



May 2012

Carver County, Minnesota

Hazard Mitigation Plan



CARVER COUNTY MULTIJURISDICTIONAL HAZARD MITIGATION PLAN

Table of Contents

Table of Contents

List of Tables

List of Figures

CARVER COUNTY MULTIJURISDICTIONAL HAZARD MITIGATION PLAN

EXECUTIVE SUMMARY

Section 1 PLAN, BACKGROUND, AND PURPOSE

1.1	Overview.....	1-1
1.2	Authority.....	1-1
1.3	Scope.....	1-1
1.4	Purpose	1-2
1.5	Consistency with Federal and State Mitigation Policies	1-2
1.6	Goals and Objectives	1-3

Section 2 COMMUNITY PROFILE

2.1	Overview.....	2-1
2.2	Early History.....	2-3
2.3	Demographics	2-4
2.4	Economy	2-8
2.5	Climate.....	2-9
2.6	Land Use.....	2-10
2.7	Transportation.....	2-14
	2.7.1 Vehicle Traffic.....	2-14
	2.7.2 Rail.....	2-14
	2.7.3 Air Service	2-15
2.8	Utilities	2-15
	2.8.1 Electricity.....	2-16
	2.8.2 Natural Gas	2-16
	2.8.3 Water.....	2-16
	2.8.4 Wastewater Services	2-16
	2.8.5 Solid Waste.....	2-16
	2.8.6 Communications	2-16

Section 3 PLANNING PROCESS

3.1	Carver County Multijurisdictional Hazard Mitigation Planning Committee	3-1
	3.1.1 Additional Partners	3-1

Table of Contents

3.2	Plan Organization	3-2
3.3	Planning Committee Goals and Objectives	3-2
3.4	Multijurisdictional Considerations	3-3
3.5	Review of Existing Technical/Planning Information	3-4
3.6	Public Involvement	3-5
Section 4 RISK AND VULNERABILITY ASSESSMENT		
4.1	Updates to the Risk and Vulnerability Assessment	4-1
4.2	Risk and Vulnerability Assessment Process	4-2
4.3	Natural Hazards	4-5
4.3.1	Atmospheric Hazards	4-5
4.3.1.1	Severe Winter Storms	4-6
4.3.1.2	Severe Thunderstorms	4-10
4.3.1.3	Tornadoes	4-16
4.3.1.4	Lightning	4-19
4.3.1.5	Extreme Temperatures	4-21
4.3.1.6	Hailstorms	4-23
4.3.2	Wildfires	4-29
4.3.3	Flooding	4-31
4.3.4	Drought	4-37
4.3.5	Epidemics/Pandemics	4-39
4.4	Technological Hazards	4-42
4.4.1	Dam/Levee Failure	4-42
4.4.2	Terrorism	4-43
4.4.3	Hazardous Materials Spills	4-45
4.4.4	Energy/Fuel Shortage	4-50
4.4.5	Aircraft Accidents	4-52
4.4.6	Critical Facilities and Infrastructure Loss	4-53
Section 5 HAZARD MITIGATION GOALS AND OBJECTIVES		
5.1	Previous Hazard Mitigation Accomplishments	5-1
5.2	Natural Hazard Mitigation Goals and Objectives	5-2
5.2.1	Flooding	5-3
5.2.2	Tornadoes	5-6
5.2.3	Severe Thunderstorms	5-8
5.2.4	Severe Winter Storms	5-9
5.2.5	Wildfires	5-10
5.2.6	All Hazards	5-11
5.2.7	Pandemics/Epidemics	5-14
5.3	Technological Hazard Mitigation Goals and Objectives	5-16
5.3.1	Hazardous Materials Release	5-16
Section 6 EXECUTING THE PLAN		
6.1	Plan Implementation	6-1
6.2	Evaluation	6-1
6.3	Multijurisdictional Strategy and Considerations	6-2
6.4	Plan Update	6-2
6.5	Plan Maintenance	6-2

6.6 Incorporation into Existing Planning Mechanisms..... 6-2

Section 7 SUMMARY

7.1 Conclusion..... 7-1
 7.2 References..... 7-1

Appendix A STORM DATA FREQUENTLY ASKED QUESTIONS

Appendix B PUBLIC MEETING ATTENDANCE ROSTERS, MEETING MINUTES, AND NOTICES

Appendix C FLOODPLAIN MAPS

Appendix D CRITICAL FACILITIES BY JURISDICTION

List of Tables

Table 2-1 Cities and Townships in Carver County..... 2-1
 Table 2-2 Demographics..... 2-6
 Table 2-3 Business Facts 2-8
 Table 2-4 Geographic Facts 2-10
 Table 3-1 Calendar of Events 3-3
 Table 4-1 Winter Storm Events 4-7
 Table 4-2 Thunderstorm Winds 4-10
 Table 4-3 Confirmed Tornadoes 4-17
 Table 4-4 Lightning 1/01/1950 thru 01/01/2011 4-20
 Table 4-5 Extreme Temperatures Events..... 4-21
 Table 4-6 Hail Events 4-23
 Table 4-7 Significant Floods Events in Carver County 4-35
 Table 4-8 Summary of Repetitive Loss Floods Claims, Carver County 4-37
 Table 4-9 Hazardous Materials Incidents in Carver County 4-46
 Table 4-10 Carver County Critical Facility Summary..... 4-54

List of Figures

Figure 2-1 Municipal Boundaries in Carver County 2-2
 Figure 2-2 Population Density of Carver County 2-4
 Figure 2-3 Housing Density of Carver County 2-5
 Figure 2-4 Mobile Home Locations in Carver County 2-6
 Figure 2-5 Current Land Use in Carver County 2-12
 Figure 2-6 Planned Land Use in Carver County..... 2-13
 Figure 2-7 Transportation Routes of Carver County 2-14
 Figure 2-8 Airports of Carver County 2-15
 Figure 4-1 Hazard Identifications/Classifications 4-4
 Figure 4-2 Tornado Risk Areas in the Conterminous United States 4-17

Table of Contents

Figure 4-3 Minnesota River Flood Mitigation Study Final Report Minnesota Department of Transportation September 28, 2011	4-33
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CARVER COUNTY MULTIJURISDICTIONAL HAZARD MITIGATION PLAN

The plan was prepared under the direction of the Carver County Multijurisdictional Hazard Mitigation Planning Committee. For additional information, please contact Carver County Emergency Management.

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EXECUTIVE SUMMARY

Mitigation should form the foundation of every emergency management agency’s plans and procedures. Emergency management agencies must adopt mitigation practices to reduce, minimize, or eliminate hazards in their community. In 2006, Carver County adopted the Carver County Hazard Mitigation Plan (HMP), which identified the hazards they faced, certain vulnerabilities to these hazards, and mitigation strategies for the future. The Carver County Multijurisdictional HMP is the update to this plan. The plan fulfills the requirements of the Federal Disaster Mitigation Act as administered by the Minnesota Division of Homeland Security and Emergency Management (HSEM) and the Federal Emergency Management Agency (FEMA).

The Carver County Multijurisdictional HMP is a guide for all communities that participated in its development. Participating municipalities include the cities of Carver, Chanhassen, Chaska, Cologne, Hamburg, Mayer, New Germany, Norwood Young America, Victoria, Waconia, and Watertown, and the townships of Benton, Camden, Dahlgren, Hancock, Hollywood, Laketown, San Francisco, Watertown, Waconia, and Young America. These communities were identified as participating in the 2006 Carver County HMP and have renewed their commitment for this HMP update.

Representatives from participating communities attended public meetings to discuss the hazards their communities face and the vulnerabilities those hazards present. Representatives from each participating municipality reviewed drafts of the HMP and added input to the mitigation strategies presented in the plan. Carver County citizens were also active participants in the development of the plan. Citizens attended public meetings that were advertised online and in news articles to share their concerns about hazards faced in the community and how to mitigate the effects of these hazards.

Carver County and its cities and townships understand the benefits of developing and implementing mitigation plans and strategies. Carver County elected officials, public safety organizations, planners, and many others have worked together to develop and implement this HMP, proving that they have the vision to implement mitigation practices and therefore reduce the loss of life and property in their communities.

Plan Update

This plan serves as an update to the 2006 Carver County HMP. The community profile, hazard analysis, vulnerabilities, and mitigation strategies have all been updated to reflect changes in demographics, land use development, hazard occurrences, new critical facilities, and mitigation accomplishments since 2006. These revisions include updates of all graphics, including maps, tables, and other images.

Hazard Analysis

The process of updating the Carver County HMP began with a review of the hazards faced in the community. Identifying the frequency of the hazard, impact potential, severity of damage, vulnerable critical facilities, and overall economic disruption, the Carver County Multijurisdictional Hazard Mitigation Planning Committee ranked the hazards as follows.

Change from 2006 HMP: Many hazards have been combined into one category. See section 4 for further details.

Hazard	Probability	Geographic Extent	Square Miles Affected	Warning Time	Property Damage	Vulnerable Critical Facilities	Economic Disruption
Severe summer storms	Highly likely	Community-wide	376	Minimal	Moderate to major	Communications, schools, medical care facilities, hospital, water/sewer/electric, transportation	Utility systems disrupted, business and residential impact, hail damage to crops, roads damaged/closed

EXECUTIVE SUMMARY

Hazard	Probability	Geographic Extent	Square Miles Affected	Warning Time	Property Damage	Vulnerable Critical Facilities	Economic Disruption
						infrastructure	
Tornadoes	Likely	Community-wide	376	Minimal	Major	Communications, schools, medical care facilities, hospital, water/sewer/electric, transportation infrastructure, businesses, residential homes	Utility lines down, medical care disruption
Severe winter storms	Highly likely	Countywide	376	More than 12 hours	Minor	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Utility lines down, livestock threatened
Wildfires	Occasionally	Community-wide to countywide	280	Minimal	Minor to moderate	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Agricultural, residential impact, road closures, utility impacts
Flooding	Likely	Community-wide	300	More than 12 hours	Moderate to major	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Businesses, roads damaged/closed, utilities affected
Lightning	Likely	Localized	376	None	Minor	Communications infrastructure	Utilities affected
Hail	Likely	Community-wide	376	3–6 hours	Minor	Communications, schools, medical care facilities, hospital, water/sewer/electric, transportation infrastructure	Utility systems disrupted, business and residential impact, hail damage to crops, roads damaged/closed
Dam/levee failure	Unlikely	Community-wide	80	3–6 hours	Major	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Businesses, roads damaged/closed, utilities affected
Drought	Likely	Countywide	376	More than 12 hours	Moderate to major	Agri-business	Agriculture, business and residential impact, fire suppression
Extreme temperatures	Likely	Countywide	376	More than 12 hours	Negligible	Medical care facilities, elderly care facilities	
Hazardous materials spills	Highly likely	Localized to community-wide	376	None to minimal	Moderate	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Business/industry and residential impact, evacuation, environmental impact

Hazard	Probability	Geographic Extent	Square Miles Affected	Warning Time	Property Damage	Vulnerable Critical Facilities	Economic Disruption
Epidemics/pandemics	Likely	Countywide	376	More than 12 hours	Minor to moderate	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Business/industry impact, health care system impact, and communications impact
Critical facilities and infrastructure failure	Occasionally	Localized to countywide	376	None to more than 12 hours	Minor to major	Communications infrastructure, utility infrastructure	Business/industry impact, health care system impact, and communications impact
Energy/fuel shortage	Occasionally	Countywide	376	More than 12 hours	Moderate	Communications infrastructure, utility infrastructure	Business/industry impact, health care system impact, and communications impact
Terrorism	Unlikely	Community-wide	376	None to minimal	Negligible to major	Communications infrastructure, transportation infrastructure, medical care facilities, hospitals, schools, businesses, residential homes	Utility systems disrupted, business and residential impact, evacuations, roads damaged/closed
Aircraft accidents	Occasionally	Localized	376	None	Minor to moderate	Businesses/residential homes	Business/industry impact

Section 1 PLAN, BACKGROUND, AND PURPOSE

1.1 Overview

The Carver County Multijurisdictional Hazard Mitigation Plan (HMP) as written fulfills the requirements of the Disaster Mitigation Act of 2000, which is administered by the Federal Emergency Management Agency (FEMA). The act requires that all HMPs be updated every five years. This plan serves at the update of the 2006 Carver County HMP. The act also provides federal assistance to state and local emergency management to mitigate the effects of disasters. The plan also encourages cooperation among various organizations and crosses political subdivisions.

In addition to representatives from Carver County, the following communities also provided representatives to participate in the update of the Carver County HMP:

Cities	Townships
Carver	Benton
Chanhassen	Camden
Chaska (county seat)	Dahlgren
Cologne	Hancock
Hamburg	Hollywood
Mayer	Laketown
New Germany	San Francisco
Norwood Young America	Watertown
Victoria	Waconia
Waconia	Young America
Watertown	

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. In Minnesota, federal regulatory authority for hazard mitigation planning resides with FEMA Region V.

1.3 Scope

The scope of the Carver County Multijurisdictional HMP encompasses all areas of Carver County, including all its cities and townships. The plan will identify all natural and technological hazards that

Section 1

could threaten life and property in our communities. The scope of this plan includes short-term and long-term mitigation strategies, implementation, and possible sources of project funding.

The plan also contains the following information:

- The vision for mitigation in our community (Executive Summary)
- The profile of Carver County, its geography, history, physical features, and other community indicators (Section 2: Community Profile)
- The planning process and the involvement of all cities, townships, state and federal governments, the public, the private sector, and other community players (Section 3: Planning Process)
- Documentation of Carver County's past and predicted exposure to natural hazards and the potential risks that include the impacts on critical infrastructure with anticipated losses (Section 4: Risk and Vulnerability Assessment)
- An overview of Carver County's capabilities to implement hazard mitigation goals and objectives, policies that will effectively mitigate risks to our community (Section 5: Hazard Mitigation Goals and Objectives)
- Procedures for maintaining an effective, long-range HMP and the strategy to implement it (Section 6: Executing the Plan)
- Critical facilities information

1.4 Purpose

The purpose of the Carver County Multijurisdictional HMP is to identify risks and vulnerability to Carver 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 mitigation goals and objectives for Carver County and its cities and townships. 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, Carver County Emergency Management has taken a lead role in the development of the Carver County Multijurisdictional HMP.

Mitigation planning is imperative to lessen the impact of disasters in Carver County. The written plan is an excellent method by which to organize Carver County's mitigation strategy. The implementation of the plan and its components is vital to achieve a community that is resistant to the effects of a disaster. The plan provides a risk assessment of the hazards Carver County is exposed to and establishes several mitigation goals and objectives that are based on that risk assessment. This plan has been formally adopted by each participating jurisdiction and is required to be updated every five years.

1.5 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 loss of life, injuries, and hardship from the destruction of natural and technological disasters on an ongoing basis.
- Improve the public's awareness of the need for individual preparedness and building safer, more disaster-resilient 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.

FEMA publishes many guidance documents for local governments for mitigating natural disasters. The Carver County Multijurisdictional HMP fully recognizes, adopts, incorporates, and endorses the following principles:

- Develop a strategic mitigation plan for Carver 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 the following:

- 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 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 Carver County Multijurisdictional HMP supports the following FEMA recommendations regarding individual citizens:

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

1.6 Goals and Objectives

The following goals and objectives are the basis of this plan and summarize what the Carver County Multijurisdictional Hazard Mitigation Planning Committee will accomplish as a result of implementing this plan.

- Maximize the use of all resources by promoting intergovernmental coordination and partnerships in the public and private sectors.
- Harden our communities against the effects of disasters through the development of new mitigation strategies and strict enforcement of current regulations that have proved effective.

Section 1

- 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.
- Continue county and city training for Carver County and Carver County Public Health.

2.1 Overview

Located in east central Minnesota, Carver County is the least populated of the seven counties forming the Minneapolis-St. Paul (Twin Cities) metropolitan area. The county is located just southwest of the cities of Minneapolis and St. Paul. The county is the state's fastest growing county, increasing in population by 29.7 percent between 2000 and 2010 and is expected to double its 91,042 residents by the year 2030. Geographically, it is the smallest of the metro area counties. Carver County is mainly agricultural but is becoming increasingly suburbanized.

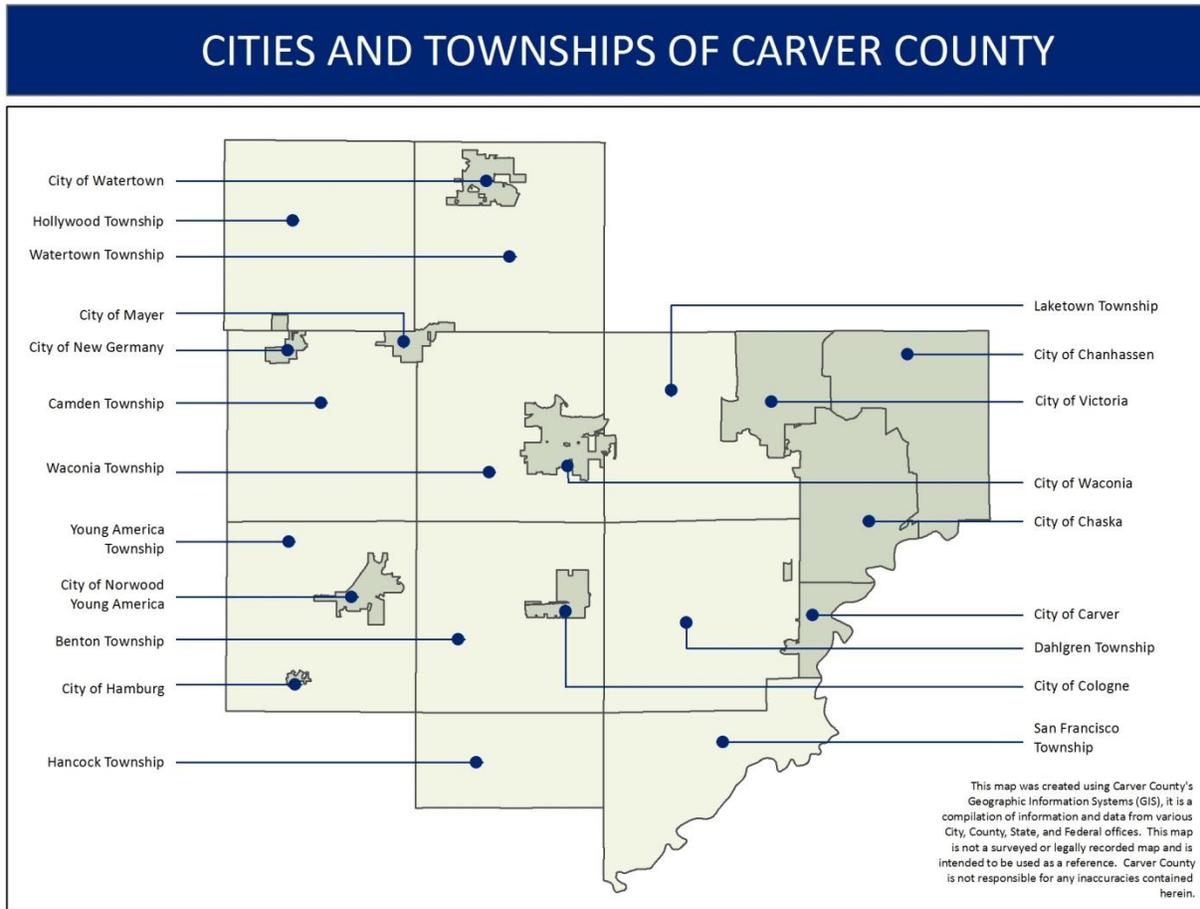
Carver County includes 11 incorporated cities and 10 unincorporated townships. Table 2-1 lists cities and townships that are located within Carver County.



