cost | Negligible |
| Funding Sources | None |

Multi-Jurisdictional Considerations – Wildfires have affected all areas of Freeborn County. All of the cities and townships in Freeborn County should participate in wildfire related mitigation activities.

Public Information and Awareness Strategies - The Freeborn County Hazard Mitigation Steering Committee has identified and implemented public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to reduce the effects of potential wildfire situations. These include ordinances for the enforcement of outdoor burning bans.

5.8 Earthquakes

Mitigation Goals – Freeborn County has minimal history with earthquakes. To protect life and property from the effects of an earthquake are the goals of Freeborn County.

Range of Mitigation Goals - The current mitigation strategies for earthquakes reside mainly in building codes. Public education is one are that lacks great emphasis throughout Freeborn County. Mitigation strategies will be mainly focused on education and awareness.

Mitigation Strategies for Earthquakes:

Mitigation Goal #1 – "Protect life and property in Freeborn County and all municipalities and townships from the effects of seismic forces.

Objective #1 – Education residents and business in Freeborn County about potential safety regarding earthquakes.

• Create earthquake information materials as part of all-hazards public awareness initiative.

| Responsible Organization | Individual Cities and Freeborn County EMA |
|---------------------------|--|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 20010 - ongoing |
| Approximate Cost | Negligible |
| Funding Sources | None |

Multi-Jurisdictional Consideration – No significant differences exist between Freeborn County and the cities and townships in terms of the risks and vulnerabilities associated with earthquakes. As a result, any mitigation steps taken related to earthquakes should be taken countywide and include all cities and townships.

Public Information and Awareness Strategies - The Freeborn County Hazard Mitigation Steering Committee has identified and implemented public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to reduce the effects of potential earthquake situations.

5.9 Drought

Mitigation Goals – Drought conditions can prove costly to Freeborn County and all the cities and townships. The Freeborn County Hazard Mitigation Steering Committee determined that little can be done mitigate the effects of drought.

Range of Mitigation Goals - The Freeborn County HMSC has identified several nonstructural mitigation measures in hopes of minimizing the potentially destructive effects of drought. The planning committee's focus is on the preservation of life and property, with particular emphasis on vulnerable populations and critical facilities. This may result in modification to current policies and the implementation of ordinances to ensure mitigation measures are initiated.

Mitigation Goal #1 – Minimize agricultural and property losses in Freeborn County resulting from drought conditions.

Objective #1 – Protect critical facilities and vulnerable agriculture from effects of drought conditions.

■ Identify vulnerable areas (i.e. farms) and develop a protective action plan.

| Responsible Organization | Freeborn County |
|--------------------------|-----------------|
|--------------------------|-----------------|

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Coordinating Organization | Freeborn County EMA |
|---------------------------|---------------------|
| Timeline | 20010 - ongoing |
| Approximate Cost | \$1,000 |
| Funding Sources | County Staff time |

• Educate citizens and farmers in the county about the potential negative effects that arise from extended drought conditions.

| Responsible Organization | Freeborn County |
|---------------------------|---------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 20010 - ongoing |
| Approximate Cost | \$1,000 |
| Funding Sources | County staff time |

Multi-Jurisdiction Considerations – Drought conditions affect all of Freeborn County. Any mitigation measures taken as a result of drought should be addressed county wide.

Public Information and Awareness Strategies - The Freeborn County Hazard Mitigation Steering Committee has identified and implemented public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to reduce the effects of potential drought situations.

5.10 All Hazards

Mitigation Goals - Freeborn County follows an all-hazards approach to community planning. There are many mitigation projects, which can positively influence the outcomes of any natural disaster; these projects are described in this All Hazards section.

Range of Mitigation Goals - All hazards mitigation goals cover a wide variety of areas. There is a great need in Freeborn County for county wide NIMS training and planning for all hazards in Freeborn County.

Mitigation Strategies for All Hazards:

<u>Mitigation Goal #1</u> - "To minimize the losses of life and property due to all natural hazards in Freeborn County."

<u>Mitigation Goal #2</u> – "To provide training to all department heads and staff in the Basic NIMS course."

<u>Mitigation Goal #3</u> – "To provide continuing education of NIMS to all emergency response agencies in Freeborn County."

<u>Mitigation Goal #4</u> – "To provide education and training to all City Mayors and Councils on emergency preparedness (Public Safety) within Freeborn County.

<u>Mitigation Goal #5</u> – "To ensure computer operations for city and county infrastructure."

<u>Mitigation Goal #6</u> – "To identify access alternatives for neighborhoods with single access points."

<u>Mitigation Goal #7</u> – "To develop and further enhance GIS throughout Freeborn County."

Mitigation Goal #8 - "Upgrade of County Emergency Communications."

<u>Objective #1</u> - To protect people and property from the effects of all potential hazards in Freeborn County.

<u>Objective #2</u> – To provide understanding of unified command structure through NIMS training.

<u>Objective #3</u> – Ensure all city and county officials understand their roles and responsibilities in the county in the event of an emergency.

<u>Objective #4</u> – Conduct public meetings to educate all of Freeborn County citizens on safety and emergency preparedness.

Objective #5 – Develop Continuity of Operations Plan (COOP) for Freeborn County.

<u>Objective #6</u> – Establish alternative access routes for emergency response in single access residential developments throughout Freeborn County.

<u>Objective #7</u> – Integration of GIS throughout all cities and townships and Freeborn County governments.

<u>Objective #8</u> – Update and upgrade county radio communications equipment and add additional communications towers.