Table 2-1
Cities and Townships in Carver County

Cities	Townships
Carver	Benton
Chanhassen	Camden
Chaska (county seat)	Dahlgren
Cologne	Hancock
Hamburg	Hollywood
Mayer	Laketown
New Germany	San Francisco
Norwood Young America	Watertown
Victoria	Waconia
Waconia	Young America
Watertown	

**Figure 2-1
Municipal Boundaries in Carver County**



In the past 10 years, the population of Carver County has grown 29.7 percent. The majority of the population is located in the eastern cities of Chaska and Chanhassen, which is home to over half of the county’s population. Cities in the southwestern portion of the county have not seen the tremendous growth that the northeastern cities have, but with the recent completion of State Highway 212 and the availability of land to the west, newcomers to this area will account for a large percentage of growth in Carver County. Thus, the future of Carver County will be defined by the attempt to balance the pressure of rapid growth and development with the public’s desire to retain the sense of community that has drawn people to the area for over 100 years.

2.2 Early History¹

Carver County has been home to many different cultures throughout time. One of the best documented early native peoples is the Woodland Culture, who lived in this region from 1200 BC until 1700 AD. Their nomadic hunting and gathering patterns depended upon the seasons and resources of the land. More recently, the Dakota Indians used the area for hunting and temporary lodging. With the signing of the treaty of Traverse de Sioux, however, this area was opened for settlement by white pioneers.

In March of 1855, Carver County was organized by the Minnesota Territorial Legislature. The county was named in honor of the explorer, Jonathan Carver. The original county seat was San Francisco Township but in 1856 voters moved it to Chaska.

Much of the east central part of Minnesota, including Carver County, was covered by the Big Woods; a dense forest of oak, elm, maple, and cottonwood trees. The density of the Big Woods made it difficult for early settlers to clear the land for farming.

Many of Carver County's initial settlers were from eastern states but by the 1860s most new settlers were immigrants from Germany or Sweden. The Germans founded towns like Hamburg, New Germany, and Cologne while the Swedes settled in East Union and Watertown. Most immigrants became farmers but some living in Chaska became laborers in the brick industry.

Located along the Minnesota River, Chaska had good deposits of clay for brick-making. The cream-colored brick became a favorite for building houses in Chaska and the surrounding rural area. The bricks were also used in the foundation of the Minnesota Capitol building when it was constructed 100 years ago. Slowly the brickyards closed until the last one shut down in the 1950s.



Farming was the chief occupation of Carver County for 100 years. While many grew crops, others were dairy farmers. Creameries were numerous and the county claimed for itself the title of "The Golden Buckle of the Dairy Belt." Bongards Creameries is still important link to our dairy heritage.

Carver County's most historically important farmer was Wendelin Grimm, a German immigrant who settled in Chanhassen. Grimm planted alfalfa and gathered the seeds from the plants that survived the first winter and replanted every year until he had a full crop. His perseverance paid off when Grimm Alfalfa was recognized as the most winter-hardy strain available. In fact, it was used throughout North America between 1910 and 1940 and is one of Minnesota's leading contributions to the history of agriculture.



¹ Brown, Leanne. "A Very Brief History of Carver County." Carver County Historical Society. <http://www.carvercountyhistoricalsociety.org/about_us/historypages/History.htm>.

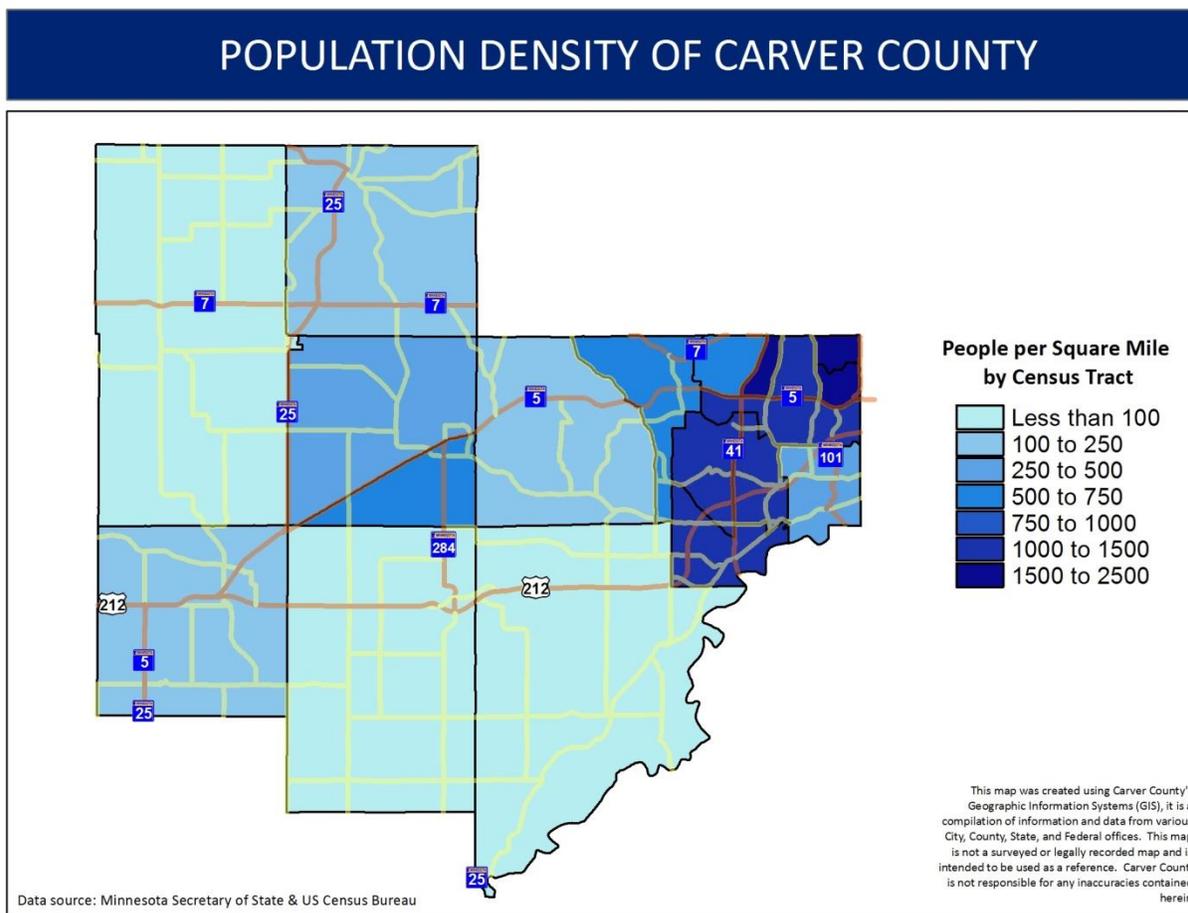
Section 2

Today, farming is no longer the predominant occupation in the county. Carver County has seen an explosion of residential development in Chanhassen, Chaska, Waconia, Carver, and Victoria. Many now commute to jobs in Minneapolis or its suburbs.

2.3 Demographics

With a population of approximately 91,000, Carver County is the least populous county in the Minneapolis-St. Paul region. It has experienced unprecedented growth in the past 10 years, with its population increasing by 29.7 percent. The Carver County 2030 Comprehensive Plan expects this growth trend to increase, with the county's population doubling by 2030. As shown in figure 2-2 the cities of Victoria, Chanhassen, and Chaska represent the densest part of the county. This trend is expected to continue, with these cities experiencing the largest growth throughout the next 20 years.

Figure 2-2
Population Density of Carver County

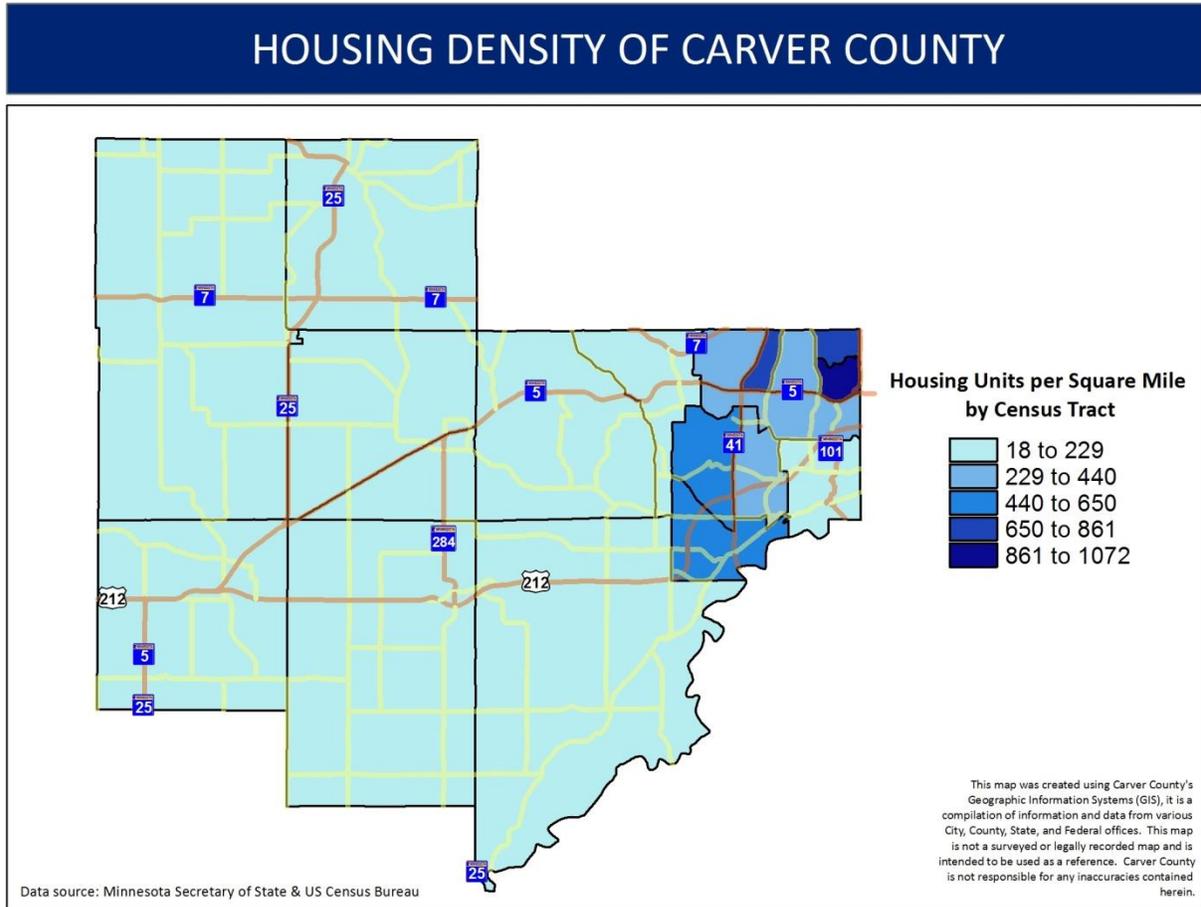


In Carver County, 92.7 percent of residents have a high school diploma and 37.5 percent of residents have a bachelor's degree. The majority of the population is Caucasian, with minority populations representing 3.9 percent of the population. For an overview of other key demographic figures, see table 2-2.

Housing statistics (see figure 2-3) show that there are over 34,000 households in the county, with the densest area being in the northeast portion of the county. The median value of a home is \$284,000

compared to the median value of \$207,000 in the rest of the state. The majority of homes in Carver County are free-standing single family dwellings and account for 90 percent of all housing units.

**Figure 2-3
Housing Density of Carver County**



Section 2

Figure 2-4 shows the location of mobile homes within the county.

Figure 2-4
Mobile Home Locations in Carver County

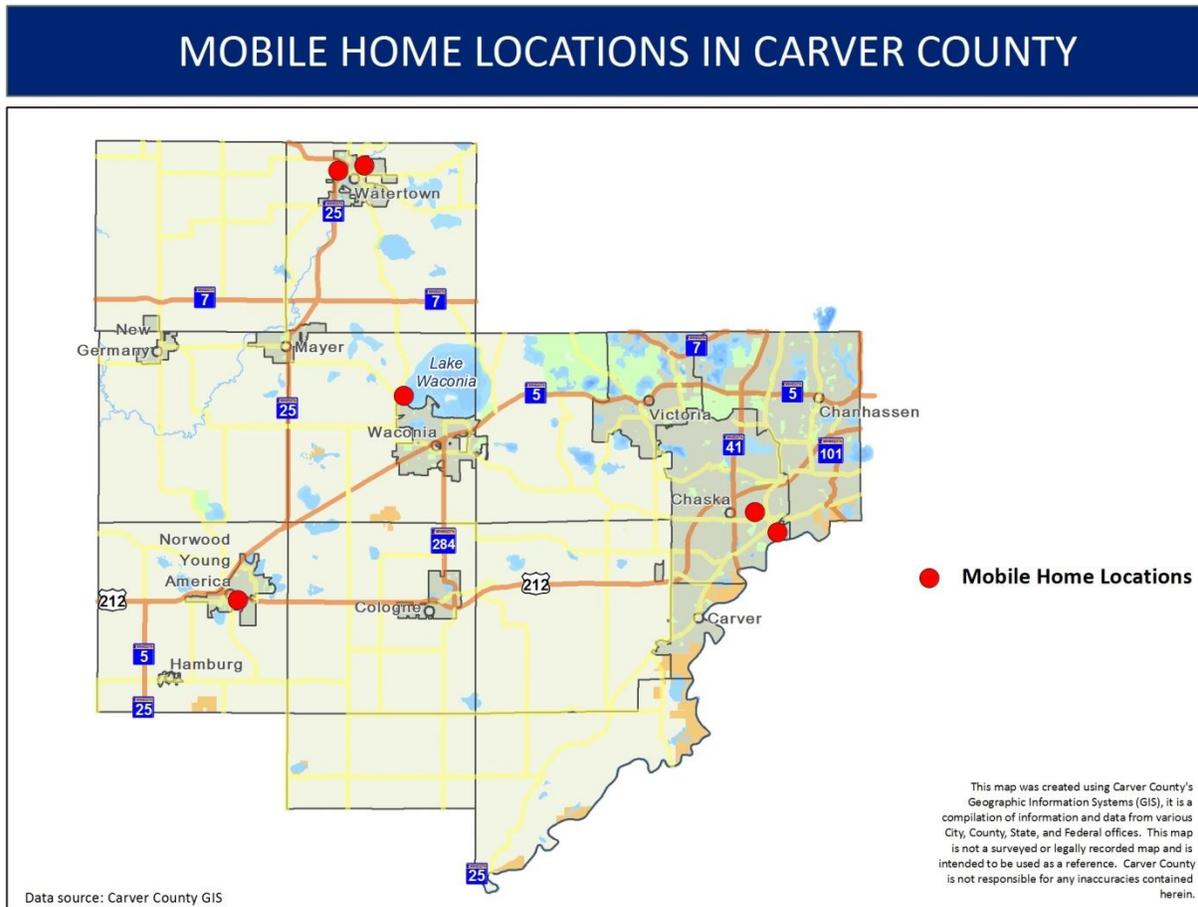


Table 2-1 presents U.S. Census Bureau statistical data on the demographics of Carver County.

Table 2-2
Demographics²

People Quick Facts	Carver County	Minnesota
Population, 2010 census	91,042	5,303,925
Population, percent change, 2000 to 2010	29.7%	7.8%

² U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits, Consolidated Federal Funds Report. Last Revised: Tuesday, 31-Jan-2012 16:52:42 EST

People Quick Facts	Carver County	Minnesota
Population, 2000	70,205	4,919,479
Persons under 5 years old, percent, 2010	7.4%	6.9%
Persons under 18 years old, percent, 2010	29.9%	23.9%
Persons 65 years old and over, percent, 2010	8.5%	12.7%
Female persons, percent, 2010	50.3%	50.2%
Caucasian, percent, 2010 (a)	92.8%	85.3%
African American persons, percent, 2010 (a)	1.2%	5.2%
American Indian and Alaska Native persons, percent, 2010	0.2%	1.1%
Asian persons, percent, 2010 (a)	2.7%	4.0%
Native Hawaiian and Other Pacific Islander, percent, 2010	0	0.0%
Persons reporting two or more races, percent, 2010	1.6%	2.4%
Persons of Hispanic or Latino origin, percent, 2010 (b)	3.9%	4.7%
Caucasian, not of Hispanic/Latino origin, percent, 2010	96.1%	83.1%
Foreign born persons, percent, 2010	1.1%	6.5%
Language other than English spoken at home, pct age 5+, 2009	8.5%	9.6%
High school graduates, percent of persons age 18+, 2009	92.7%	91.1%
Bachelor's degree or higher, pct of persons age 18+, 2009	37.5%	31.2%
Persons with a disability, age 5+, 2006	6,792	679,236
Housing units, 2010	34,536	2,332,916
Median value of owner-occupied housing units, 2005–2009	\$284,600	\$207,000
Households, 2010	32,891	2,061,882
Persons per household, 2010	2.74	2.45
Median household income, 2009	\$78,346	\$55,621
Persons below poverty, percent, 2009	4.8%	10.9%

* Includes persons reporting only one race

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

2.4 Economy

Carver County covers 376 square miles. About 75 percent of its land is classified as agriculture. The average home sold for about \$318,900 in 2009. The market value for new construction in the county in 2009 was \$154,710,000. Carver County government operates on a budget of \$93,548,115 (2011 budget). As agriculture diminishes as a land use, Carver County is poised with its growing labor force to meet future economic development.

The state demographer’s office projects Carver County’s labor force will grow by 106 percent between 2000 and 2030. Carver County’s available workforce totals 46,682 according to the Carver County 2011 Annual Budget. In addition to this pool of labor, businesses can draw from the Twin Cities and St. Cloud areas due to proximity to both locations. The partnership has built a network of resources to assist businesses in finding qualified employees, train current employees, and increase productivity. Some of the workforce development resources are Rosemont, Ridgeview Medical Center, I.S.D. No. 112 (Eastern Carver County), Super Valu Corporate, Instate Web Incorporated, Entegris, Beckman Coulter, Inc., Lake Region Manufacturing, Medallion Cabinetry, and I.S.D. No. 110 (Waconia).