Action Steps:

 Providing NIMS Training to all emergency response personnel throughout Freeborn County.

| Responsible Organization | Freeborn County EMA and Fire Department Chiefs |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - ongoing |
| Approximate Cost | unknown |
| Funding Sources | County and City General Funds |

Develop a Continuity of Operations Plan (COOP) for Freeborn County.

| Responsible Organization | Freeborn County |
|---------------------------|-----------------|
| Coordinating Organization | Freeborn County |
| Timeline | 2009 - 2015 |
| Approximate Cost | \$60,000 |
| Funding Sources | Grants |

• Work with local cable and radio providers to develop and broadcast public education on Emergency Preparedness.

| Responsible Organization | Freeborn County Information Systems, local Cable Company |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - 2012 |
| Approximate Cost | Unknown |
| Funding Sources | |

Conduct public education and awareness campaigns targeting nursing homes regarding the development and testing of emergency plans to include possibility of complete evacuation of facility.

| Responsible Organization | Freeborn County EMA |
|---------------------------|-----------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - 2013 |
| Approximate Cost | Unknown |
| Funding Sources | General funds, state grants |

Continuing training of all emergency response personnel in Freeborn County on NIMS.

| Responsible Organization | Freeborn County EMA |
|---------------------------|---------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - 2015 |
| Approximate Cost | unknown |
| Funding Sources | General funds |

 Identify areas that have a single point of access throughout residential developments in Freeborn County

| Responsible Organization | Freeborn County Planning Dept. |
|---------------------------|--------------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - 2015 |
| Approximate Cost | \$500.00 |
| Funding Sources | General funds |

 Implementation and expansion of Freeborn County GIS and identified cities and townships GIS departments.

| Responsible Organization | Freeborn County GIS and city GIS Departments |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - 2015 |
| Approximate Cost | unknown |
| Funding Sources | County and City General funds |

 Update and upgrade county communications equipment and add additional radio towers for emergency communications in Freeborn County.

| Responsible Organization | Freeborn County EMA and Sheriff's Department |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$ 3.3 million |
| Funding Sources | FEMA, MEMA and County Funds |

• Establish backup systems to maintain temperature in refrigerator holding vaccines at Freeborn County Health Department.

| Responsible Organization | Freeborn County Health Department and Maintenance Department |
|---------------------------|--|
| Coordinating Organization | Freeborn County Health Department |
| Timeline | 2009 - ongoing |

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Approximate Cost | \$350.00 |
|------------------|----------------------|
| Funding Sources | Public Health Budget |

■ Purchase vaccine storage refrigerator with alarms and automatic telephone dialer.

| Responsible Organization | Freeborn County Public Health |
|---------------------------|-------------------------------|
| Coordinating Organization | Freeborn County Public Health |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$8,700.00 |
| Funding Sources | Public Health Budget |

■ Develop and implement a Cooling Center Plan to respond to extreme heat/humidity situations in Freeborn County.

| Responsible Organization | Freeborn County Public Health Department |
|---------------------------|---|
| Coordinating Organization | Freeborn County Public Health |
| Timeline | 2009 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | Public Health Preparedness Grant (CDC) |

Develop a public awareness program about water and lake safety in Freeborn County, to include the hiring of a water patrolman.

| Responsible Organization | Freeborn County Sheriff's Office |
|---------------------------|-------------------------------------|
| Coordinating Organization | Freeborn County Sheriff's Office |
| Timeline | 2009 - 2010 |
| Approximate Cost | \$200,000.00 |
| Funding Sources | DNR |

 Reduce response time to emergency on any lake in Freeborn County with safer and more reliable equipment.

| Responsible Organization | Freeborn County Sheriff's Office |
|--------------------------|-------------------------------------|
| | |

| Coordinating Organization | Freeborn County Sheriff's Office |
|---------------------------|-------------------------------------|
| Timeline | 2009 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | DNR |

Replace Freeborn County Sheriff's Office patrol boat, trailer, boat lift, and boat dock.

| Responsible Organization | Freeborn County Sheriff's Office |
|---------------------------|-------------------------------------|
| Coordinating Organization | Freeborn County Sheriff's Office |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$20,000.00 |
| Funding Sources | DNR |

• Replace damaged buoys in channels and in open water and create safer boating.

| Responsible Organization | Freeborn County Sheriff's Office |
|---------------------------|-------------------------------------|
| Coordinating Organization | Freeborn County Sheriff's Office |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$1,400.00 |
| Funding Sources | DNR |

Acquire life vests for each patrolman/squad car in Freeborn County Sheriff's Office.

| Responsible Organization | Freeborn County Sheriff's Office |
|---------------------------|-------------------------------------|
| Coordinating Organization | Freeborn County Sheriff's Office |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$2,250.00 |
| Funding Sources | DNR |

 Develop and implement a Community Policing program to educate and promote awareness to the citizens of the City of Albert Lea.
NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Responsible Organization | City of Albert Lea Police Department |
|---------------------------|---|
| Coordinating Organization | City of Albert Lea Police Department |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$7,500.00 |
| Funding Sources | General funds, ATF grants |

Purchase radios for the City of Albert Lea Police Department to improve interoperability and be ale to communicate with all public safety agencies in Freeborn County.

| Responsible Organization | City of Albert Lea Police Department |
|---------------------------|---|
| Coordinating Organization | City of Albert Lea Police Department |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$1,500.00 |
| Funding Sources | General funds |

■ Train all E911 staff with the City of Albert Lea Police Department.

| Responsible Organization | City of Albert Lea Police Department |
|---------------------------|---|
| Coordinating Organization | City of Albert Lea Police Department |
| Timeline | 2009 - ongoing |
| Approximate Cost | \$600.00 |
| Funding Sources | General funds |

Multi-Jurisdictional Considerations - Some of the above projects crossjurisdictional boundaries. All jurisdictions should be involved in the planning process.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified many public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations.

5.11 Technological Hazard Mitigation Goals and Objectives

Freeborn County has two types of technological hazards, hazardous materials both transporation and fixed facilities. These man made hazards have been identified in Chapter 4 Risk Assessment as a potential risk to the community. The Mitigation Planning Committee has identified and will work toward implementation of the following goals and objectives that will reduce Freeborn County's vulnerability to technological hazards.

5.12 Hazardous Materials Releases

Mitigation Goals - Hazardous materials releases are identified as a technological hazard in our community. Historical trends suggest that there will be approximately one major hazardous material event in the county during any given year. This includes both fixed facility and transportation related incidents.

Range of Mitigation Options - The identified mitigation strategies for hazardous materials include ensuring that first responders are trained and equipped to effectively and efficiently respond to the incident. Additionally, to work in partnership with industry to plan an effective response strategy to hazardous materials incidents

Mitigation Strategy for Hazardous Materials Spills:

<u>Mitigation Goal #1</u> - "To minimize the losses of lives, property and damage to the environment due to hazardous materials spills in Freeborn County."

<u>Goal #1</u> - To protect the people, property and the environment from the effects of hazardous materials spills in Freeborn County.