Carver County was once better known for agriculture, but is now quietly becoming a major player in manufacturing. Carver County has an outstanding mix of manufacturers who are national leaders in their fields. Because of its location near the two cities, employers are able to draw workers from a large labor pool. Table 2-3 shows economic data for Carver County collected in the U.S. 2010 Census.

**Table 2-3
Business Facts**

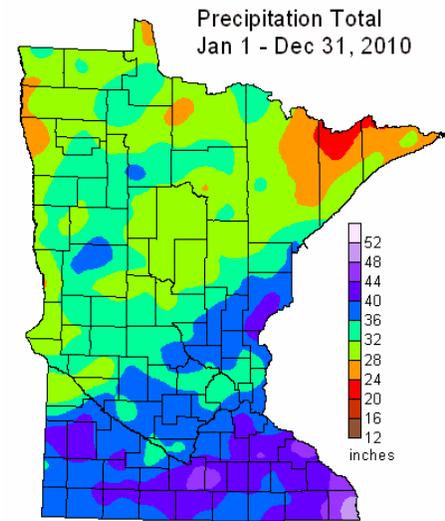
Business Quick Facts	Carver County	Minnesota
Private nonfarm establishments, 2008	2,347	148,845
Private nonfarm employment, 2008	35,282	2,517,356
Private nonfarm employment, percent change 2000–2008	28.1%	5.1%
Nonemployer establishments, 2008	6,960	376,397
Total number of firms, 2007	9,282	496,742
Black-owned firms, percent, 2007	S ³	2.5%
American Indian- and Alaska Native-owned firms, percent 2007	S	.6%
Asian-owned firms, percent, 2007	F	1.7%
Native Hawaiian- and Other Pacific Islander-owned firms, percent, 2007	F	S
Hispanic-owned firms, percent, 2007	0.6%	1.0%

S: Suppressed; does not meet publication standards per U.S. Census
F: Fewer than 100 firms

Business Quick Facts	Carver County	Minnesota
Women-owned firms, percent, 2007	28.2%	26.8%
Manufacturers' shipments, 2007 (\$1000)	3,149,535	107,563,060
Wholesale trade sales, 2007 (\$1000)	1,484,320	82,878,056
Retail sales, 2007 (\$1000)	807,141	71,384,103
Retail sales per capita, 2007	\$9,139	\$13,751
Accommodation and food services sales, 2007 (\$1000)	91,065	10,423,660
Building permits, 2009	313	9,425
Federal spending, 2008 (\$1000)	289,672	38,245,764

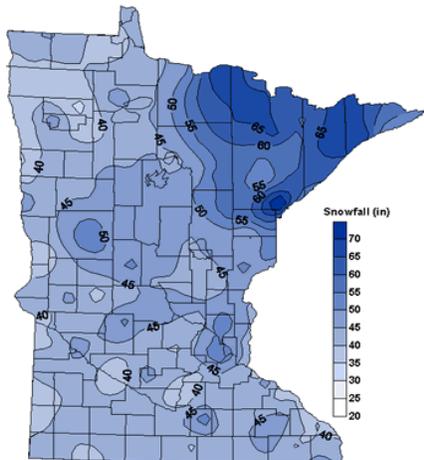
2.5 Climate

The Carver County climate is considered continental, with cold, dry winters and warm, sub-humid summers. The county averages 30.44 inches of rain per year and average temperatures range from a high of 85 degrees in summer to a low of 3 degrees in winter. This equates to an average temperature of 44 degrees and consists of warm summers and cold winters. Carver County residents experience four distinct seasons. Weather conditions can be extreme during the winter months. Annual snowfall averages approximately 45 inches.



DNR State Climatology Office, February 9, 2011

Mean Snowfall



Recent Event:

On December 10–11, 2010, the fifth largest snowstorm on record for the Twin Cities area occurred. Between 17 and 23 inches fell in the area, marking the largest snowstorm on record for the month of December in the Twin Cities area, including Carver County.

2.6 Land Use

Physical Features

Farmland, rivers, and lakes characterize the landscape of Carver County. According to the U.S. Census Bureau, the county has a total area of 376 square miles (974 km), of which 357 square miles (924 km) are land and 19 square miles (49 km) (5.08 percent) are water. The people of Carver County value their natural surroundings, demonstrated by the 5,181 acres devoted to parks and recreation. Carver County operates Baylor Regional Park, Lake Minnewashta Regional Park, and Lake Waconia Regional Park. Each park is a natural resource based recreation area situated on Eagle Lake, Minnewashta Lake, and Waconia Lake, respectively. Within these parks, there are swimming beaches, picnic facilities, forests, prairies, trails, playgrounds, boat accesses, campgrounds, picnic shelters, and more. Table 2-4 are the geographic quick facts provided in the U.S. 2010 Census.

**Table 2-4
Geographic Facts**

Geography Quick Facts	Carver County	Minnesota
Land area, 2000 (square miles)	376	79,610.08
Persons per square mile, 2010	255	66.6
Metropolitan Area	Minneapolis-St. Paul-Bloomington, MN-WI Metro Area	
FIPS Code	19	27

Current Land Use (See Figure 2-5)

The majority of land outside of cities in Carver County is used for agricultural production and the majority of land within cities is used for residential and commercial properties. The land use pattern is the result of a policy that directed growth to the cities in Carver County while limiting non-agricultural land uses in rural areas. The result is a significant amount of undeveloped open space in rural areas.

Future Land Use (See Figure 2-6)

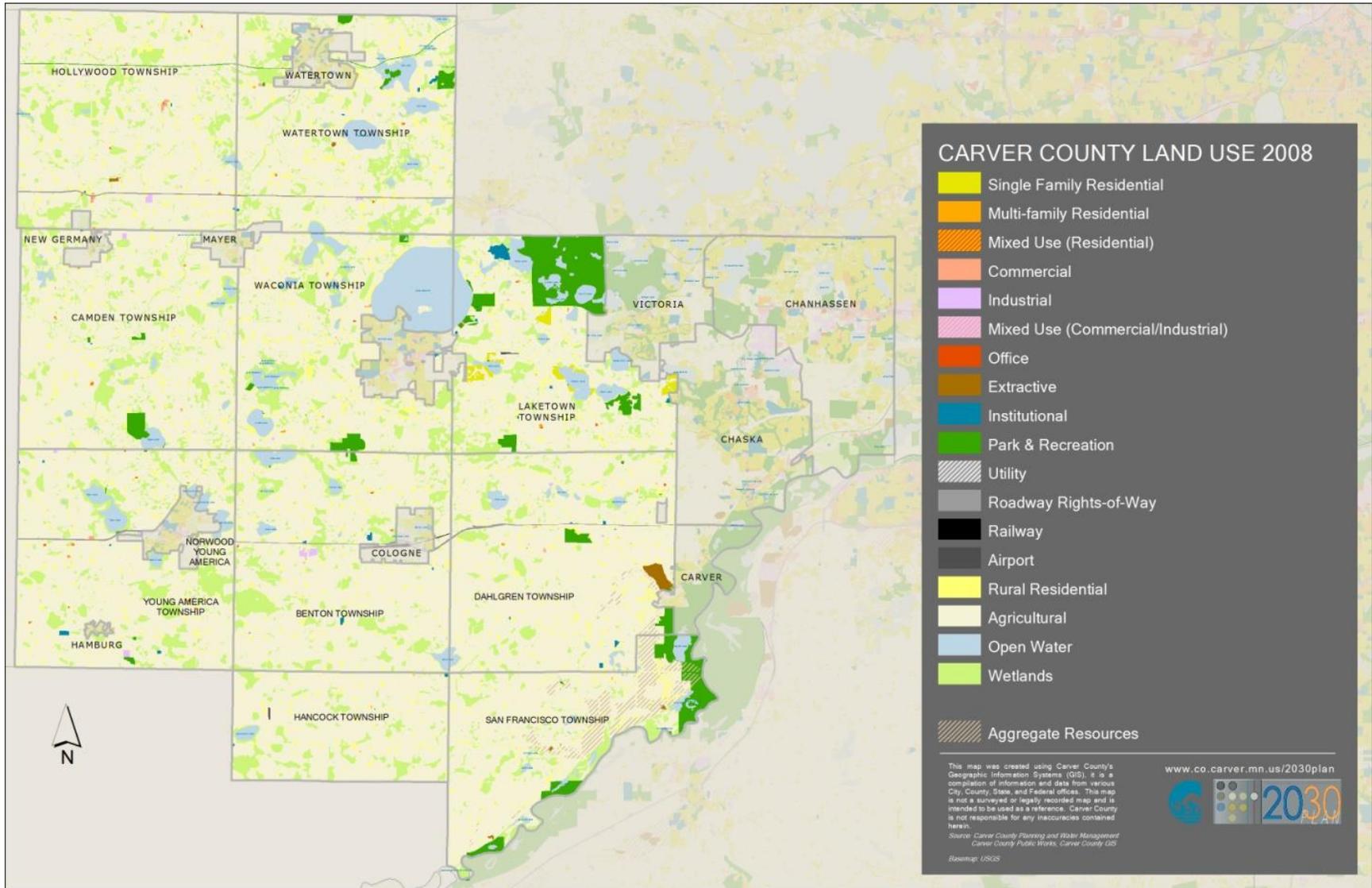
With the population of Carver County expected to grow to 200,000 by 2030 and an increase in commercial and industrial development, there will be a substantial demand for sewer, water, transportation, parks and trails, and other public services.⁴ The plan for handling this overwhelming growth is to direct the development toward areas where these services already exist—in the cities in Carver County. Carver County has designated these areas, where urban growth will result in a spillover onto rural land, as transition areas. As the land is developed for residential and commercial use in the areas around the cities, city administrations will need to plan for and guide the extension of public works and transportation systems to these areas. As this occurs, municipalities will be responsible for completing storm water planning and related water management planning prior to development.

Although there is extensive growth predicted in the county, the majority of land will still be used for agricultural production, and policies have been developed to limit the activities of certain commercial

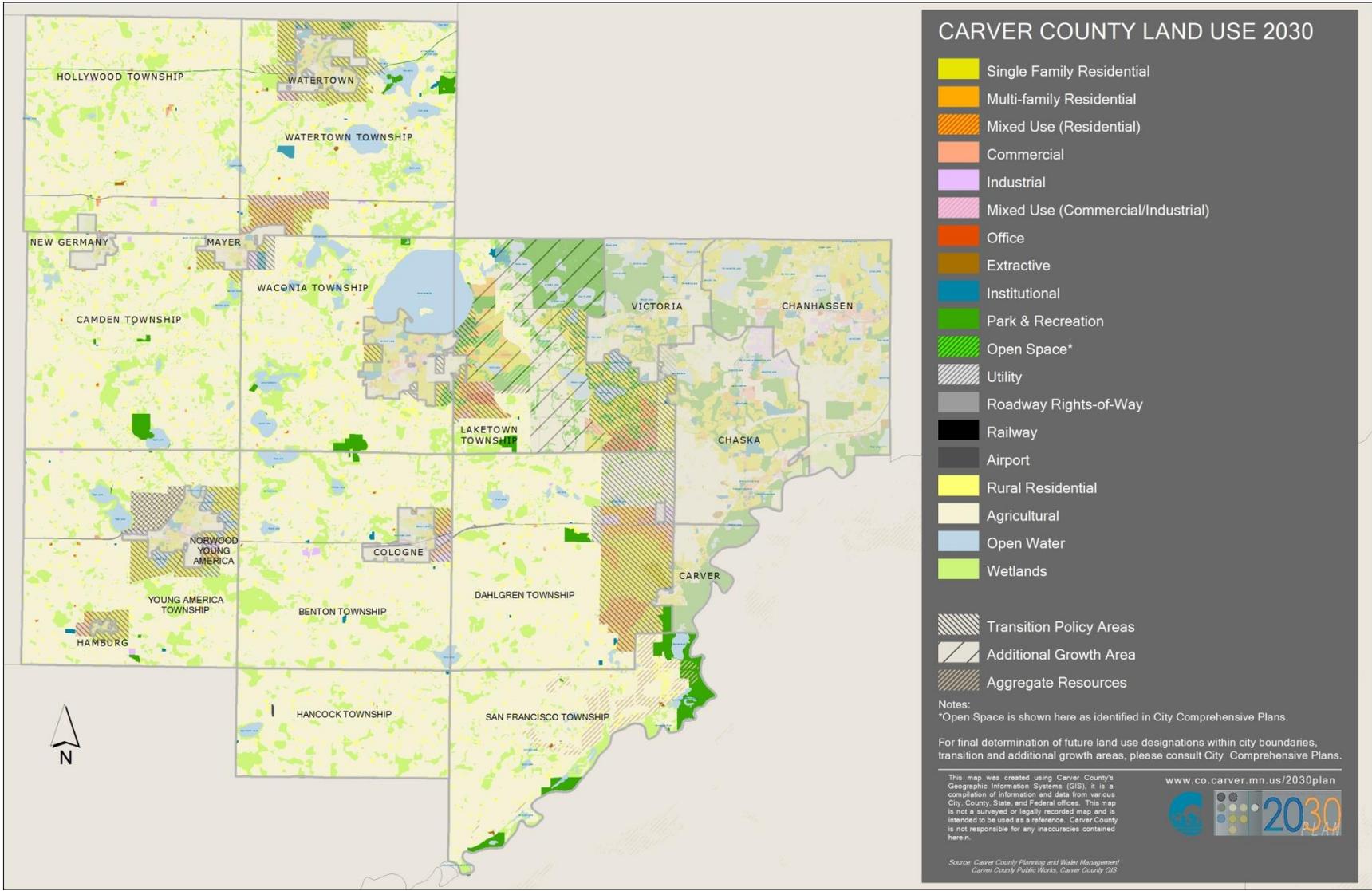
⁴ Carver County Comprehensive Plan 2030, Land Use.

uses. Residentially, the density in these agricultural areas is one dwelling per 40 acres. This density will stand, according to the Carver County Comprehensive Plan, in order to maintain the agricultural economy of the county.

Figure 2-5
Current Land Use in Carver County



**Figure 2-6
Planned Land Use in Carver County**

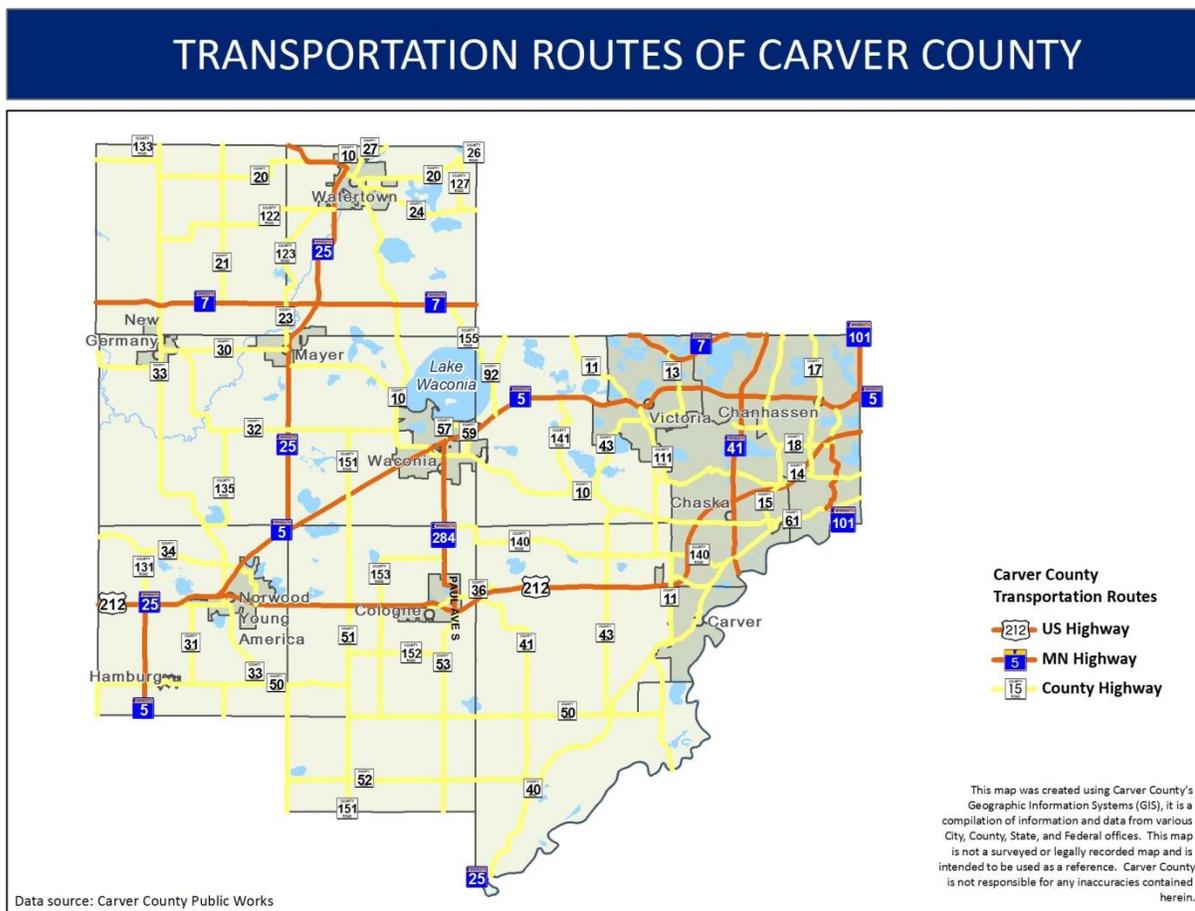


2.7 Transportation

2.7.1 Vehicle Traffic

Carver County’s transportation system primarily consists of interstate and state highways, arterial collectors, and secondary county roads. State Highways 5, 7, 25, 41, and 284, and U.S. Highway 212 are major transportation routes that carry the majority of passenger and commercial traffic in and out of Carver County. Southwest Metro Transit and Smartlink provides bus service for Carver County.