Action Steps:

• Conduct a hazardous materials exercise.

| Responsible Organization | All Emergency Response Agencies |
|---------------------------|------------------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2011 |
| Approximate Cost | \$5000 |
| Funding Sources | LEPC and Private Funding |

Purchase additional hazardous materials response equipment necessary to sustain hazardous materials response operations as well as for new chemicals entering the community.

| Responsible Organization | Freeborn County LEPC Local Fire |
|--------------------------|---------------------------------|
|--------------------------|---------------------------------|

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| | Departments |
|---------------------------|---------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 – Ongoing |
| Approximate Cost | Unknown |
| Funding Sources | LEPC Funds |

• Work with and encourage industry to reduce chemical inventories at fixed facilities.

| Responsible Organization | Freeborn County LEPC Industry |
|---------------------------|----------------------------------|
| Coordinating Organization | Freeborn County LEPC |
| Timeline | 2010 – Ongoing |
| Approximate Cost | Unknown |
| Funding Sources | LEPC Funding |

 Develop security strategies and safeguards for the containment of hazardous materials at fixed facilities.

| Responsible Organization | Freeborn County Local Emergency Planning Committee |
|---------------------------|---|
| Coordinating Organization | Freeborn County EMA |
| Timeline | 2010 - ongoing |
| Approximate Cost | unknown |
| Funding Sources | Private Funding |

Multi-Jurisdictional Considerations - Hazardous materials events have occurred primarily in the industrial basin of Freeborn County; however, the County does have the potential for other related hazardous materials events such as the Canadian Pacifica Railroad and the Burlington Northern Railroad. The County is always susceptible to transportation accidents on its state highway system. Freeborn County relies on outside resources to respond to hazardous materials releases. The area fire departments in Freeborn County have individuals certified in various levels of hazardous materials response.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations. The Freeborn County Local Emergency Planning Committee regularly meets with industry in an effort to mitigate and plan for hazardous material incidents in our community.

5.13 Methamphetamine Laboratories

Mitigation Goals – Methamphetamine laboratories are identified as a technological hazard in Freeborn County. Since 1995 there have been 105 documented methamphetamine laboratories throughout Freeborn County. Methamphetamine laboratories are considered a severe threat to all residents and emergency response personnel in Freeborn County.

Range of Mitigation Options - The identified mitigation strategies for methamphetamine laboratories include ensuring that first responders are trained and equipped to effectively and efficiently respond to the incident. Additionally, to work in partnership with residents in Freeborn County to plan an effective response strategy to methamphetamine laboratory incidents

Mitigation Strategy for Methamphetamine Laboratory Incidents:

<u>Mitigation Goal #1</u> - "To sustain and prohibit methamphetamine laboratory control in Freeborn County."

<u>Objective #1</u> – The creation of a County ordinance for pharmaceutical reporting to area law enforcement throughout Freeborn County to include the cities of Albert Lea, Alden, Clarks Grove, Conger, Emmons, Freeborn, Geneva, Glenville, Hartland, Hayward, Hollandale, Manchester and Myrtle.

<u>Objective #2</u> – Continued community education in relation to the understanding of methamphetamine and other controlled substances.

Action Steps:

 Create a county ordinance for mandated reporting of ephedrine/pseudoephedrine purchase in Freeborn County.

| Responsible Organization | Freeborn County Public Health County Attorney/County Law Enforcement |
|---------------------------|--|
| Coordinating Organization | Freeborn County |
| Timeline | 2010 |
| Approximate Cost | Unknown |
| Funding Sources | N/A |

Remediation follow-through of county ordinances.

| Responsible Organization | Freeborn County Attorney/Freeborn County Law Enforcement/ Public Health and Environmental Health |
|---------------------------|---|
| Coordinating Organization | Freeborn County |

NATURAL HARZARD MITIGATION GOALS AND OBJECTIVES

| Timeline | 2011 |
|------------------|---------------|
| Approximate Cost | Unknown |
| Funding Sources | General Funds |

• Continue to conduct community education programs.

| Responsible Organization | Freeborn County Public Health/Schools/Law Enforcement |
|---------------------------|--|
| Coordinating Organization | Freeborn County |
| Timeline | 2011 |
| Approximate Cost | Unknown |
| Funding Sources | General Funds |

• Continued training of presenters/educators on methamphetamine laboratories.

| Responsible Organization | Freeborn County Law Enforcement |
|---------------------------|------------------------------------|
| Coordinating Organization | Freeborn County |
| Timeline | 2011 |
| Approximate Cost | \$10,000 |
| Funding Sources | General Funds |

• Continued education and ongoing training for area law enforcement agencies in Freeborn County.

| Responsible Organization | Freeborn County Law Enforcement |
|---------------------------|------------------------------------|
| Coordinating Organization | Freeborn County |
| Timeline | 2010 - ongoing |
| Approximate Cost | Unknown |
| Funding Sources | General Funds |

 Development of a course of action for public education by determining target groups within Freeborn County (i.e., schools, community groups, etc.)

| Responsible Organization | Freeborn County Law Enforcement/:Public Health |
|---------------------------|---|
| Coordinating Organization | Freeborn County |
| Timeline | 2011 |
| Approximate Cost | Unknown |
| Funding Sources | General Funds |

Multi-Jurisdictional Considerations – Methamphetamine laboratory events have occurred throughout Freeborn County and the cities and townships.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations.

5.14 Pandemics/Epidemics

Mitigation Goals – Pandemic/epidemic events are identified as a technological hazard in Freeborn County. Since the early 1800's there have been pandemic/epidemic events that have occurred throughout Freeborn County. Pandemics/epidemics are considered a threat to all residents and emergency response personnel in Freeborn County.

Range of Mitigation Options - The identified mitigation strategies for pandemics/epidemics include ensuring that first responders are trained and equipped to effectively and efficiently respond to the incident. Additionally, to work in partnership with residents in Freeborn County to plan an effective response strategy to pandemic/epidemic incidents.

Mitigation Strategy for Pandemics/Epidemics Incidents:

<u>Mitigation Goal #1</u> - "To provide mass dispensing of medication and vaccines for all county citizens and emergency response personnel in Freeborn County."

<u>Mitigation Goal #2</u> – "To provide accurate and prompt health communications with regards to pandemics/epidemics in Freeborn County."

<u>Mitigation Goal #3</u> – "To provide public health workforce readiness throughout Freeborn County."

<u>Mitigation Goal #4</u> – "To have personnel trained in pandemic/epidemic procedures throughout Freeborn County."

<u>Objective #1</u> – To plan, train and exercise for biological terrorist events and infectious disease outbreaks.

<u>Objective #2</u> – To inform, educate, and empower citizens about specific health issues pertaining to a pandemic/epidemic outbreak in Freeborn County.

<u>Objective #3</u> – To monitor health status throughout Freeborn County.

<u>Objective #4</u> – To assure competent and trained public health staff and volunteers throughout Freeborn County.

Action Steps:

 Develop policies and plans that support health efforts in responding to a pandemic/epidemic in Freeborn County

| Responsible Organization | Freeborn County Public Health |
|---------------------------|-------------------------------|
| Coordinating Organization | Freeborn County Public Health |
| Timeline | 2010 |
| Approximate Cost | \$110,000 |
| Funding Sources | CDC Grant |

Purchase supplies and equipment needed for a pandemic/epidemic event in Freeborn County.

| Responsible Organization | Freeborn County Public Health |
|---------------------------|-------------------------------|
| Coordinating Organization | Freeborn County Public Health |
| Timeline | 2010 |
| Approximate Cost | \$5,000 |
| Funding Sources | CDC Grant |

■ Compile and maintain 24/7 community partner contacts.

| Responsible Organization | Freeborn County Public Health |
|---------------------------|-------------------------------|
| Coordinating Organization | Freeborn County EMA |
| Timeline | ongoing |
| Approximate Cost | \$2,000 |
| Funding Sources | CDC Grant |

Rapidly detect and identify an event due to health hazards from CBRNE emergencies.

| Responsible Organization | Freeborn County Public Health | |
|---------------------------|-------------------------------|--|
| Coordinating Organization | Freeborn County EMA | |

Section 5

| Timeline | ongoing |
|------------------|-----------|
| Approximate Cost | \$5,000 |
| Funding Sources | CDC Grant |

• Communicate to all citizens through multiple channels the potential health hazards during an emergency.

| Responsible Organization | Freeborn County Public Health | |
|---------------------------|-------------------------------|--|
| Coordinating Organization | Freeborn County EMA | |
| Timeline | ongoing | |
| Approximate Cost | \$10,000 | |
| Funding Sources | CDC Grant | |

• Conduct staff training and participate in yearly exercises.

| Responsible Organization | Freeborn County Public Health | |
|---------------------------|-------------------------------|--|
| Coordinating Organization | Freeborn County EMA | |
| Timeline | ongoing | |
| Approximate Cost | \$3,000 | |
| Funding Sources | CDC Grant | |

Multi-Jurisdictional Considerations – Epidemics/pandemic events have occurred throughout Freeborn County through the years.

Public Information and Awareness Strategies - The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee has identified public awareness campaigns to ensure that the citizens of Freeborn County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations.

6.1 Plan Implementation

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee process was overseen by the Freeborn County Emergency Management Agency. The plan will then be submitted to the Minnesota Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency for approval. The Freeborn County Board of Commissioners and all cities will formally adopt the plan by resolution in accordance with the Federal Disaster Mitigation Act of 2000.

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in the mitigation strategies. In each mitigation strategy, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their unique mitigation strategy as needed without altering the broader focus of the countywide Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for monitoring and implementing the actions of other jurisdictions involved in the planning process.

In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date has been assigned in order to assess whether actions are being implemented in a timely fashion. As necessary, Freeborn County and its participating jurisdictions will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the mitigation strategies.

6.2 Evaluation

All members of the Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee and the Emergency Management Director will be responsible for ensuring that the Multi-Jurisdictional Hazard Mitigation Plan is evaluated as required. The evaluation will include analyzing current mitigation projects and evaluating success, reevaluating future mitigation needs and prioritization based upon changes in needs and/or capabilities of Freeborn County.

The Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Committee will reconvene annually to ensure that projects are on track and to reevaluate the mitigation goals, objectives, and action steps. The mitigation plan shall be viewed as a "living document".

6.3 Multi-Jurisdictional Strategy and Considerations

The Freeborn County Emergency Management Director will lead activities for mitigation planning countywide. All cities and townships within the county are participating in this process through active involvement on the Multi-Jurisdictional Hazard Mitigation Planning Committee.

6.4 Plan Update

The Federal Disaster Mitigation Act of 2000 requires that the Multi-Jurisdictional Hazard Mitigation Plan be updated at least once every five years. The Freeborn County Emergency Management Director will be responsible for ensuring this requirement is met. The Freeborn County Emergency Management Director and the Multi-Jurisdiction Hazard Mitigation Planning Committee will annually review the plan for needed updates. The Multi-Jurisdictional Hazard Mitigation Planning Committee will be involved in this process to ensure all jurisdictions provide input into the planning process. The public will be invited to participate in this process through public hearings.

6.5 Plan Maintenance

It is the intention of all documented plan participants to formally adopt the Multi-Jurisdiction Hazard Mitigation Plan after each maintenance revision. Once the changes are adopted by all participants the revised plan will be submitted to the Minnesota Homeland Security and Emergency Management and the Federal Emergency Management Agency (FEMA). The plan will be revised and maintained as required under the guidance of the Multi-Jurisdictional Hazard Mitigation Planning Committee and formally adopted by the Board of Commissioners after each revision.

6.6 Incorporation into Existing Planning Mechanisms

It will be the responsibility of each participating jurisdiction to determine additional implementation procedures when appropriate. This includes integrating the requirements of the Freeborn County Multi-Jurisdictional Hazard Mitigation Plan into other local planning documents, processes, or mechanisms such as:

- Comprehensive Plans
- Strategic Plans
- Capital Improvement Plans
- Growth Management Plans
- Ordinances, Resolutions, Regulations
- Continuity of Operations Plans

Opportunities to integrate the requirements of this Plan into other local planning mechanisms will continue to be identified through future meetings of the Hazard Mitigation Steering Committee and through the five-year review process as required by FEMA.

The primary means for integrating mitigation strategies into other local planning mechanisms will be through the revision, update and implementation of each jurisdiction's individual plans that require specific planning and administrative tasks (e.g. plan amendments, ordinance revisions, capital improvement projects, etc.).