**Figure 2-7
Transportation Routes of Carver County**



2.7.2 Rail

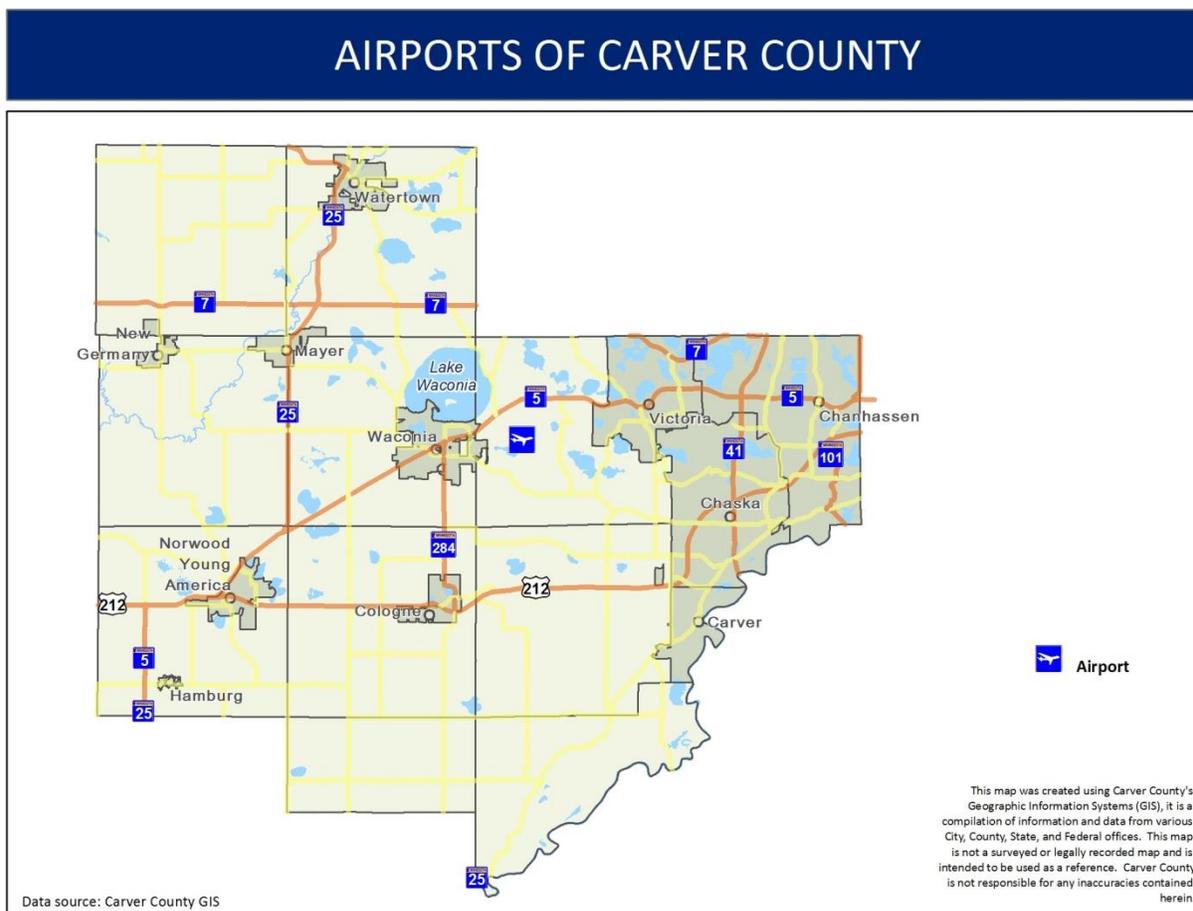
Twin Cities and Western Railroad (TC&W) operates between Minneapolis/St. Paul, Minnesota, and Milbank, South Dakota and runs through Carver County. TC&W’s traffic base consists largely of coal, grains (corn, wheat, and barley), soybeans, sugar, beet pulp pellets, lumber and other forest products, canned vegetables, edible beans, molasses, DDGs, fertilizers, crushed rock, and agricultural machinery.

The Minnesota Prairie Line (MPL) is a wholly owned subsidiary of TC&W and operates the 94-mile line that runs through Carver County. Commodities handled by MPL include corn, soybeans, distillers dry grain (DDGs), fertilizer, ethanol, butter, lumber, canned vegetables, biodiesel, tallow, salt (commercial and industrial), aggregates, and rail car storage.

2.7.3 Air Service

Light air travel and transport is possible from four Carver County landing strips and seaplane bases. These include Empire Farm Strip, Molnau Airpark, Sell’s Flying Field, and Ziermann Landing Strip. Additionally, Flying Cloud Airport in Hennepin County and the Minneapolis-St. Paul International Airport provide air service to Carver County residents. Figure 2-8 shows the location of airports in Carver County.

Figure 2-8
Airports of Carver County



2.8 Utilities

Internet service is provided through several companies. These include Adelphia, BellSouth, Charter, Comcast, EarthLink, Insight, Mediacom, Sprint, Verizon, and SBC Yahoo DSL.

2.8.1 Electricity

Electric utilities include Xcel Energy, City of Chaska, Minnesota Valley Electric Cooperative, Wright-Hennepin Cooperative Electric, and McLeod Cooperative.

2.8.2 Natural Gas

CenterPoint Energy oversees the natural gas services throughout Carver County. Gas services in Carver County and throughout Minnesota allow for gas marketers to sell natural gas in Carver County. CenterPoint Energy still oversees gas services and is the primary emergency response agency in addition to local public safety agencies.

2.8.3 Water

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

2.8.4 Wastewater Services

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

2.8.5 Solid Waste

There are no landfills located in Carver County. Household and demolition waste are taken to landfills in neighboring cities. These include Superior FCR Landfill in Buffalo, DEM CON Landfill in Shakopee, Burnsville Sanitary Landfill, and Spruce Ridge Landfill in Glencoe.

2.8.6 Communications

Carver County's landline phone service, cable, and Internet service is provided by (depending on the community) Frontier, Lakedale Link, Qwest, Sprint, TDS, and Carver-Link. There are backup facilities in Carver County. These facilities provide primary and battery backup phone capabilities. All major cell phone providers have cell towers and capabilities in Carver County.

Carver County public safety agencies currently communicate through a state-of-the-art 800 MHz (ARMER) digital radio system.

Requirement 44 CFR 201.6(c)(1)

The plan shall document the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

3.1 Carver County Multijurisdictional Hazard Mitigation Planning Committee

At the direction of the Carver County Board of Commissioners, Ken Carlson, director of Carver County Emergency Management, was tasked with developing the Carver County Multijurisdictional Hazard Mitigation Planning Committee. This committee has been tasked with the development and completion of this plan as required per state and federal guidelines. Carver County Emergency Management, which is part of the Carver County/Public Health and Environment Division, 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 (HSEM) to complete this plan.

3.1.1 Additional Partners

Requirement 44 CFR 201.6(b)(2)

An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process.

The Carver County Multijurisdictional Hazard Mitigation Planning Committee relied on the assistance of various public and private organizations to compile 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 Carver County Multijurisdictional Hazard Mitigation Plan (HMP). Stakeholder involvement was encouraged through notifications and invitations to agencies and individuals to participate. These included representatives from Carver County, Local Emergency Planning Committee (LEPC), private sector businesses, voluntary agencies, citizens, and surrounding counties. In addition to the mitigation steering committee meetings, Carver 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 Carver County the opportunity to be involved and offer input throughout the local mitigation planning process.

Carver 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

Section 3

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 participants played a vital role in the completion of this plan.

3.2 Plan Organization

The Multijurisdictional Hazard Mitigation Planning Committee is responsible for the organization, data collection, and completion of the plan.

It is the responsibility of the members of the Multijurisdictional Hazard Mitigation Planning Committee to include all pertinent departments within their respective governments and to request information as needed for the completion of the plan. These other departments include a variety of organizations whose input and data is vital to the success and accuracy of the plan.

The Multijurisdictional Hazard Mitigation Planning Committee conducted several meetings and involved all available departments and resources in an effort to gain any information that would increase the effectiveness of the plan.

The Multijurisdictional Hazard Mitigation Planning Committee is also tasked with including any external organizations that can benefit the overall effectiveness of the plan. The Multijurisdictional Hazard Mitigation Planning Committee is aware of the importance of including a variety of external and internal organizations. Their input is vital to the short-term and long-term success of the plan. External organizations include but are not limited to Minnesota Homeland Security and Emergency Management, the Federal Emergency Management Agency, National Weather Service, local citizens, businesses and industry, media outlets, the National Flood Insurance Program representatives, the LEPC, and others. These agencies and organizations were invited to the public meetings, provided information for data collection, and provided feedback on documents throughout the planning process.

The plan is based on the data gathered and identified by all committee members, the public, and all jurisdictions in an effort to prioritize mitigation projects in order of severity in an effort to reduce loss of property and life.

3.3 Planning Committee Goals and Objectives

The Carver County Multijurisdictional Hazard Mitigation Planning Committee, early in the process, established a set of goals and objectives to ensure the effectiveness of this plan. These goals and objectives established the paradigm for the planning process. These goals and objectives are as follows:

- Actively involve and gain support from all city and township governments and Carver 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 Carver County and its cities and townships.
- Monitor, evaluate, and update the progress of the plan as needed.
- Form partnerships among local, state, and federal agencies to make Carver County more resistant to the effects of disasters.

The following table is the time line agreed upon by the Carver County Multijurisdictional Hazard Mitigation Planning Committee for the development of the Carver County Multijurisdictional HMP.

**Table 3-1
Calendar of Events**

Date	Task
July 2011	Letter requesting support for the plan to all interested parties
August 9, 2011	Kickoff meeting and public meeting of mitigation process
September 26, 2011	First draft written
September 29, 2011	Public meeting #2
October 10, 2011	Final mitigation strategy
February 9, 2012	Draft updated HMP with changes required from public meeting for submittal to HSEM and the Federal Emergency Management Agency (FEMA) for official review
February 13, 2012- March 13, 2012	HSEM review period
March 20, 2012 – April 20, 2012	FEMA review period
April 30, 2012	Final draft updated plan based on HSEM and FEMA recommendations
May 7, 2012	Public meeting #3
May 14, 2012	Minutes from public meeting #3
May 14, 2012	Completed plan

3.4 Multijurisdictional Considerations

Carver County, like many counties in Minnesota, has numerous cities and townships. All cities and townships were notified of the requirement concerning the Carver County Multijurisdictional HMP and process. The Cities of Carver, Chanhassen, Chaska (county seat), Cologne, Hamburg, Mayer, New Germany, Norwood Young America, Victoria, Waconia, and Watertown, and Carver County have a documented commitment to the planning process. Representatives from all cities and townships and Carver County played an important role in the development of the Carver County Multijurisdictional HMP. Municipalities participated by providing input and data for the risk assessment and the mitigation strategies. In addition to providing input via e-mail, phone, and in person, municipalities attended public meetings held to introduce and discuss various elements of the plan. Each jurisdiction was an active participant in the planning and development process.

Jurisdiction	Representative
Carver, City of	Dan Meyer

Section 3

Jurisdiction	Representative
Chanhassen, City of	Ed Coppersmith
Chaska, City of (county seat)	Scott Knight
Cologne, City of	Matt Lein
Hamburg, City of	Brad Droege
Mayer, City of	Rod Maetzold
New Germany, City of	Steve Vanlith
Norwood Young America, City of	Steve Zumberge
Victoria, City of	Andrew Heger
Waconia, City of	Mark Morse
Watertown, City of	Wade Stock
Benton Township	Gary Widmer
Camden Township	David Zellman
Dahlgren Township	Gene Miller
Hancock Township	Richard Olson
Hollywood Township	Ron Kassulker
Laketown Township	Kenneth Essig
San Francisco Township	Maidie Felton
Watertown Township	Scott Hoese
Waconia Township	Gordon Wickenhauser
Young America Township	Bradley Scrupp

Requirement 44 CFR 201.6(b)(3)

An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

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 Carver County Multijurisdictional HMP. Plans and documents reviewed by various members of the committee include the following:

State/Federal Data, Reports, and Plans

- 2010 United States Census Data
- Minnesota Department of Natural Resources water and land cover data
- FEMA regulations and guidance
- State of Minnesota HMP

County/Regional Plans, Ordinances, and Data

- Carver County Comprehensive Plan 2030
- Metropolitan Council land use and transit data
- 2006 Carver County HMP
- Carver County Office of Geographic Information Service data

These documents are on file at Carver County Emergency Management in electronic or hard copy format and provide 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 Carver County’s goals supported these plans and promoted compliance with requirements. The State of Minnesota HMP formed the basis for identifying and analyzing the natural hazards and technological hazards that could affect Carver County and participating jurisdictions. The Carver County Emergency Operations Plan provided insight into the jurisdictional response to disasters and was used to develop and validate

Requirement 44 CFR 201.6(b)(1)

An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

mitigation goals, objectives, and actions.

3.6 Public Involvement

To be an effective plan, input from the public is vital. The Multijurisdictional Hazard Mitigation Planning Committee recognizes the valuable input that the public can provide on the plan. Additionally, public input builds support and ensures a strong base for future mitigation activities, and allows Carver County citizens the opportunity to have their interests included in the plan. Carver County Emergency Management issued press releases and online advertisements inviting the public to participate in the development of this plan.

The main activity for public involvement was attending public meetings where citizens could learn about the hazard mitigation planning process and contribute ideas about the county’s risks, vulnerabilities, and mitigation strategies. The first public meeting was held on August 9, 2011. Two meetings were held at two different locations and times to allow for participation from those who could attend in the afternoon and those who could attend in the evening. The meeting introduced the hazard mitigation planning process, including the Disaster Mitigation Act 2000, the importance of public participation, and the overall approach to planning. Complete meeting notes, rosters, and notices can be found in appendix B.

The second meeting was held on September 29, 2011. This meeting provided attendees an opportunity to review all hazard profiles, vulnerabilities, and mitigation strategy recommendations. This was an

Section 3

opportunity for citizens to comment on the draft updated Carver County HMP. Examples of the input provided by attendees include recommendations on adding the 1991 lightening strike that occurred at a Professional Golf Association event in Chaska, removing a suggested flood mitigation strategy, and including an analysis of the dams/levees in the county. Complete meeting notes, rosters, and notices can be found in appendix B.

A third meeting will be held prior to the approval of this plan to present an overview to county residents and solicit input on the final draft. The complete meeting notes, rosters, and notices for this meeting will be included in the plan prior to final approval by the Carver County Board of Commissioners.

Section 4

RISK AND VULNERABILITY ASSESSMENT

4.1 Updates to the Risk and Vulnerability Assessment

There have been several updates to the risk and vulnerability assessment since the 2006 Carver County Hazard Mitigation Plan (HMP) was approved. Many of the updates included in this section are updates of incidents that have occurred in the past five years and updated graphics. Some of these updates change the way that hazards are profiled in the Carver County HMP.

The following changes have occurred since the 2006 Carver County HMP:

- The 2006 Carver County HMP included summer severe weather and tornadoes. The title of the identified hazard “summer severe weather” has been changed to “severe thunderstorms” to reflect the notion that there are multiple forms of summer severe weather, including tornadoes, high winds, hail, and extreme temperatures. The Carver County Multijurisdictional Hazard Mitigation Planning Committee determined that severe thunderstorms, tornadoes, hailstorms, and extreme temperatures should be classified as individual hazards in this plan update.
- The title of the identified hazard “winter storm” has been reclassified as severe winter storms. Minnesota frequently experiences winter weather. Although all winter weather poses a risk to Carver County, severe winter storms produce a higher vulnerability level for emergency response capabilities.
- In the 2006 Carver County HMP, fire was identified as a hazard. In the update, this hazard has been removed and only wildfires are profiled. Historically, the vulnerabilities posed by fires in the county only pose a risk to individual structures and do not threaten countywide areas. County municipalities have robust emergency response capabilities for responding to fires, including part-time, and volunteer fire departments to control this hazard. Wildfires are unpredictable and their severity can vary depending on wind speed and drought. They pose a significant threat to the county because of its rural setting. Therefore, wildfires have been profiled and fires have been omitted in this plan update.
- All flooding activities have been included in the flood profile. In the previous version of the plan, 100-year floods were a separately identified risk.
- Environmental infection/infection diseases have been renamed “epidemics/pandemics” in the updated plan. Outbreaks are included in this section in the plan, although in the 2006 version it was a separately identified risk.
- Bomb threats, originally identified as an individual hazard profile in the previous plan, have been included in the terrorism section of this update.
- The following profiles were omitted from the plan due to low vulnerability and low occurrence in Carver County in the past five years:
 - Water supply contamination
 - Earthquakes
 - Radiological incidents
 - Civic and special events

Section 4

- Two new hazards have been profiled in this update. Energy/fuel shortage and critical facilities and infrastructure loss were created to reflect communications, electricity, gas, and water outages that pose a threat to the community. The hazard previously identified in the 2006 version of the plan as telephone/utility/HVAC outage has been included in these profiles.

4.2 Risk and Vulnerability Assessment Process

Requirement 44 CFR 201.6(c) (2) (ii)

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

Requirement 44 CFR 201.6(c) (2) (i)

The risk assessment shall include a description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

The Multijurisdictional Hazard Mitigation Planning Committee conducted a comprehensive hazard, risk, and vulnerability assessment of Carver County.

To develop effective hazard mitigation strategies, it is first necessary to identify and profile all hazards facing the community. A risk assessment is the process of measuring the potential loss of life, personal injury, economic injury, and property damage resulting from natural hazards by assessing the vulnerability of people, buildings, and infrastructure to natural and technological disasters. Several methods were used to identify risks to the community. These methods included evaluating historical data from scientific and news media sources, soliciting opinions and experiences from participating jurisdictions and Carver County residents, and surveying risks identified in the State of Minnesota HMP that were pertinent to Carver County.

Following the risk assessment, a vulnerability assessment was conducted. This analysis predicts the extent of damage that may result from a hazard event of a given intensity in a given area on the existing and future build environment. Determining the community's vulnerability involved identifying the risk posed to people, property, and the environment. This also included identifying critical facilities that could be affected by each hazard.

The following natural and technological hazards were identified:

Hazard	Justification for Inclusion
Severe winter storms	Frequency, previous incidents, countywide hazard
Severe thunderstorms	Frequency, previous incidents, countywide hazard
Tornadoes	Frequency, previous incidents, countywide hazard
Lightning	Frequency, countywide hazard
Extreme temperatures	Frequency, countywide hazard

Hazard	Justification for Inclusion
Hailstorms	Countywide hazard
Wildfires	Frequency, potential adverse impact
Flooding	Frequency, previous incidents
Drought	Previous incidents, countywide hazard
Epidemics/pandemics	Previous incidents
Dam/levee failure	Potential adverse impact
Terrorism	Potential adverse impact
Hazardous materials spills	Frequency, previous incidents, countywide hazard
Energy/fuel shortage	Potential adverse impact
Aircraft accidents	Potential adverse impact
Critical facilities and infrastructure loss	Potential adverse impact

The following hazards were not profiled in this plan due to geographic location, low occurrence, or low potential for damage.