The members of the Hazard Mitigation Steering Committee will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in Freeborn County or its participating municipalities

During the planning process for new and updated local planning documents, such as a comprehensive plan, capital improvements plan, or emergency management plan, Freeborn County will provide a copy of the Hazard Mitigation Plan to the appropriate parties and recommend that all goals and strategies of new and updated local planning documents are consistent with and support the goals of the Hazard Mitigation Plan and will not contribute to increased hazards in the affected jurisdiction(s).

Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Freeborn County Hazard Mitigation Steering Committee to be the most effective and appropriate method to ensure implementation of local hazard mitigation actions at this time.

All organizations will incorporate the Multi-Jurisdictional Hazard Mitigation Plan into existing plans in an effort to mitigate the impact of future disasters.

7.1 Conclusion

Through the development of this plan, Freeborn County has developed a thorough hazard history, an inventory of critical facilities, and an updated contact list for emergency contacts at critical facilities. This data, when used in conjunction with the updated information about hazard threats and vulnerabilities, will prove to be invaluable to the County and its cities and townships.

Natural and technological hazards have been identified countywide. Possible mitigation projects that would reduce the risk of lives and property due to the identified threats have been compiled and prioritized.

The creation of the Freeborn County Multi-Jurisdictional Hazard Mitigation Planning Steering Committee has brought together stakeholders from communities and organizations into one planning team. This group has been able to work together effectively and efficiently to produce this document and establish a greater awareness of our risks and our mitigation strategies.

This plan will continue to evolve as necessary to properly represent the threats and vulnerabilities affecting Freeborn County.

Continued public participating is encouraged and will be continued through the ongoing multi-jurisdictional hazard mitigation process. There will be an annual notice placed with all media outlets letting the public know of updates and work being performed on the plan for Freeborn County.

7.2 References

- Publications
 - FEMA Pre-Disaster Mitigation How-to-Guides #1, 2, 3, 7
 - Minnesota Emergency Management Supplements to FEMA Pre-Disaster How-to-Guides
 - Freeborn County Emergency Operations Plan
- Web Sites
 - FEMA (www.fema.gov)
 - Minnesota Homeland Security and Emergency Management (www.hsem.state.mn.us)
 - Freeborn County (*www.co.freebornt.mn.us*)
 - National Climatic Data Center (www.ncdc.noaa.gov)

Section 7

- National Weather Service (www.srh.noaa.gov/ffc/default.html)
- Other Sources
 - American Red Cross
 - Freeborn County
 - Minnesota Forestry Commission
 - Minnesota Department of Natural Resources
 - National Weather Service Peachtree City
 - U.S. Geological Survey

Section 8 SUPPORTING DOCUMENTS

FREEBORN COUNTY, MN HAZARD MITIGATION PLAN KICKOFF MEETING MINUTES

July 15, 2008

The Freeborn County, MN Hazard Mitigation Plan Kickoff meeting was held on Tuesday, July 15, 2008. Mr. Mark Roche, Freeborn County EM Coordinator, Ms. Jennifer Nelson, MN Assistant Hazard Mitigation Officer, and Mrs. Lisa Danner of BDR, Inc. conducted the kickoff meeting at the Freeborn County Government Center in Albert Lea, MN. The following people were in attendance:

Paul Stieler Mark Behrends John Kluever Sue Miller **Steven Hannegrefs** Paul Hansen Kiven Lukes Karen Nelson Don Hauge Lois Ahern **Tim Stapleton** Wayne Sorensen Randy Tuchtenhagen Mark Harig Steve Seipp Val Seipp Brad Niebuhr Paul Henschel Victoria Simonsen

City of Albert Lea Freeborn County Freeborn County Freeborn County City of Manchester London Township London Township **Riceland Township** Albert Lea Medical Center Freeborn County Freeborn County Freeborn County Freeborn County Freeborn County City of Freeborn City of Conger Freeborn County City of Emmons City of Albert Lea

Introductions were made by Mr. Mark Roche and the meeting began at 2:00 pm and 7:00 pm. Ms. Jennifer Nelson of the State of MN Hazard Mitigation Officer began the kickoff meeting with a brief overview of the Hazard Mitigation Program in the State of Minnesota and the Federal Emergency Management Agency (FEMA). Mrs. Lisa Danner of BDR, Inc. then gave a brief overview of the company and a brief description of why Hazard Mitigation is important and the benefits of Hazard Mitigation to Freeborn County and all the cities and townships within the county. The different responsibilities of the project and the different phases of the Hazard

Mitigation Project followed. Mrs. Danner explained the project was divided into three phases: Phase 1 - Project Initiation; Phase 2 - Hazard Assessment; and Phase 3 - Completion of the Hazard Mitigation Plan. The different phases of the project were discussed in detail and questions were answered by Mr. Mark Roche, Ms. Jennifer Nelson and Mrs. Lisa Danner.

Discussion followed concerning the establishment of the Freeborn County Hazard Mitigation Steering Committee. Mark Roche led the discussion and said the Steering Committee would consist of members from Freeborn County Emergency Management and representatives from the participating cities/townships. The purpose of the Steering Committee will be to assist in the definition of mitigation strategies, prioritization of action plans and overall guidance of the intent, and policies of hazard mitigation planning. Mr. Roche requested that if anybody in attendance would like to serve on the Steering Committee to please see him after the meeting and he would discuss it further with them. Mr. Roche stated that if he did not get any volunteers then he would be contacting different individuals to ask them to serve on the Steering Committee.

Mrs. Lisa Danner began discussion on the Public Participation Survey that was included in the meeting handouts for participants to review. The purpose of the survey is to seek input from the public to share opinions and have a voice in the mitigation planning process.

Mr. Mark Roche, Ms. Jennifer Nelson and Mrs. Lisa Danner expressed their appreciation to those in attendance for their time and interest in the mitigation planning project for Freeborn County. It was conveyed to the group that this was a two year project and was being funded through a grant from the Minnesota State Emergency Management Department.

After no further discussion or questions, the meetings were adjourned at 3:30 pm and 8:30 pm respectively.