Hazard	Justification for Omission
Avalanche	Geographic proximity
Civil disturbance	Low occurrence
Coastal erosion	Geographic proximity
Earthquake	Low occurrence, low vulnerability
Expansive soils	Low vulnerability
Hurricane/tropical storms	Geographic proximity
Karst topography	Low occurrence
Landslide	Low vulnerability
Sinkholes	Low vulnerability
Tsunami	Geographic proximity
Volcano	Geographic proximity

Section 4

The following information was included in each hazard profile:

- **Hazard Identification.** The Carver County Multijurisdictional Hazard Mitigation Planning Committee has identified 10 natural and 6 technological hazards that have consistently affected Carver 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, vulnerability, and large-scale effects on Carver County.
- **Hazard Profile.** Each hazard will be profiled to explain how it will or has affected Carver County. This will include areas prone to specific hazards and the effects that they have had on Carver County infrastructure. It also includes previous events that have affected the county.
- **Assets Exposed to the Hazard.** The plan compares 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 a vulnerability assessment for future development, such as schools, water and waste treatment facilities, and other critical infrastructure.
- **Vulnerability.** The vulnerability of each hazard will be summarized based on a common set of definitions and classifications used to estimate vulnerability and rank hazards. Figure 4-1 identifies classifications of vulnerability. Each profile was analyzed on the criteria for frequency of occurrence, amount of warning time prior to the hazard occurring, the amount of area potentially affected by the hazard, and the severity of impact should the hazard occur.

**Figure 4-1
Hazard Identifications/Classifications**

Frequency of Occurrence: Probability	
1 = Unlikely	<1% probability of occurrence in the next 100 years
2 = Occasionally	1–10% probability of occurrence per year, or at least one chance in next 100 years
3 = Likely	>10% but <100% probability per year, at least 1 chance in next 10 years
4 = Highly Likely	100% probable in a year
Warning Time: Amount of time generally given to alert people to hazard	
1 = More than 12 hours	
2 = 6–12 hours	
3 = 3 –6 hours	
4 = None–Minimal	
Geographic Extent: How large an area would likely be affected	
1 = Localized	
2 = Community-wide	
3 = Countywide	
Potential Impact: Severity and extent of damage and disruption	
1 = Negligible	Isolated occurrences of minor property damage, minor disruption of critical facilities and infrastructure, and potential for minor injuries
2 = Minor	Isolated occurrences of moderate to severe property damage, brief disruption of critical facilities and infrastructure, and potential for injuries
3 = Moderate	Severe property damage on a neighborhood scale, temporary shutdown of critical facilities, and/or injuries or fatalities
4 = Major	Severe property damage on a metropolitan or regional scale, shutdown of critical facilities, and/or multiple injuries or fatalities

Multijurisdictional Concern. This component of the hazard profile will identify what areas of Carver County are most susceptible to effects of the hazard.

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

44 CFR Requirement 201.6 (c)(2)(iii)

For multijurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

44 CFR Requirement 201.6 (c)(2)(ii)(C)

Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

4.3 Natural Hazards

Natural hazards such as floods, tornadoes, winter storms, and the like are an enduring condition around the human environment. Natural hazards become disasters when they intersect with the human environment. In Minnesota, natural disasters have had devastating effects on human lives, property, the economy, and the community. While most processes present little danger to human well-being, some develop into hazardous situations that place life, property, economy, and community at higher risk.

4.3.1 Atmospheric Hazards

Atmospheric hazards include weather-generated incidents. Each has its own natural characteristics, geographic location and/or aerial extent, seasonality, severity, and associated risks. Though these characteristics allow identification of each individual hazard, many of these hazards are interrelated (FEMA, 1997). For example, tornadoes can be a product of severe thunderstorms or tropical storms/hurricanes, and snow or ice can be a byproduct of nor'easters. These hazards may also be directly linked to other categories of natural hazards (for example, excessive rain can cause the geologic hazard of sinkholes and landslides). In addition, atmospheric hazards can be interlinked with technological hazards (for example, excessive rains can cause dam/levee failure, which can lead to flooding). These linkages make it difficult to attribute damage to one hazard or to assess the risk one hazard has on the planning area, but mitigation strategies quite often have beneficial effects on several types of hazards.

In this subsection, six atmospheric hazards were addressed: severe winter storms, severe thunderstorms, tornadoes, lightning, extreme temperatures, and hailstorms. Each category has a general description of the hazard, a vulnerability summary for the planning area, and specific hazard information for each individual governing jurisdiction.

4.3.1.1 Severe Winter Storms

Hazard Identification

Carver County researched historical data from the National Climatic Data Center (NCDC) and the National Weather Service (NWS) as well as information from past newspaper articles relating to severe winter storms in Carver County. Severe winter storms bring the threat of snow, freezing rain, and ice storms to the county. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines. Sidewalks, streets, and highways become extremely hazardous to pedestrians and motorists. Severe winter storms originate as mid-latitude depressions of cyclonic weather systems and can cause snowstorms, blizzards, and ice storms. Winter storms can paralyze a county/community by shutting down normal day-to-day operations and can produce an accumulation of snow and ice on trees and utility lines resulting in loss of electric county and blocked transportation routes. These storms can also lead to frozen water pipes, which when erupted, can lead to extensive property damage and the depletion of a natural resource. When counties/communities have long-term loss of utilities, elderly and extremely young populations become more vulnerable to the effects of the extreme temperatures associated with these storms.



Source: University of Minnesota

Hazard Profile

To determine Carver County's vulnerability to severe winter storms, a time period from 1994 to 2010 was examined. Numerous sources were used in identifying the severe winter storm hazards that have occurred in Carver County since 1950 (both primary and secondary). Sources included the Cable News Network, National Oceanic Atmospheric Agency (NOAA), NCDC, NWS, the Spatial Hazard Events and Losses Database (SHELDUS), and The Weather Channel.

Research from the SHELDUS and NCDC indicates there have been 58 severe winter storm occurrences recorded for Carver County in the past 17 years. Although severe winter storms occur infrequently, they have the potential to wreak havoc to the community when they do strike. Statistically, Carver County can expect a severe winter storm every year; the most frequent occurrences were in 1996. A winter storm that struck the Carver County area in December of 2010 was particularly devastating to Carver County. Numerous power lines were downed; several roads, bridges, and buildings were damaged as a result of the heavy snow and ice accumulation; and approximately \$18.3 million in damages were reported countywide.

**Table 4-1
Winter Storm Events⁵⁶**

Location or County	Date	Type	Dth	Inj	PrD
Carver County	4/28/1994	Heavy snow and ice	0	0	0
Carver County	11/27/1994	Heavy Snow/ice	0	0	0
Carver County	3/6/1995	Heavy snow	0	0	0
Carver County	11/26/1995	Heavy snow	0	0	0
Carver County	12/8/1995	Heavy snow	0	0	0
Carver County	12/13/1995	Glaze	0	0	0
Carver County	1/10/1996	Heavy snow	0	0	0
Carver County	1/17/1996	Ice storm	0	0	0
Carver County	3/23/1996	Heavy snow	0	0	0
Carver County	11/14/1996	Ice storm	0	0	0
Carver County	11/20/1996	Heavy snow	0	0	0
Carver County	11/22/1996	Heavy snow	0	0	0
Carver County	12/14/1996	Heavy snow	0	0	0
Carver County	12/23/1996	Winter storm	1	0	0
Carver County	3/13/1997	Winter storm	0	0	0
Carver County	1/1/1999	Heavy snow	0	0	0
Carver County	3/8/1999	Winter storm	0	0	0
Carver County	1/12/2000	Heavy snow	0	0	0
Carver County	1/19/2000	Heavy snow	0	0	0
Carver County	12/28/2000	Winter storm	0	0	0
Carver County	1/29/2001	Winter storm	0	0	0
Carver County	2/7/2001	Heavy snow	0	0	0
Carver County	2/24/2001	Winter storm	0	0	0
Carver County	3/11/2001	Heavy snow	0	0	0

⁵ Source: National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/ncdc.html>

⁶ Explanation of Storm Data can be found in appendix A

Section 4

Location or County	Date	Type	Dth	Inj	PrD
Carver County	11/26/2001	Winter storm	0	0	0
Carver County	3/8/2002	Winter storm	0	0	0
Carver County	3/14/2002	Winter storm	0	0	0
Carver County	2/2/2003	Winter storm	0	0	0
Carver County	11/22/2003	Winter storm	0	0	0
Carver County	12/9/2003	Winter storm	0	0	0
Carver County	1/24/2004	Winter storm	0	0	0
Carver County	2/1/2004	Winter storm	0	0	0
Carver County	3/5/2004	Winter storm	0	0	0
Carver County	1/1/2005	Winter storm	0	0	0
Carver County	1/21/2005	Winter storm	0	0	0
Carver County	3/18/2005	Winter storm	0	0	0
Carver County	12/13/2005	Heavy snow	0	0	0
Carver County	12/29/2005	Heavy snow	0	0	0
Carver County	3/12/2006	Winter storm	0	0	0
Carver County	3/15/2006	Winter storm	0	0	0
Carver County	12/31/2006	Winter storm	0	0	0
Carver County	2/23/2007	Winter storm	0	0	0
Carver County	3/1/2007	Winter storm	0	0	0
Carver County	12/1/2007	Winter storm	0	0	0
Carver County	3/20/2008	Winter storm	0	0	0
Carver County	3/31/2008	Heavy snow	0	0	0
Carver County	4/1/2008	Heavy snow	0	0	0
Carver County	12/20/2008	Winter storm	0	0	0
Carver County	2/26/2009	Winter storm	0	0	0
Carver County	10/12/2009	Winter weather	0	0	0
Carver County	12/8/2009	Winter storm	0	0	0

Location or County	Date	Type	Dth	Inj	PrD
Carver County	12/23/2009	Winter storm	0	0	0
Carver County	2/7/2010	Winter storm	0	0	0
Carver County	11/13/2010	Winter storm	0	0	0
Carver County	12/3/2010	Winter storm	0	0	0
Carver County	12/10/2010	Winter storm	0	0	18.3 M
Carver County	12/15/2010	Winter storm	0	0	0
Carver County	12/20/2010	Winter storm	0	0	0

Assets Exposed to Hazard

In evaluating assets that may potentially be impacted by the effects of severe winter storms, the Carver County Multijurisdictional Hazard Mitigation Planning Committee determined that all critical facilities as well as all public, private, and commercial property are susceptible.

- **Property Risk/Vulnerability.** In evaluating assets that may potentially be impacted by the effects of severe winter storms, the committee determined that all critical facilities as well as all public, private, and commercial properties are susceptible to the effects of a winter storm.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of a severe winter storm and no way to predict where a storm will hit. People are vulnerable to winter storms through power outages, effects on transportation routes, establishment of shelters, water freezing, etc. This is particularly true due to a 100 percent chance of a winter storm occurring in any given year in Carver County.
- **Environment Risk/Vulnerability.** Risks to the environment are low for a winter storm. Most of the environmental risks would be access to water due to frozen water pipes and supply. In addition, winter thaw can cause flooding, which in turn can affect and create contamination of potable water for public consumption.

Vulnerability

Severe Winter Storms

Frequency of Occurrence	Highly Likely
Warning Time	More than 12 hours
Geographic Extent	Countywide
Potential Impact	Minor

Multijurisdictional Concerns

All of Carver County could be affected by a severe winter storm. As a result, any mitigation steps taken related to severe winter storms should be undertaken on a countywide basis.

Land Use and Development Trends

Carver County currently has no land use or development trends related to severe winter storms.

Section 4

Hazard Summary

Severe winter storms, unlike other natural hazards, typically afford communities some advance warning. The NWS issues winter storm watches, warnings, and advisories as these storms make their way through the county. Due to the frequency of winter storms in Carver County, most buildings and infrastructure are typically designed to sustain severe winter conditions. However, aging facilities and particularly heavy snowfalls bring the possibility of building collapse and infrastructure damage. Additionally, while many motorists are accustomed to driving in snow and icy conditions, winter weather always brings a possibility for dangerous driving conditions and therefore should be a consideration in hazard mitigation planning.

4.3.1.2 Severe Thunderstorms

Hazard Identification

Carver County used data from the NCDC, the NWS, and Carver County Emergency Operations Plan in researching severe thunderstorms and their impact on Carver County. Severe thunderstorms include thunderstorms and winds associated with the thunderstorms. Thunderstorm winds are generally short in duration, involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to affect areas of the county with significant tree stands as well as areas with exposed property and infrastructure and aboveground utilities. Thunderstorm winds can cause power outages, transportation and economic disruptions, and significant property damage, and pose a high risk for injuries and loss of life. Data from the NCDC contains the following disclosure: All Weather Events from 1955-2010, as entered into Storm Data.

Hazard Profile

The most prevalent natural hazard incident occurring in Carver County is severe thunderstorms and the winds from these thunderstorms. During the spring and summer months, the county typically experiences multiple thunderstorms, some with significant winds. Over the past 20 years, 100 severe thunderstorm wind incidents have been recorded within Carver County. A review of historical weather data indicates there is a very significant chance of severe thunderstorm winds impacting Carver County each year. Severe thunderstorm winds occur more frequently than any other natural hazard incident within Carver County. The most damaging severe thunderstorm/high winds occurred on May 30, 1998, when high winds caused damage costing \$9.2 million.

**Table 4-2
Thunderstorm Winds⁷⁸**

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
1 CARVER	7/8/1964	1855	50 kts.	0	0	0	0
2 CARVER	7/8/1965	1351	85 kts.	0	0	0	0
3 CARVER	7/18/1970	1955	0 kts.	0	0	0	0
4 CARVER	7/29/1973	1020	68 kts.	0	0	0	0

⁷ Source: National Climatic Data Center: <http://www.ncdc.noaa.gov/oa/ncdc.html>

⁸ For an explanation of the NCDC reports, see appendix A

RISK AND VULNERABILITY ASSESSMENT

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
5 CARVER	6/20/1974	1155	0 kts.	0	0	0	0
6 CARVER	6/21/1975	1530	69 kts.	0	0	0	0
7 CARVER	6/29/1975	1307	60 kts.	0	0	0	0
8 CARVER	8/4/1976	1630	52 kts.	0	0	0	0
9 CARVER	5/17/1979	1630	0 kts.	0	0	0	0
10 CARVER	7/15/1980	1858	0 kts.	0	0	0	0
11 CARVER	9/3/1980	2010	65 kts.	0	0	0	0
12 CARVER	5/4/1982	1528	0 kts.	0	0	0	0
13 CARVER	5/4/1982	1557	0 kts.	0	0	0	0
14 CARVER	6/21/1983	545	61 kts.	0	0	0	0
15 CARVER	7/3/1983	1120	0 kts.	0	0	0	0
16 CARVER	7/3/1983	1135	0 kts.	0	0	0	0
17 CARVER	7/19/1983	1510	0 kts.	0	0	0	0
18 CARVER	8/29/1983	2053	52 kts.	0	0	0	0
19 CARVER	8/7/1984	100	0 kts.	0	0	0	0
20 CARVER	4/21/1985	2050	0 kts.	0	0	0	0
21 CARVER	3/31/1986	1600	0 kts.	0	0	0	0
22 CARVER	4/26/1986	2155	61 kts.	0	0	0	0
23 CARVER	7/12/1986	1830	52 kts.	0	0	0	0
24 CARVER	5/13/1987	1830	0 kts.	0	0	0	0
25 CARVER	7/20/1987	1930	0 kts.	0	0	0	0
26 CARVER	8/13/1989	1950	52 kts.	0	0	0	0
27 CARVER	6/19/1990	700	0 kts.	0	0	0	0
28 CARVER	7/8/1990	350	52 kts.	0	0	0	0
29 CARVER	5/28/1991	2110	0 kts.	0	0	0	0
30 CARVER	5/28/1991	2135	0 kts.	0	0	0	0
31 CARVER	6/30/1991	2250	52 kts.	0	0	0	0
32 CARVER	6/30/1991	2310	0 kts.	0	0	0	0

Section 4

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
33 CARVER	6/16/1992	2250	0 kts.	0	0	0	0
34 Watertown	7/5/1994	340	0 kts.	0	0	0	0
35 Chanhassen	7/7/1994	1600	0 kts.	0	0	0	0
36 Waconia	7/19/1994	1628	52 kts.	0	0	0	0
37 Carver	7/19/1994	1645	52 kts.	0	0	0	0
38 Watertown	8/6/1995	12:00 AM	52 kts.	0	0	0	0
39 Mayer	5/18/1996	11:50 PM	60 kts.	0	0	0	0
40 Chanhassen	5/19/1996	12:05 AM	50 kts.	0	0	0	0
41 Norwood	8/6/1996	9:05 PM	55 kts.	0	0	0	0
42 Waconia	8/6/1996	9:08 PM	55 kts.	0	0	0	0
43 Mayer	8/6/1996	9:17 PM	55 kts.	0	0	0	0
44 Chaska	6/28/1997	2:45 PM	50 kts.	0	0	0	0
45 Watertown	7/1/1997	6:10 PM	52 kts.	0	0	0	0
46 New Germany	7/1/1997	6:45 PM	56 kts.	0	0	0	0
47 Young America	7/1/1997	6:52 PM	60 kts.	0	1	0	0
48 Assumption	7/13/1997	6:52 PM	60 kts.	0	0	0	0
49 Young America	7/13/1997	6:58 PM	55 kts.	0	0	0	0
50 Gotha	7/13/1997	7:00 PM	65 kts.	0	0	0	0
51 Carver	7/13/1997	7:05 PM	55 kts.	0	0	0	0
52 East Union	7/13/1997	7:10 PM	65 kts.	0	0	0	0
53 Chaska	7/13/1997	7:12 PM	52 kts.	0	0	0	0
54 Chanhassen	7/13/1997	7:15 PM	52 kts.	0	0	0	0
55 Waconia	7/17/1997	1:00 AM	60 kts.	0	0	0	0
56 Watertown	7/17/1997	1:05 AM	60 kts.	0	0	0	0
57 Cologne	7/17/1997	1:06 AM	60 kts.	0	0	0	0
58 Mayer	7/17/1997	1:08 AM	60 kts.	0	0	0	0
59 Watertown	7/17/1997	12:50 AM	55 kts.	0	0	0	0