FREEBORN COUNTY, MN HAZARD MITIGATION PLAN FINAL PUBLIC MEETING MINUTES

July 21, 2009

The Freeborn County, MN Multi-Jurisdictional Hazard Mitigation Plan final public meeting was held on Tuesday, July 21, 2009. The purpose of the meeting was to review the Freeborn County Multi-Jurisdictional Hazard Mitigation Plan before submitting to the State of MN Hazard Mitigation Coordinator for submittal to the Federal Emergency Management Agency (FEMA). The following people were in attendance:

| Mark Roche | Freeborn County EM Director |
|-------------|------------------------------|
| Mark Harig | Freeborn County Sheriff |
| Lisa Danner | Beck Disaster Recovery, Inc. |

Mrs. Danner opened the public meeting and gave a brief overview of the Freeborn County Multi-Jurisdictional Hazard Mitigation Plan. Mrs. Danner then opened the floor for comments/revisions to the Plan.

After no further discussion or questions, the meetings were adjourned at 7:30 pm.

Figure 9-1 Location Map of Freeborn County MN





Figure 9-2 Political Boundaries in Freeborn County



Figure 9-3 Major Transportation Routes in Freeborn County



Figure 9-5 Methamphetamine Laboratories Freeborn County



Section 10 PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

We need your help!

Freeborn County is currently engaged in a regional planning process to become less vulnerable to disasters, and your participation is important to us!

Freeborn County, and its municipalities are working together to develop a Multi-Jurisdictional, All-Hazard Mitigation Plan. The purpose of this Plan is to identify and assess our community's disaster risks and determine how to best minimize or manage those risks. Upon completion, the Plan will be presented to each local governing body for adoption and then submitted to the Minnesota Emergency Management Agency and the Federal Emergency Management Agency for review and approval.

This survey questionnaire provides an opportunity for you to share your opinions and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that should help lessen the impact of future hazard events.

Please help us by completing this survey and returning it to:

Mark Roche, Emergency Management Director Freeborn County Emergency Management Government Center 411 South Broadway Albert Lea, MN 56007

FREEBORN COUNTY MITIGATION PLANNING SURVEY

- 1. What community do you live in?
- 2. Have you ever experienced or been impacted by a disaster?

| Yes | (please explain): | |
|-----|-------------------|--|
| | | |

No No

3. How concerned are you about the possibility of our community being impacted by a disaster?

Extremely concerned

Somewhat concerned

Not concerned

- 4. Please check the top three hazards you think is the *highest threat* to your neighborhood:
 - **Dam Failure**
 - **Drought**

Earthquake

Erosion

Extreme Heat

Flood

_ Hail

- **Hazardous Materials**
- Hurricane
- **Land Slides or Sinkholes**
- Landslide
- **Lightning**

Major Urban Fire

- **Pipeline Failure**
- Severe Winter Storm
- **Terrorism**
- **Tornado/Thunder Storm**

PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

Other (please explain):

5. Is there another hazard not listed in this survey that you think is a wide-scale threat to your neighborhood?

Yes (please explain):

No No

6. Is your home located in a floodplain?

Yes

No

🗌 I don't know

7. Do you have flood insurance?

| Yes |
|-----|
| No |

If "No," why not?

Not located in floodplain

Too expensive

Not necessary because it never floods

Not necessary because I'm elevated or otherwise protected

Never really considered it

Other (please explain):

🗌 I don't know

8. Have you taken any actions to make your home or neighborhood more resistant to hazards?

Yes (please explain):
No

9. Are you interested in making your home or neighborhood more resistant to hazards?

Yes
No

10. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?

- 11. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?
- 12. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?
- 13. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

| Category | Very Important | Somewhat Important | Not Important |
|---|-------------------|-----------------------|------------------|
| <u>1. Prevention</u> Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations. | | | |
| 2. Property Protection Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters. | | | |
| <u>3. Natural Resource Protection</u> Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management. | | | |

PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

| Category | Very Important | Somewhat Important | Not Important |
|---|-------------------|-----------------------|------------------|
| <u>4. Structural Projects</u> Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modification, retaining walls and storm sewers. | | | |
| 5. Emergency Services Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems. | | | |
| 6. Public Education and Awareness Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events. | | | |

THANK YOU FOR YOUR PARTICIPATION!

| Building Payment | Tot Building Payment | Tot Contents Payment | Losses | Total Paid | Average Pay | Data Type | As of Date | County Name | County Nbr | SR Indica | L ator |
|---------------------|-------------------------|-------------------------|--------|------------|----------------|--------------------------|------------|----------------|---------------|--------------|-----------|
| 110,000.00 | | 10,500.00 | 6 | 276,952.66 | 46,158.78 | Unmitigated Data Only | 07/31/08 | Freeborn | 047 | VNU | |
| 13,846.85 | | 39.99 | 4 | 32,451.87 | 8,112.97 | Unmitigated Date Only | 07/31/08 | Freeborn | 047 | | |

Table 10-1Freeborn County Repetitive Loss Data

Table 10-2Freeborn County Repetitive Loss Data

| Repetitive Loss Community Summary Data as of 02/28/2009 Freeborn County | | | | | | | | | | | | | |
|---|----------------|----------------------|----------------------|-----------------------|-----------------------|--------------------|---------------------|-----------------------------------|-----------------------------------|---------------------------------------|---------------------------------------|---|---|
| Community Name | Comm Number | RL Bldgs Total | RL Bldgs Insrd | RL Losses Total | RL Losses Insrd | \$ Losses Total | \$ Losses Insurd | Bldgs W/4 + Losses Total | Bldgs W/4 + Losses Insrd | Bldgs W/2-3 Losses > Tot Val | Bldgs W/2-3 Losses > Ins Val | Bldgs Post-Firm A-V Zone Total | Bldgs Post-Firm A-V Zone Insrd |
| ALBERT LEA, CITY OF | 270135 | 2 | 0 | 12 | 0 | 313,388.18 | .00 | 2 | 0 | 0 | 0 | 0 | 0 |
| FREEBORN COUNTY * | 270134 | 1 | 1 | 4 | 4 | 32,451.87 | 32,451.87 | 1 | 1 | 0 | 0 | 0 | 0 |
| TOTAL | | 3 | 1 | 16 | 4 | 345,840.05 | 32,451.87 | 3 | 1 | 0 | 0 | 0 | 0 |
| IOTAL II III IIII III IIII IIIII IIIII IIIII IIIII IIIII IIIIII IIIIIII IIIIIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII | | | | | | | | | | | | | |

SAMPLE PARTICIPATION RESOLUTION FOR CITIES

RESOLUTION TO INCLUDE MUNICIPAL BOUNDARIES AS PART OF THE FREEBORN COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the City of ______, Minnesota, understands the need to develop a multi-jurisdictional hazard mitigation plan in order for the City to comprehend it vulnerability to natural and man-made hazards, and the actions needed to reduce or eliminate those risks.

WHEREAS, the City of ______, Minnesota realizes the development of such a plan is vital to the protection, health, safety and welfare of its citizens as well as its visitors.

WHEREAS, the City of ______, Minnesota, understands that in order for the City to receive mitigation funding from the Federal Emergency Management Agency (FEMA), it must have a mitigation plan in place at the time of submitting a proposal.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF ______, MINNESOTA, THAT THE CITY WILL WORK WITH FREEBORN COUNTY TO INCLUDE ITS MUNICIPAL BOUNDARIES AS PART OF THE FREEBORN COUNTY'S MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN.

PASSED AND ADOPTED, this the _____ day of _____, 2009 by the Mayor and Governing Board of ______, Minnesota, assembled in regular session.

BY: _____

MAYOR

ATTESTED:

BY: _____

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Public Participation Survey for Hazard Mitigation - Summary Results Number of Responses: 55 Report Time: 9/19/2008 9:56:48 AM

| What Community or To | wnship do you live in? | |
|------------------------|------------------------|--|
| Response | | |
| Abert Lea | | |
| Abert Lop | | |
| Albert Lea | | |
| City of Abert Lea | | |
| Abertica | | |
| Abert Les | | |
| Abert Los | | |
| Abert Lea | | |
| Abort Lea | | |
| Abert Les | | |
| Abert Lea. MN | | |
| Abert Les | | |
| pickeral lake township | | |
| City of Aldes | | |
| Albert Law | | |
| Albert Lea | | |
| Abert Les | | |
| Abert Los | | |
| Abert Lea | | |
| Freeborn | | |
| Geneva Tysp | | |
| Abert Lea | | |
| Alden Township | | |
| Siewile | | |
| city if Albert Lee | | |
| Seneva Township | | |
| Abert Les | | |
| Abert Lea Min. | | |
| Albert Loa | | |
| Abert Los, Minneseta | | |
| Hatland | | |
| Manchester | | |
| City of Albert Lea | | |
| | | |

PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

| | Page 2 of 10 |
|---------------------------|--------------|
| Albert Los | |
| Albert Lea, MN | |
| Hartlend | |
| Freeton's County | |
| Berlin Twrishp | |
| albert lea | |
| Pickerel Lake Township | |
| Geneva Twp. and community | |
| Abert Loa | |
| Albert Lea Oty | |
| Fedora | |

Have you ever experienced or been impacted by a disaster?



How concerned are you about the possiblity of our community being impacted by a disaster?

http://mygovhelpodmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

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Please check the top three hazards youthink is the highest threat to your neighborhood



Is there another hazard not listed in this survey that you think is a wide-scale threat to your neighborhood?

http://mvuovhetnadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2001

PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

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Is your home located in a floodplain?



Do you have flood insurance?

http://mvgovhelpadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

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If no, why not?



Have you taken any actions to make your home or neighborhood more resistant to hazards?
PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

~



Are you interested in making your home or neighborhood more reististant to hazards?



What is the most effective way for you to receive information about how to make your home an neighborhood more resistant to hazards?

http://mygovhelpadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

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Anowers

| Response | |
|--|--|
| Take care of infrastructure issues now rather than i | valting until they fail. |
| Hire a full-time Emergency Management Director | |
| Have a full time emergency transger, informatinal | workshops |
| Note | |
| Free supplies | |
| They could put the power lines under ground. Ourir was ludky because I live dose to the hospital so ou spaces. You should also work with farment, I am su must be some way they can help with flooding lacu | In the ice strom the neighborhoods with underground lines where the ones with power, everwher else was black. If epower was out only 4.5 days. You can continue to purchase homes/buildings in fined plans and make them gree we they some how combibuted to the county road washing out this year resulting in some very bad accidents. Then es by during something different with their seids. |
| tree inspections - worry about problems trees failing | g on power lines. Alliant won't do anything about it until the power line is actually down. |
| Ensure storm warning shens are functional, continu | e with monthly testing of storm skens |
| more education, eliminate infibration, reduce erosio | e into lakes |
| Continue to identify hazards so we are aware of the | m |
| have yearly meeting for the public to keep them as | rare of the possible dangers. |
| none | |
| not sure | |
| Be more projective before the hazard hits. | |
| Nothing | |
| recommended house inspections, cops patrol mere | |
| he the toads and storin severe so that the water de | airs more effectively and deen't get up over the wheels of my van |
| I notice when it rains hard the storm sewers get ba some education if that is a good thing to do. Let pe | doed up, I know some neighbors run out and try to clean them out if they are obstructed with leaves etc. Naybe opie know what is normal or not during hard rains. |
| Education of the citizens | |
| Information | |
| Seller porcas, a la processores or passe har manarata | ig One Effects. |
| > | |
| Education - informational dates, persphiets, training | ng, etc |
| Educate the general public on hazard damages and small dow arrange. Include the local insurance reprint | hew to avoid them. Have small community meetings where there is an incentive for coming, such as refreshments antatives in the meetings. |

http://mvoovhelnadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

PUBLIC PARTICIPATION SURVEY FOR HAZARD MITIGATION PLANNING

| - | | | | |
|-----|------|------|---------|----|
| D-1 | 000 | 0.0 | 4-10 | ×. |
| 1.1 | HOC- | 0.12 | E . S E | Ł |
| | - | | | |