RISK AND VULNERABILITY ASSESSMENT

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
60 Cologne	5/15/1998	3:13 PM	52 kts.	0	0	0	0
61 Waconia	5/15/1998	3:20 PM	61 kts.	0	0	0	0
62 Victoria	5/15/1998	3:30 PM	60 kts.	0	0	5.0M	0
63 Hamburg	5/30/1998	9:18 PM	60 kts.	0	0	0	0
64 Norwood	5/30/1998	9:20 PM	63 kts.	0	0	0	0
65 Waconia	5/30/1998	9:25 PM	61 kts.	0	0	0	0
66 Carver	5/30/1998	9:27 PM	65 kts.	0	0	0	0
67 Chaska	5/30/1998	9:30 PM	61 kts.	0	2	9.2M	0
68 Chanhassen	5/30/1998	9:32 PM	55 kts.	0	0	0	0
69 Chanhassen	5/30/1998	9:45 PM	60 kts.	0	0	0	0
70 New Germany	6/18/1998	12:45 PM	50 kts.	0	0	0	0
71 Watertown	6/24/1998	11:34 PM	55 kts.	0	0	0	0
72 Chaska	6/24/1998	11:45 PM	50 kts.	0	0	0	0
73 Waconia	7/14/1998	9:25 PM	60 kts.	0	0	0	0
74 Watertown	7/3/1999	3:45 AM	50 kts.	0	0	0	0
75 Mayer	5/8/2000	12:30 AM	52 kts.	0	0	0	0
76 New Germany	8/7/2000	9:32 PM	52 kts.	0	0	0	0
77 New Germany	6/11/2001	4:36 PM	50 kts.	0	0	0	0
78 Chanhassen	6/11/2001	4:37 PM	54 kts.	0	0	0	0
79 Bongards	8/29/2001	9:15 PM	60 kts.	0	0	0	0
80 Waconia	4/18/2002	2:15 AM	60 kts.	0	0	35K	0
81 Watertown	6/10/2002	10:00 PM	52 kts.	0	0	0	0
82 Chaska	8/3/2002	5:37 PM	61 kts.	0	0	0	0
83 Hamburg	8/16/2002	9:55 PM	52 kts.	0	0	0	0
84 Norwood	8/16/2002	10:00 PM	52 kts.	0	0	0	0
85 Cologne	8/16/2002	11:20 PM	52 kts.	0	0	0	0
86 Waconia	6/24/2003	1:30 AM	50 kts.	0	0	0	0
87 Chaska	7/4/2003	2:05 AM	55 kts.	0	0	0	0

Section 4

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
88 Waconia	4/18/2004	5:15 PM	50 kts.	0	0	0	0
89 Chaska	4/18/2004	6:37 PM	52 kts.	0	0	0	0
90 Cologne	5/9/2004	4:27 PM	50 kts.	0	0	0	0
91 Chanhassen	5/9/2004	4:35 PM	52 kts.	0	0	0	0
92 Chaska	9/23/2004	12:30 PM	52 kts.	0	0	0	0
93 Chanhassen	10/29/2004	4:30 PM	50 kts.	0	0	0	0
94 Countywide	6/8/2005	2:10 AM	55 kts.	0	0	0	0
95 Watertown	6/8/2005	2:15 AM	54 kts.	0	0	0	0
96 Countywide	6/13/2005	5:45 PM	52 kts.	0	0	0	0
97 Chaska	6/20/2005	12:50 PM	52 kts.	0	0	0	0
98 Chaska	6/29/2005	8:53 PM	52 kts.	0	0	0	0
99 Chaska	6/29/2005	9:19 PM	50 kts.	0	0	0	0
100 Hamburg	9/3/2005	4:04 PM	52 kts.	0	0	0	0
101 Norwood	9/12/2005	10:10 PM	52 kts.	0	0	0	0
102 Norwood	6/24/2006	2:15 PM	55 kts.	0	0	0	0
103 Cologne	6/24/2006	2:38 PM	55 kts.	0	0	0	0
104 Carver	6/24/2006	2:40 PM	55 kts.	0	0	0	0
105 Chaska	7/13/2006	7:33 PM	55 kts.	0	0	0	0
106 Norwood	7/8/2007	14:15 PM	50 kts.	0	0	OK	OK
107 New Germany	7/8/2007	14:20 PM	60 kts.	0	0	OK	OK
108 Victoria	8/11/2007	2:10 AM	54 kts.	0	0	OK	OK
109 Chanhassen	8/11/2007	2:15 AM	50 kts.	0	0	OK	OK
110 Chaska	8/11/2007	2:15 AM	50 kts.	0	0	OK	OK
111 Waconia	8/28/2007	1:33 AM	50 kts.	0	0	OK	OK
112 Waconia	8/28/2007	1:33 AM	55 kts.	0	0	OK	OK
113 Watertown	8/28/2007	1:37 AM	52 kts.	0	0	OK	OK
114 Watertown	9/20/2007	16:10 PM	55 kts.	0	0	OK	OK

Location	Date	Type	Mag	Dth	Inj	PrD	CrD
115 Carver	9/24/2007	16:20 PM	50 kts.	0	0	0K	0K
116 Hamburg	6/11/2008	20:26 PM	55 kts.	0	0	0K	0K
117 Waconia	6/14/2008	20:17 PM	55 kts.	0	0	0K	0K
118 Chaska	6/14/2008	20:20 PM	56 kts.	0	0	0K	0K
119 Chaska	7/7/2008	19:45 PM	52 kts.	0	0	0K	0K
120 Chanhassen	7/10/2008	11:42 AM	51 kts.	0	0	0K	0K
121 Zumbra Hgts	7/10/2008	11:48 AM	55 kts.	0	0	0K	0K
122 Waconia	7/10/2008	11:54 AM	64 kts.	0	0	0K	0K
123 Waconia	7/10/2008	12:07 PM	52 kts.	0	0	0K	0K
124 Mayer	7/11/2008	19:00 PM	50 kts.	0	0	0K	0K
125 Chanhassen	6/17/2010	18:27 PM	52 kts.	0	0	5K	0K
126 Norwood	8/13/2010	12:20 AM	52 kts.	0	0	0K	0K
127 Carver	8/13/2010	1:20 AM	56 kts.	0	0	0K	0K
			TOTALS:	0	3	14.240M	0

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** In evaluating assets that are susceptible to severe thunderstorms, it was determined that all critical facilities as well as all public, private, and commercial property is susceptible to severe thunderstorms.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of a severe thunderstorm and no way to predict where a storm will hit. People are vulnerable to severe thunderstorms through power outages, effects on transportation routes, establishment of shelters, roofs blown off structures, etc. This is particularly true for severe thunderstorms, since they occur frequently within the county.
- **Environment Risk/Vulnerability.** Risks to the environment are minimal for a severe thunderstorm. Severe thunderstorms can cause flooding, which in turn can affect and create contamination of potable water for public consumption.

Section 4

Vulnerability

Severe Thunderstorms

Frequency of Occurrence	Highly Likely
Warning Time	Minimal
Geographic Extent	Community-wide
Potential Impact	Moderate to Major

Multijurisdictional Concerns

All of Carver County could be affected by severe thunderstorm and high winds. As a result, any mitigation steps taken related to severe thunderstorm winds should be undertaken on a countywide basis.

Land Use and Development Trends

Carver County currently has no land use or development trends related to severe thunderstorm winds.

Hazard Summary

Overall, severe thunderstorm winds pose one of the greatest threats to Carver County in terms of property damage as well as injuries and loss of life. Severe thunderstorm winds are the most frequently occurring natural hazard in the county and have the greatest chance of affecting the county each year. Based on the frequency of this hazard as well as its ability to negatively impact the county, the pre-disaster mitigation measures identified in this plan should be aggressively pursued.

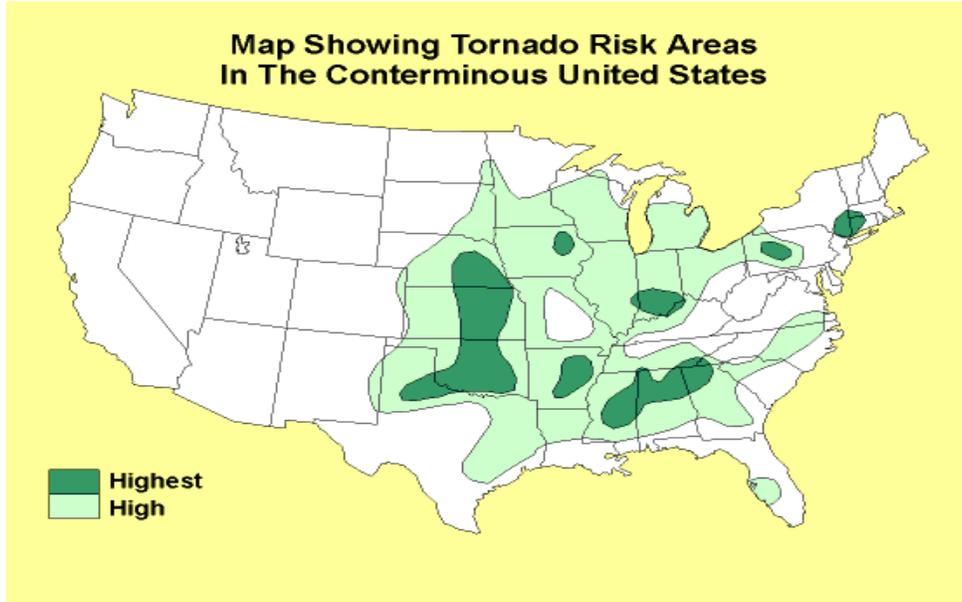
4.3.1.3 Tornadoes

Hazard Identification

Historical data from both SHELDUS and the NCDC was reviewed in researching the past events and effects of tornadoes in Carver County. A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornado season in Minnesota runs ordinarily from March through August; however, tornadoes can strike at any time of the year if the essential conditions are present.¹

¹ Source: National Weather Service, <http://www.nws.noaa.gov>

**Figure 4-2
Tornado Risk Areas in the Conterminous United States**



Hazard Profile

All of Carver County is vulnerable to the threat of a tornado because no one can predict exactly when or where a tornado might strike. Carver County has not experienced a tornado within the last 10 years. In addition, countless tornado watches have been recorded during this period. Trend analysis indicates that a tornado will touch down in Carver County every 10 years. This equates to a 10 percent chance of a tornado touching down in Carver County in any given year. Tornadoes tend to strike in somewhat random fashion, making the task of reliably calculating a recurrence interval extremely difficult. The damage potential associated with a tornado is extremely high. In 2000, a category EF0 tornado touched down in Carver County resulting in no injuries.

**Table 4-3⁹
Confirmed Tornadoes**

Location	Date	Type	Death	Injuries	Property Damage
Waconia	6/30/1994	F0	0	0	0
Norwood	6/6/1996	F0	0	0	0
Cologne	10/29/1996	F0	0	0	0
Mayer	7/25/2000	F0	0	0	0

⁹ Source: National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/ncdc.html>

Section 4

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** It can be assumed that all structures and facilities within Carver County could be damaged by a tornado because tornadoes are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of a tornado and no way to predict when or where a tornado will hit. People are vulnerable to the effects of tornadoes, including power outages, disruption to transportation routes, damage to shelter, flying debris, etc. This is particularly true due to a 10 percent chance of a tornado occurring in any given year in the county.
- **Environment Risk/Vulnerability.** Risks to the environment can be significant. Environmental risks can include flying debris and destruction of critical infrastructure that damage and affect water supply and contamination of potable water for public consumption.

Estimate of Potential Losses

An obstacle to accurate loss estimation is the fact that losses may vary widely even within one category of natural hazard, depending on place and location. For instance, a tornado may hop from one location to another in a primarily rural area of the county, creating virtually no economic damage, whereas a similar hazard incident in an urban area might create millions of dollars in damages. Compounding this obstacle to accurate loss estimation is that tornadoes range considerably in their intensity and duration. When estimating losses related to tornado events, it can be assumed that structures or facilities with the greatest replacement value will be those that sustain the most monetary damage. In addition, facilities with vulnerable populations include nursing homes and personal care homes as well as public and private schools located throughout the county.

Vulnerability

Tornadoes	
Frequency of Occurrence	Likely
Warning Time	Minimal
Geographic Extent	Community-wide
Potential Impact	Major

Land Use and Development Trends

Carver County currently has no land use or development trends related specifically to tornadoes. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

Multijurisdictional Concerns

All of Carver County has the same design wind speed of 200 mph, as determined by the American Society of Civil Engineers (ASCE). As stated previously, the entire county could be affected by a tornado. As a result, any mitigation steps taken related to tornadoes should be undertaken on a countywide basis.

Hazard Summary

Overall, Carver County has high exposure to potential damage from tornadoes. Should a tornado hit certain portions of the county that are



Source: University of Minnesota

highly concentrated with homes or any of the critical facilities identified, depending upon the strength and duration of the incident, significant damage could occur. Due to the destructive nature of tornadoes, it is imperative that pre-disaster mitigation measures be identified.



4.3.1.4 Lightning

Hazard Identification

Carver County researched historical data from the NCDC and the NWS as well as information from past newspaper articles relating to lightning strikes in Carver County. By definition, all thunderstorms are accompanied by lightning. The electrical charge from lightning could be as much as 100 million volts. Lightning strikes proceed from cloud to cloud, cloud to ground, or where high structures are involved, from ground to cloud. Lightning strikes in Carver County are most prevalent in May and August.

Hazard Profile

Lightning, as with many natural hazards, can strike anywhere and at any time. Data from NCDC reported three incidents of lightning strikes in Carver County since 1995 and local knowledge indicates many more instances. In 1991, a lightning strike occurred at the Hazeltine National Golf Course in Chaska, Minnesota. The golf course was hosting the U.S. Open, one of the largest Professional Golf Association (PGA) tournaments, when a storm rolled in on June 13, the first day of the tournament. Lightning struck a tree near the 16th hole, killing one and injuring five other spectators standing underneath it.¹⁰

¹⁰ http://157.166.226.103/golfonline/2002/pgachampionship/news/2002/08/14/storm_ap/

Table 4-4¹¹
Lightning 1/01/1950 thru 01/01/2011

Location or County	Date	Time	Type	Magnitude	Death	Injuries	Property Damage
1 Norwood	7/17/1997	1:00 AM	Lightning	N/A	0	0	0
2 Carver	6/5/1999	3:32 PM	Lightning	N/A	0	1	0
3 Chaska	8/9/2005	2:00 PM	Lightning	N/A	0	0	0

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** In evaluating assets that are susceptible to lightning strikes, the committee determined that all critical facilities as well as all public, private, and commercial property are susceptible to being struck by lightning.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county, since there is no way to determine the impact/magnitude of a lightning strike/incident and no way to predict where lightning will hit. People are vulnerable to lightning strikes/events through power outages, effects on transportation routes, establishment of shelters, being struck by lightning, etc. This is particularly true due to a significant chance of a lightning strike occurring in any given year in the county.
- **Environment Risk/Vulnerability.** Risks to the environment are low for a lightning strike/incident.

Multijurisdictional Concerns

All of Carver County could be affected by lightning. As a result, any mitigation steps taken related to lightning should be undertaken on a countywide basis.

Estimate of Potential Losses

Lightning strikes can cause varying degrees of damage to a facility. Most common is lightning destroying the electrical components of a facility or damage related to fire after a lightning strike. Unlike most other natural hazards, lightning could potentially damage or destroy the contents of a structure (computers, televisions, phones, etc.) without any effect on the structure itself. As stated previously, all structures are vulnerable to a lightning strike and were evaluated for potential losses.

Vulnerability

Lightning Strikes

Frequency of Occurrence	Likely
Warning Time	None
Geographic Extent	Localized
Potential Impact	Minor

¹¹ Source: National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/ncdc.html>

Land Use and Development Trends

Carver County does not currently have land use or development trends related to lightning.

Hazard Summary

Lightning strikes, although rare in occurrence, have a high danger potential associated with them. Lightning, as with some of the other natural hazards typical to Carver County, can strike anywhere and at any time. Its unpredictability along with its deadly and destructive potential is all the more reason to explore mitigation actions.

4.3.1.5 Extreme Temperatures

Hazard Identification

Extreme temperatures include both cold and hot events, which can have a significant impact on human health and commercial/agricultural businesses, and primary and secondary effects on infrastructure (for example, burst pipes and power failure). What constitutes “extreme cold” or “extreme heat” can vary across different areas of the country based on what the population is accustomed to in their respective climates.

Hazard Profile

Carver County has experienced extreme cold conditions in the past. According to the NCDC, Carver County has experienced extremely cold temperatures/weather nearly every year since 1994.

The NCDC defines extreme heat as temperatures that hover 10 degrees or more above the average high temperature for a region and last for several weeks. Extreme heat does not occur frequently in Carver County, but there were occurrences in 2006, 2001, and 1995.

**Table 4-5
Extreme Temperatures Events¹²**

Location	Date	Type	Death	Injuries	Property Damage
All Of Minnesota	1/15/1994	Extreme cold	1	0	0
South And Portions Of Minnesota	7/10/1995	Heat wave	2	0	2 M
Carver County	1/18/1996	Extreme windchill	0	0	0
Carver County	1/31/1996	Extreme cold	0	0	0
Carver County	2/1/1996	Extreme cold	0	0	0
Carver County	12/24/1996	Extreme cold	0	0	0
Carver County	1/15/1997	Extreme windchill	0	0	0
Carver County	7/23/1999	Excessive heat	1	0	0
Carver County	7/29/1999	Excessive heat	0	0	0

¹² Source: National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/ncdc.html>

Section 4

Location	Date	Type	Death	Injuries	Property Damage
Carver County	7/30/2001	Excessive heat	0	0	0
Carver County	8/1/2001	Excessive heat	1	0	0
Carver County	8/4/2001	Excessive heat	5	0	0
Carver County	7/30/2006	Heat	0	0	0
Carver County	2/10/2008	Cold/windchill	0	0	0
Carver County	2/19/2008	Cold/windchill	0	0	0
Carver County	1/14/2009	Cold/windchill	0	0	0

Assets Exposed to Hazard

- Property Risk/Vulnerability.** It was determined that all critical facilities as well as all public, private, and commercial property are susceptible to being affected by extreme temperatures.
- People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of an extreme temperature incident and no way to predict where and when an extreme temperature incident will hit. People are vulnerable to the effects extreme temperatures, including power outages, effects on transportation routes, establishment of shelters, etc. Those with existing medical conditions affected by extreme temperatures and the elderly population may be at higher risk.
- Environment Risk/Vulnerability.** Risks to the environment are low should an extreme temperature incident occur, and the frequency of extreme temperatures in the county is high. Environmental concerns include interruption of water supply (such as water pipes freezing, frozen power lines, etc.) and secondary events such as fires and hazardous materials accidents.

Vulnerability

Extreme Temperatures

Frequency of Occurrence	Likely
Warning Time	More than 12 hours
Geographic Extent	Countywide
Potential Impact	Negligible

Multijurisdictional Concerns

All of Carver County is subject to extreme temperatures and therefore should be included in any prospective mitigation projects. The probability of extreme temperatures occurring in the future is relatively low based on previous data. The entire county is at risk of extreme temperature events. Extreme temperatures affect Carver County equally and uniformly.

Land Use and Development Trends

There are no future development trends in Carver County that will be affected by extreme temperatures.

Hazard Summary

Extreme temperatures have occurred across the entire of Carver County area. Extreme temperature effects are seen in different regions and vary depending on normal meteorological conditions such as either extreme heat or extreme cold. Extreme temperatures are possible throughout the planning area, with the northern portion of the state being susceptible for extreme cold temperatures during the winter months of the year.

4.3.1.6 Hailstorms

Hazard Identification

Hail is a form of precipitation composed of spherical lumps of ice. Known as hailstones, these ice balls typically range from 5–50 mm in diameter on average, with much larger hailstones forming in severe thunderstorms. The size of hailstones is a direct function of the severity and size of the storm.

Hazard Profile

Data on the probability and frequency of occurrence of hailstorms is limited, with little recent research. The available data shows that only a localized area along the border of northern Colorado and southern Wyoming experiences hailstorms eight or more days each year. Outside of the coastal regions, most of the United States experiences hailstorms at least two or more days each year.

Hailstorms occur more frequently during the late spring and early summer, when the jet stream migrates northward across the Great Plains. This period has extreme temperature changes from the ground surface upward into the jet stream, which produces the strong updraft winds needed for hail formation.

Peak periods for hailstorms coincide with the Midwest’s peak agricultural seasons for crops such as wheat, corn, barley, oats, rye, tobacco, and fruit trees. Long-stemmed vegetation is particularly vulnerable to damage by hail impacts and winds. The land area affected by individual hail events is not much smaller than that of a parent thunderstorm, an average of 15 miles in diameter around the center of a storm. All of Carver County is vulnerable to hail.

**Table 4-6
Hail Events¹³**

Location	Date	Type	Magnitude	Dth	Inj	PrD	Crd
1 CARVER	7/14/1956	Hail	2.00 in.	0	0	0	0
2 CARVER	7/22/1962	Hail	2.00 in.	0	0	0	0
3 CARVER	7/22/1962	Hail	2.50 in.	0	0	0	0
4 CARVER	4/5/1967	Hail	1.00 in.	0	0	0	0
5 CARVER	6/12/1970	Hail	0.75 in.	0	0	0	0
6 CARVER	5/26/1972	Hail	1.50 in.	0	0	0	0
7 CARVER	7/29/1973	Hail	1.75 in.	0	0	0	0

¹³ Source: National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/ncdc.html>

Section 4

Location	Date	Type	Magnitude	Dth	Inj	PrD	Crđ
8 CARVER	4/17/1975	Hail	1.75 in.	0	0	0	0
9 CARVER	5/25/1975	Hail	0.75 in.	0	0	0	0
10 CARVER	6/4/1975	Hail	1.75 in.	0	0	0	0
11 CARVER	4/29/1981	Hail	1.75 in.	0	0	0	0
12 CARVER	9/17/1983	Hail	1.75 in.	0	0	0	0
13 CARVER	8/7/1984	Hail	1.75 in.	0	0	0	0
14 CARVER	4/20/1985	Hail	1.00 in.	0	0	0	0
15 CARVER	5/13/1987	Hail	0.75 in.	0	0	0	0
16 Chaska	6/30/1994	Hail	1.75 in.	0	0	0	0
17 Victoria	6/30/1994	Hail	2.75 in.	0	0	0	0
18 Hamburg	7/1/1997	Hail	1.00 in.	0	0	0	0
19 Young America	7/1/1997	Hail	1.50 in.	0	0	0	0
20 Chanhassen	7/1/1997	Hail	0.75 in.	0	0	0	0
21 Chaska	7/13/1997	Hail	1.75 in.	0	0	0	0
22 Hamburg	10/6/1997	Hail	0.75 in.	0	0	0	0
23 Carver	10/6/1997	Hail	0.75 in.	0	0	0	0
24 Cologne	5/15/1998	Hail	1.00 in.	0	0	0	0
25 Chanhassen	8/22/1998	Hail	0.75 in.	0	0	0	0
26 East Union	6/5/1999	Hail	1.50 in.	0	0	0	0
27 Carver	6/5/1999	Hail	1.75 in.	0	0	0	0
28 Mayer	6/6/1999	Hail	1.50 in.	0	0	0	0
29 Norwood	6/6/1999	Hail	1.75 in.	0	0	0	0
30 Norwood	6/6/1999	Hail	2.75 in.	0	0	0	0
31 New Germany	8/7/2000	Hail	0.75 in.	0	0	0	0
32 Chanhassen	9/2/2000	Hail	1.75 in.	0	0	0	0
33 Hamburg	5/1/2001	Hail	1.75 in.	0	0	0	0
34 Hamburg	5/1/2001	Hail	1.75 in.	0	0	0	0

RISK AND VULNERABILITY ASSESSMENT

Location	Date	Type	Magnitude	Dth	Inj	PrD	Crd
35 Chaska	5/1/2001	Hail	0.75 in.	0	0	0	0
36 Chanhassen	5/1/2001	Hail	0.88 in.	0	0	0	0
37 Chanhassen	5/1/2001	Hail	1.75 in.	0	0	500K	0
38 Norwood	5/9/2001	Hail	0.88 in.	0	0	0	0
39 Carver	5/9/2001	Hail	1.00 in.	0	0	0	0
40 Cologne	5/9/2001	Hail	0.75 in.	0	0	0	0
41 Young America	6/11/2001	Hail	1.00 in.	0	0	0	0
42 New Germany	6/11/2001	Hail	0.75 in.	0	0	0	0
43 Waconia	6/11/2001	Hail	2.75 in.	0	0	15.0M	0
44 Norwood	6/11/2001	Hail	1.00 in.	0	0	0	0
45 Watertown	6/11/2001	Hail	2.50 in.	0	0	0	0
46 Chaska	6/11/2001	Hail	0.75 in.	0	0	0	0
47 Hamburg	4/18/2002	Hail	1.00 in.	0	0	0	0
48 Waconia	4/18/2002	Hail	0.75 in.	0	0	0	0
49 Chaska	5/8/2002	Hail	0.75 in.	0	0	0	0
50 New Germany	6/6/2002	Hail	0.75 in.	0	0	0	0
51 Young America	6/7/2002	Hail	0.75 in.	0	0	0	0
52 Hamburg	6/7/2002	Hail	1.00 in.	0	0	0	0
53 Young America	6/7/2002	Hail	0.75 in.	0	0	0	0
54 Watertown	6/10/2002	Hail	1.75 in.	0	0	0	0
55 Watertown	6/24/2002	Hail	1.75 in.	0	0	0	0
56 Watertown	7/27/2002	Hail	0.75 in.	0	0	0	0
57 Young America	8/3/2002	Hail	0.75 in.	0	0	0	0
58 Norwood	8/16/2002	Hail	1.00 in.	0	0	0	0
59 East Union	9/1/2002	Hail	0.75 in.	0	0	0	0
60 Watertown	9/1/2002	Hail	0.75 in.	0	0	0	0
61 Hamburg	4/18/2004	Hail	0.75 in.	0	0	0	0
62 Cologne	4/18/2004	Hail	0.75 in.	0	0	0	0

Section 4

Location	Date	Type	Magnitude	Dth	Inj	PrD	Crđ
63 Victoria	5/9/2004	Hail	0.75 in.	0	0	0	0
64 Waconia	7/31/2004	Hail	0.75 in.	0	0	0	0
65 Chanhassen	6/7/2005	Hail	0.75 in.	0	0	0	0
66 Waconia	6/20/2005	Hail	1.75 in.	0	0	0	0
67 Hamburg	6/24/2005	Hail	0.75 in.	0	0	0	0
68 Gotha	6/29/2005	Hail	0.88 in.	0	0	0	0
69 Chaska	6/29/2005	Hail	0.75 in.	0	0	0	0
70 Norwood	8/8/2005	Hail	0.75 in.	0	0	0	0
71 Waconia	9/3/2005	Hail	0.75 in.	0	0	0	0
72 Victoria	9/4/2005	Hail	1.00 in.	0	0	0	0
73 Chaska	9/4/2005	Hail	1.75 in.	0	0	0	0
74 Chanhassen	9/4/2005	Hail	0.75 in.	0	0	0	0
75 Chanhassen	9/4/2005	Hail	0.88 in.	0	0	0	0
76 Cologne	9/12/2005	Hail	0.88 in.	0	0	0	0
77 Norwood	9/12/2005	Hail	0.75 in.	0	0	0	0
78 Hamburg	9/21/2005	Hail	0.75 in.	0	0	0	0
79 Norwood	9/21/2005	Hail	1.75 in.	0	0	0	0
80 East Union	9/21/2005	Hail	0.75 in.	0	0	0	0
81 Hamburg	4/6/2006	Hail	1.75 in.	0	0	0	0
82 Norwood	4/6/2006	Hail	0.75 in.	0	0	0	0
83 Cologne	4/6/2006	Hail	0.88 in.	0	0	0	0
84 Cologne	4/6/2006	Hail	1.00 in.	0	0	0	0
85 Chaska	4/6/2006	Hail	0.88 in.	0	0	0	0
86 Chaska	4/6/2006	Hail	0.75 in.	0	0	0	0
87 Young America	6/24/2006	Hail	0.75 in.	0	0	0	0
88 Hamburg	6/24/2006	Hail	0.75 in.	0	0	0	0
89 Bongards	6/24/2006	Hail	1.75 in.	0	0	0	0

RISK AND VULNERABILITY ASSESSMENT

Location	Date	Type	Magnitude	Dth	Inj	PrD	CrD
90 Watertown	7/1/2006	Hail	1.25 in.	0	0	0	0
91 Hamburg	8/24/2006	Hail	0.88 in.	0	0	0	0
92 Norwood	8/24/2006	Hail	0.75 in.	0	0	0	0
93 Waconia	4/30/2007	Hail	0.88 in.	0	0	OK	OK
94 Chaska	4/30/2007	Hail	0.75 in.	0	0	OK	OK
95 Watertown	6/20/2007	Hail	1.75 in.	0	0	OK	OK
96 Watertown	6/20/2007	Hail	1.75 in.	0	0	OK	OK
97 Waconia	6/20/2007	Hail	1.00 in.	0	0	OK	OK
98 Chaska	6/20/2007	Hail	1.75 in.	0	0	OK	OK
99 Cologne	6/20/2007	Hail	0.75 in.	0	0	OK	OK
100 Chanhassen	6/20/2007	Hail	1.75 in.	0	0	OK	OK
101 Cologne	6/20/2007	Hail	1.50 in.	0	0	OK	OK
102 Carver	6/20/2007	Hail	1.00 in.	0	0	OK	OK
103 New Germany	7/8/2007	Hail	0.88 in.	0	0	OK	OK
104 Mayer	7/8/2007	Hail	0.75 in.	0	0	OK	OK
105 Watertown	8/11/2007	Hail	0.88 in.	0	0	OK	OK
106 Watertown	8/11/2007	Hail	0.75 in.	0	0	OK	OK
107 Chaska	8/11/2007	Hail	0.88 in.	0	0	OK	OK
108 New Germany	8/28/2007	Hail	0.75 in.	0	0	OK	OK
109 Watertown	9/20/2007	Hail	1.75 in.	0	0	OK	OK
110 Norwood	5/30/2008	Hail	0.75 in.	0	0	OK	OK
111 Mayer	5/30/2008	Hail	0.75 in.	0	0	OK	OK
112 Hamburg	6/5/2008	Hail	0.88 in.	0	0	OK	OK
113 Waconia	6/5/2008	Hail	0.75 in.	0	0	OK	OK
114 Waconia	6/5/2008	Hail	0.75 in.	0	0	OK	OK
115 Victoria	6/5/2008	Hail	0.88 in.	0	0	OK	OK
116 Chaska	6/5/2008	Hail	0.88 in.	0	0	OK	OK
117 Chanhassen	6/5/2008	Hail	1.00 in.	0	0	OK	OK

Section 4

Location	Date	Type	Magnitude	Dth	Inj	PrD	CrD
118 Chaska	6/5/2008	Hail	0.75 in.	0	0	0K	0K
119 Chaska	6/5/2008	Hail	0.88 in.	0	0	0K	0K
120 Norwood	6/11/2008	Hail	0.88 in.	0	0	0K	0K
121 Young America	6/27/2008	Hail	0.88 in.	0	0	0K	0K
122 New Germany	7/10/2008	Hail	0.88 in.	0	0	0K	0K
123 Waconia	7/10/2008	Hail	1.00 in.	0	0	0K	0K
124 Waconia	7/10/2008	Hail	1.00 in.	0	0	0K	0K
125 Waconia	7/10/2008	Hail	0.88 in.	0	0	0K	0K
126 Coney Is	7/10/2008	Hail	0.88 in.	0	0	0K	0K
127 Maple	7/10/2008	Hail	0.88 in.	0	0	0K	0K
128 Chanhassen	7/10/2008	Hail	0.88 in.	0	0	0K	0K
129 Chaska	7/10/2008	Hail	0.75 in.	0	0	0K	0K
130 Norwood	7/11/2008	Hail	0.75 in.	0	0	0K	0K
131 Watertown	7/21/2009	Hail	1.00 in.	0	0	0K	0K
132 Watertown	7/17/2010	Hail	2.75 in.	0	0	1.5M	2.0M
				TOTALS:	0	17.000M	2.000M

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** It was determined that all critical facilities as well as all public, private, and commercial properties are susceptible to being affected by a hailstorm.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of a hailstorm incident and no way to predict where and when a hailstorm will hit. People are vulnerable to the effects of hailstorms, including power outages, effects on transportation routes, damage to homes and cars, etc.
- **Environment Risk/Vulnerability.** Risks to the environment are low should a hailstorm occur.

Vulnerability

Hailstorms

Frequency of Occurrence	Likely
Warning Time	3-6 hours
Geographic Extent	Community-wide
Potential Impact	Minor

Land Use and Development Trends

Future development throughout Carver County will result in the potential damage of property from hailstorms since no property is immune from their effects.

Multijurisdictional Concerns

All of Carver County is subject to hailstorms and therefore should be included in any prospective mitigation projects. The probability of hailstorms occurring in the future is relatively high based on previous data. Hailstorms affect Carver County equally and uniformly.

Hazard Summary

The severity of hailstorms is measured by duration, size of the hail itself, and geographic extent. All of these factors are directly related to the weather phenomena that create hail and thunderstorms. There is wide potential variation in these severity components. The size of the hail is a direct function of the severity and size of the storm. The duration of each storm varies but rarely lasts longer than a couple of hours.

Hailstorms rarely result in the loss of human life but they cause nearly \$1 billion in property, livestock, and crop damage in the United States each year. Once a hailstone reaches the size of about 1.5 inches in diameter, damage to cars, windows, and siding will occur. There are no known instances of injuries or death from hailstorm events in Carver County. Although typically not life-threatening, severe hailstorms have the potential to cause significant property damage, particularly to automobiles and some building types. The development of hailstorms from thunderstorm events causes nearly \$1 billion in property and crop damage each year. The NCDC database indicates there have been no deaths or injuries from hailstorms between 1950 and 2007.

4.3.2 Wildfires

Hazard Identification

A wildfire is the uncontrolled burning of woodlands, brush, or grasslands. According to FEMA, there are four categories of wildfires that are experienced throughout the United States:

- **Wildland Fires.** Fueled by natural vegetation. Typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression.
- **Interface or Intermix Fires.** Urban/wildland fires in which vegetation and the built-environment provide fuel.
- **Firestorms.** Events of such an extreme intensity that effective suppression is virtually impossible. Occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
- **Prescribed Fires and Prescribed Natural Fires.** Fires that are intentionally set or selected natural fires that are allowed to burn for beneficial purposes.

Wildfires can be a result of naturally occurring influences such as lightning, extreme drought, and heat as well as human influences such as a discarded cigarette butt, improperly extinguished campfire, or a stray spark from nearby railroad tracks. The potential for threat of wildfires is dependent upon topography and slope, surface fuel characteristics, recent climate conditions, current meteorological conditions, and fire behavior. Once a wildfire threatens a community, it is often too late to protect nearby structures, and populations have to be evacuated for their own safety. These fires have damaged structures and utilities as well as hundreds of acres of woodlands.

Section 4

Hazard Profile

From 1999 to 2010, there were 1,389 wildfires in the state of Minnesota. In Carver County, the primary months of occurrence are March through October, when high temperatures, possible drought conditions, and high winds increase the likelihood of wildfires.

On October 20, 2003, a combine malfunction led to a cornfield fire fueled by dry conditions and high winds. It destroyed more than 300 acres of fields and woods and all 11 fire departments within Carver County plus neighboring fire departments responded to the fire near Norwood Young America.

On April 2, 2010, a wildfire burned approximately 85 acres of swampland in Carver County. No structures were burned or damaged but 12 fire departments as well as the Minnesota DNR responded to control the blaze. The fire may have been caused by a smoldering recreational fire.

The potential for wildfires in 2012 is above average for the state of Minnesota. As such, this could be a significant hazard and vulnerability facing the community in the coming year.



Assets Exposed to Hazards

- **Property Risk/Vulnerability.** All assets in Carver 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.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county, since there is no way to determine the impact/magnitude of a wildfire incident and no way to predict where a wildfire incident will hit. People are vulnerable to wildfires through burning of structures, power outages,

effects on transportation routes, establishment of shelters, etc. People living in rural areas of the county are more vulnerable than people living in urban areas due to availability of fuel for a wildfire (woods, open spaces, green area, etc.).

- **Environment Risk/Vulnerability.** Risks to the environment are low for a wildfire incident due to the frequency of occurrence. Environmental concerns would be loss of vegetation and risk of erosion in areas that are affected by wildfires.

Vulnerability

Wildfires	
Frequency of Occurrence	Occasionally
Warning Time	Minimal
Geographic Extent	Localized to Community-wide
Potential Impact	Minor to Moderate

Multijurisdictional Concerns

All of Carver County is subject to wildfires and therefore should be included in any prospective mitigation projects. Rural areas of the county are more prone to wildfires than urban areas. The smoke from the fires may also affect the urban areas as well as the travel on highways and roads throughout Carver County.

Hazard Summary

Wildfires have the potential to cause extensive property damage in the Carver County area. Although no wildfires have been reported in Carver County in 2011, the entire county is susceptible to a wildfire and it remains a threat.

4.3.3 Flooding

Hazard Identification

Flood information for Carver County was retrieved from the NCDC, the NWS, FEMA, the Carver County Vulnerability Report and the National Flood Insurance Program (NFIP), as well as information from past newspaper articles relating to flooding in Carver County.

Hazard Profile

Research indicates that there have been 19 flood occurrences recorded for Carver County since 1997. Statistically, Carver County can expect flooding every 2–5 years. This equates to a 30 percent chance of flooding occurring in any given year.

In the past two years, FEMA has declared federal disaster assistance for four separate flooding incidents in Carver County. On March 19, 2010, a disaster was declared when the Minnesota River went above moderate flood stage and Crow River went well above major flood stage, causing several road closures. A federal declaration was also made in September 2010 when the Minnesota River crested at 33 feet—8 feet above flood stage—prompting closure of several roads. In May 2011, another federal disaster declaration was made following severe storms and flooding.