| Make sure there are enough places in also with patientitize to reported busines in a power shows where shows where shows the days |
|--|
| My biggest concerns are to netural disesters, so energiency response systems training, planning, child/simulations - information and resource gathering and cooperation planning, child/simulations - information and resource gathering and cooperation planning, child/simulations - information and resource gathering and cooperation of the second s |
| Continue with the flood plane plan. |
| hold community meetings to ask for public input on idees, sounds like the oby/ounity gost is trying to dear with it already, we this mitigation plan Also, educational presentations to keep the public avails of how to be sefer in the community. |
| study where water collects and put in rain gerdens to help decrease the emount of standing weter |
| No comment |
| education |
| Oreste a communication system of people with specialized datas within the community- medical tring, disaster response, trades (plumbing, electrician, carpentry, etc) mental health, etc. of local people. If disaster outs off outside help for a short time, and from outside if all locals are unavailable. |
| As always, sinum are the best defense against tomadic activity. |
| not sure |
| Have a dity-wilde emergency plan known by the ditzens, not just the department heads in city hell. Very important, |
| Not much the city can do to reduce the inside listed |
| Better: Education of public of what they can do. |
| Ensuring that the community is up to date with knowledge in early warning systems, structures like dans are updated |
| control of the watershed |
| nose |
| nia |
| No opision. |
| Hold more drills and ask for more participants per specialities such as communications, physical logistics, etc. |
| rat sere-i feel resonably safe in my neighborhood |
| Bisere emergency response systems are in pleas and operable, |
| Trim Trees, Maintain roadways and sanitary sever |
| Epanded warning avetern |
| Widespread education and accurate information regarding preparation. Dividises true risks such as flood areas that are not on flood plain. Supplies for writer storms. Readiness accurates community wide. |
| PSA's are the best choice of informing the public Beskily plan for the worst and hope for the best. It is tough to predict weather related hazards, and what when the head ()) are going to effect (other than flooding of course.) |
| not sure |
| neoghborhood medlings to bring awareness to residents |
| provide local incentives for landowners to sign up for conservation programs to reduce encent its wind and water, decrease runoff into waterways, increase fines for burning participe, penatics/thes for developing intact woodands, wetlands, itpanan areas and other habitat areas |
| Energency Training and Plenning |
| Perming and Practice for initial responce. Then long term direction and essistance. |
| te have a plan en what to do if their is a hazard in neighborhood |
| |
| Response |
| Not same |
| Being Informed |
| Batter aviaronees |
| Nane |
| Would like to see a website that I can access |
| NO |
| nat that I can think of |
| I blink ensuring the olderly are considered in the warning system. They often can't lear the strans. Having an emergency response pen and practicing the emergency response actions. |
| homeowners need to take more responsibility. It is not the dovernment's responsibility, to fix everything. |
| N0. |
| regilece old infrastructure yearly |
| ha |
| nat sura |
| No |
| Protect water supply. |
| shouldn't cut back on anything |

http://mygovhelpadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

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| a need to quit having the tree cutters cut all the boos off the banks of the lake. How stupid are you people anyway. Have you net hes cause the city transper three it will not "lock nice" for people to say strubs growing is no reason to get nid of it. Also, the rich people | nd of emotion control. Just need to guit whining ebout this |
|--|--|
| re education B ask for with teers if applicable. | |
| s, preplanning and education of what to do before it happens | |
| | |
| ter communication systems. | |
| dating server & ground rue-off systems. | |
| en there is a disaster, people need help fast. | |
| spla pust need to be as prepared as they possibly can. They need to be proactive such as stocking up on food and other essentials and evacuate your home. People should also be proactive about their health care, so they are in a healthier clare when disacters strike. | Paving a plan in case you need |
| XE | |
| to cement of lend use regulations, establishing holding ponds and other natural means of mitigating natural disasters, early warring sy myone, moving property out of flood prone areas. | isterns that reach |
| ergency response and follow up when/if their is a disaster in the community. | |
| k of loss of jobs, income, other recources we depend upon to survive. | |
| e clean-ups and public education on how to prevent pollution in the lakes and stratants of the area | |
| omet | |
| | |
| s anyone taken inventory to see if the community could support itself without outside help if it became necessarystacks of deen wat dicine, etc? | ter, medical supplies, food, |
| oding is an issue in other persions of the community. | |
| | |
| orn the public with community-wide public forum and or meetings. | |
| | |
| 192 | |
| not allow persons to build in Road risk areas and protecting our wild life areas | |
| | |
| scating people that they need to take care of themselves, be Drepaved. | |
| | |
| oprien. | |
| king sure people; A. committ to reles, B. Be able to prove performance of roles and plan execution. | |
| ading seems to be one hazzard that becomes an issue every year. | |
| | |
| | |
| , border patrol and reportations | |
| surate up to data information on nak potentials | |
| | |
| sure | |
| rease government participation in hazard reduction | |
| cate the public on environmental health issues stated above | |
| ring Abert Lea Medical Canter current and proactive in Emergency Training and Planning | |
| owing that our City is ready (as much as we can) to handle a diaster. | |
| ar this time | |

A number of community-wide activities can reduce our risks from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

| Category | Response | Response Court | Percentage |
|---|-------------------|----------------|------------|
| Prevention. Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations. | Very Important | 44 | 80.00 % |
| | Screewhat | 0 | 16.36 % |

http://mygovhelpadmin.org/ALBERTLEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008

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|---|-----------------------|----|---------------|
| | Not important | 2 | 3.64 % |
| Property Protection. Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters. | Very important | 19 | 34.55 % |
| | Somewhat important | 30 | 54.55 % |
| | Not important | 5 | 10.91 % |
| Natural Resource Protection. Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Ie: floodplain protection, habitat preservation, slope stabilization, riparian buffers, & forest management. | Very Important | 42 | 76.36% |
| | Somewhat important | 12 | 21.82 % |
| | filet important | 1 | 1.82 % |
| 4. Structural Projects. Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls, detention/retention basins, channel modification, retaining walls and storm severs. | Very important | 32 | 58.19 % |
| | Somewhat Important | 21 | 38.18 % |
| | Not important | 2 | 3.64 % |
| Emergency Services. Actions that protect people and property during and immediately after a hazard event. Examples include warming systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems. | Very important | 40 | 78.18 % |
| | somewhat important | 12 | 21,32 % |
| 6. Public Education & Awareness. Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials and demonstration events. | Very important | 39 | 70.91 % |
| | Somewhat important | 15 | 27.27 % |
| | Not important | 1 | 1.82 % |
| | | | |

http://www.whelpadmin.org/AIRERTIEAMN/Admin//Survey/viewResults.asp?print=true&surveyID=1... 9/19/2008