Seasonal flooding in the Minnesota River Valley forces road closures that can be costly to Carver County. Flooded roads are generally damaged by rapidly moving floodwaters and these damages have led to the

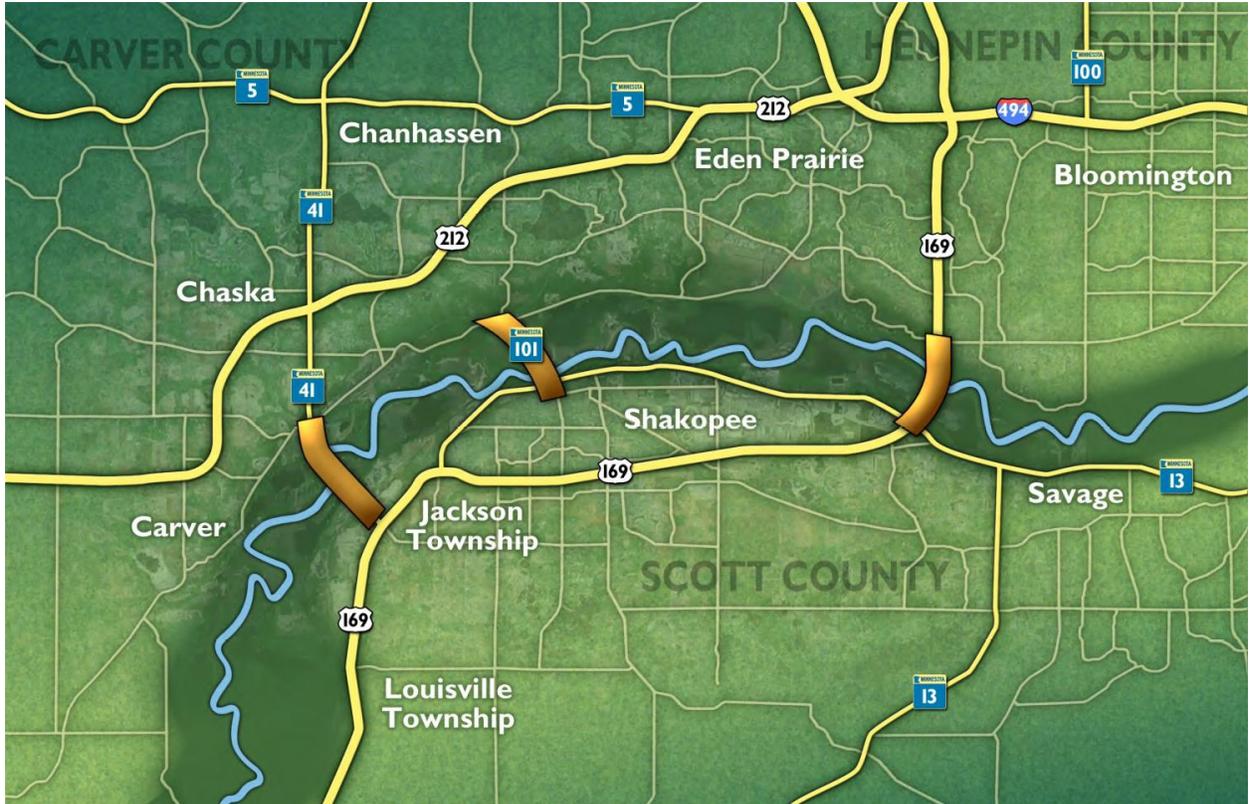
Section 4

previously mentioned disaster declaration. The two most vulnerable areas to road damage from flooding in Carver County include Highway 101 between Chanhassen and Shakopee and Highway 41 in Chaska¹⁴ (see figure below). The flooding to these river crossings causes closures that last several days to several weeks. The cost of such road closures to Carver County was \$670,000 in 2009 and is projected to grow to \$1,675,000 by 2030. The cost and frequency associated with flooding make it particularly hazardous to Carver County.¹⁵ County Road 11 between Jordan and Carver also causes flooding frequently.

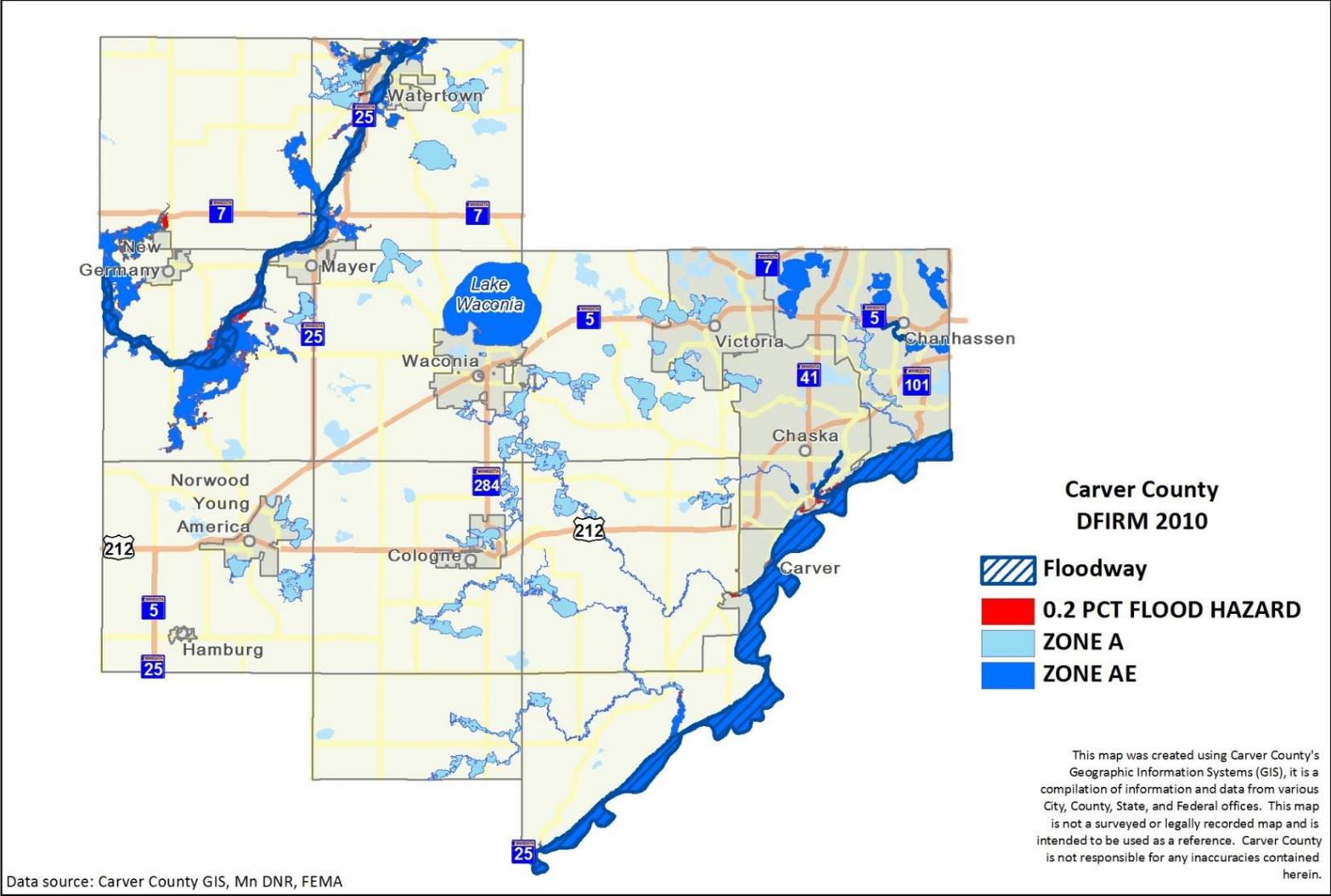
¹⁴ Minnesota River Flood Mitigation Study Final Report. Minnesota Department of Transportation. September 28, 2011.

¹⁵ Minnesota River Flood Mitigation Study Final Report. Minnesota Department of Transportation. September 28, 2011.

Figure 4-3
Minnesota River Flood Mitigation Study Final Report
Minnesota Department of Transportation September 28, 2011



FLOOD HAZARD AREAS IN CARVER COUNTY



**Table 4-7
Significant Floods Events in Carver County**

Location	Date	Type	Magnitude	Death	Injuries	Property Damage
Multiple Counties (16)	3/15/1997	Flood	N/A	0	0	0
Multiple Counties (4)	3/31/1997	Flood	N/A	0	0	0
Multiple Counties (14)	4/1/1997	Flood	N/A	0	0	0
Multiple Counties (4)	4/1/1997	Flood	N/A	0	0	0
Multiple Counties (15)	5/1/1997	Flood	N/A	0	0	0
Watertown	7/1/1997	Flash flood	N/A	0	0	0
Multiple Counties (42)	4/1/2001	Flood	N/A	3	1	200 M
Multiple Counties (20)	5/1/2001	Flood	N/A	0	0	0
Watertown	6/24/2002	Flash flood	N/A	0	0	0
Northwest Portion	6/25/2002	Flash flood	N/A	0	0	100 K
Carver	8/3/2002	Flash flood	N/A	0	0	0
Carver	8/21/2002	Flash flood	N/A	0	0	0
Chanhassen	9/4/2005	Flash flood	N/A	0	0	0
Chaska	10/4/2005	Flash flood	N/A	0	0	0
Multiple Counties (6)	10/4/2005	Flood	N/A	0	0	0
New Germany	3/16/2010	Flood	N/A	0	0	0
Watertown	3/16/2010	Flood	N/A	0	0	0
New Germany	3/17/2010	Flood	N/A	0	0	0
East Union	3/18/2010	Flood	N/A	0	0	240 K

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** Carver County is continuing to evaluate and prioritize properties for reconstruction and/or acquisition/removal.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined, that risk/vulnerability includes the entire population of the county. People living in and around identified floodplain areas are more vulnerable to a flooding incident than those who live/work out of floodplain areas, but these areas can still be impacted depending on the severity of the flooding incident. This is particularly true due to a significant chance of a flooding incident occurring in any given year in the county.

Section 4

- Environment Risk/Vulnerability.** Risks to the environment are high for a flooding incident should one occur. Most of the environmental risks would be access to water and the effects floodwater has on public water supply. Flooding can affect and create contamination of potable water for public consumption.

Vulnerability

Flooding	
Frequency of Occurrence	Likely
Warning Time	More than 12 hours
Geographic Extent	Community-wide
Potential Impact	Major

Estimate of Potential Losses

HAZUS-MH was used to estimate the damages incurred for a 100-year flood incident in Carver County. An estimated 26 buildings could be damaged, totaling \$15.7 million in building losses and \$32.5 million in total economic losses. HAZUS-MH estimates seven census blocks with losses exceeding \$1 million.

Land Use and Development Trends

Carver County has made and continues to make significant efforts to eliminate the placement of structures identified in flood hazard areas. The City of Carver is the only municipality to require funds for repetitive loss properties in Carver County. Due to 5 losses and 2 properties, \$49,703 in building payments and \$2,589 in contents payments were distributed to the city by the State of Minnesota.

Multijurisdictional Concerns

44 CFR Requirement 201.6 (c)(2)(ii)

The risk assessment **must** also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.

Previous mitigation measures have occurred at the county level. Carver County participates in the National Flood Insurance Program (NFIP) of the Federal Emergency Management Agency (FEMA). As a participating community, the county has adopted Floodplain Management practices through several ordinances that severely limit the development allowed in 100-year floodplains (the area inundated by a storm that has a 1 percent chance of happening in any year). Carver County standards require all new structures be constructed 2 feet above the existing water surface elevation of the 100-year floodplain or 1 foot above the "ultimate" water surface elevation. Maps detailing structures within floodplains can be found in appendix C.

The following Carver County communities are current participants in the NFIP:

Jurisdiction	Date of Entry into NFIP
Carver County	February 1, 1978
Carver, City of	September 8, 1972
Chanhassen, City of	July 2, 1979
Chaska, City of	September 8, 1972

Jurisdiction	Date of Entry into NFIP
Mayer, City of	May 29, 2002
Norwood Young America, City of	May 13, 1983
Victoria, City of	July 6, 1984
Waconia, City of	January 5, 1978
Watertown, City of	November 1, 1978

Carver County Repetitive Loss Information

Repetitive loss properties are a serious concern from a mitigation standpoint. A repetitive loss property is considered so when there are 2 or more flood insurance claims which were paid more than \$1,000 for each loss. The 2 losses must be within 10 years of each other and must be at least 10 days apart. A property is considered a severe repetitive loss property when there are at least 4 losses (each exceeding \$5,000), or when there are 2 or more losses where the building payments exceed the property value.

Based on information reported by 2011, two residential properties in Carver County have flood loss histories that meet the definition of repetitive loss.

**Table 4-8
Summary of Repetitive Loss Floods Claims, Carver County**

Rep Loss Properties	Losses	Total Building Payments	Total Content Payments	Total Payments
2	5	\$ 49,703	\$ 2,589	\$ 52,292

Source: Minnesota All-Hazards Mitigation Plan

Hazard Summary

The hazard for flooding in Carver County remains low, due largely in part to previous mitigation measures. The Carver County Multijurisdictional Hazard Mitigation Planning Committee recognized the dangers posed by flooding and has identified specific mitigation actions that have been taken and would be considered in the future.

4.3.4 Drought

Hazard Identification

Historical data from the NCDC and the Minnesota DNR were included while determining drought hazards in Carver County. By definition, a drought is a prolonged period of moisture deficiency. Drought conditions affect the cultivation of crops as well as water availability and water quality. Drought is also a key factor in wildfire development. Drought conditions make natural fuels (grass, brush, trees, dead vegetation) more fire-prone.

Section 4

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

*NDMC - National Drought Mitigation Center

Hazard Profile

Carver County experienced its worst drought in the 1930s and again experienced drought conditions in 1976. To date, agricultural losses have been the primary losses associated with drought, as no critical facilities have sustained any damage or functional downtime due to dry weather conditions. Because of the extremely unpredictable nature of drought (including duration), reliably calculating a recurrence interval is difficult.

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** Drought conditions typically pose little or no threat to structures; however, fires can occur as a result of dry weather. The Carver County Multijurisdictional Hazard Mitigation Planning Committee concluded that drought in itself presents no credible threat to critical facilities. The drought could result in the loss of the availability of municipal water supply. This threat has been addressed by mitigation actions. Wildfire because of drought was considered, and the committee determined that since previous instances of wildfire in the county have been relatively minimal, it does not bear a significant threat to the community.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the county since there is no way to determine the impact/magnitude of a drought incident. People are vulnerable to the effects of drought, including reduction to the available water supply (both public and private wells), wildfires, and limited ability to grow and water crops.
- **Environment Risk/Vulnerability.** Risks to the environment are high for a drought incident. Environmental concerns would be loss of vegetation and risk of erosion in areas that area affected by drought and reduced availability of water supply (both public and private wells).

Vulnerability

Drought

Frequency of Occurrence	Likely
Warning Time	More than 12 hours
Geographic Extent	Countywide
Potential Impact	Moderate to Major

Estimate of Potential Losses

No damage to facilities is anticipated as a result of drought conditions. Crop damage cannot be accurately quantified due to several unknown variables, including duration of the drought, temperatures during the drought, and severity of the drought. In addition, different crops require different amounts of rainfall and different growing seasons.

Land Use and Development Trends

Carver County has used water restrictions in the past and conservation programs were in place to address water consumption during the drought of 1976. As the population grows in Carver County and areas currently used for agriculture are urbanized, the county will become less vulnerable to droughts because the economy will not be as dependent on agriculture.

Multijurisdictional Concerns

Agricultural losses associated with drought are more likely to occur in the rural, less concentrated areas of the county.

Hazard Summary

Droughts do not have the immediate effects of other natural hazards, but sustained drought can cause severe economic stress to the agricultural interests in Carver County and the entire state. The potential negative effects of sustained drought are numerous. In addition to an increased threat of wildfires, drought can affect municipal and industrial water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources.

4.3.5 Epidemics/Pandemics

Hazard Identification

A widespread epidemic/pandemic incident is a plausible incident in Carver County. Epidemic/pandemic incidents are a danger to emergency responders, healthcare providers, schools, and the public. This can include influenza (e.g., H5N1), Severe Acute Respiratory Syndrome (SARS), or biological incidents without an available vaccine or treatment. Bioterrorism incidents are also included in this identified hazard area.

Hazard Profile

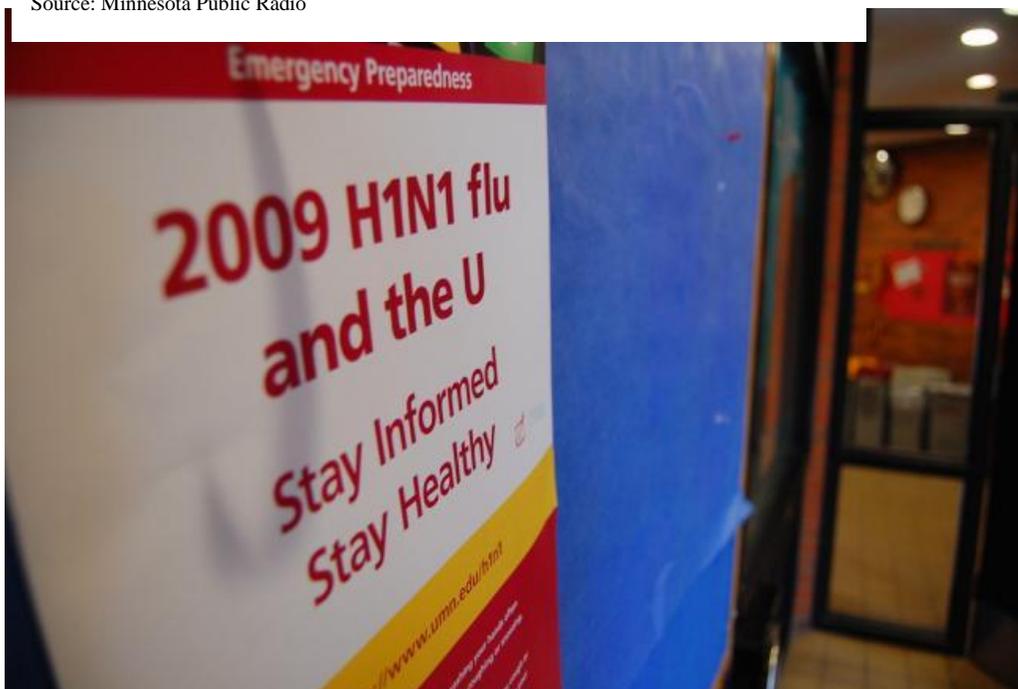
Seasonal influenza comes to Carver County every winter, usually between October and March. Influenza is a specific viral infection that is responsible for a substantial number of hospitalizations and deaths. The Centers for Disease Control and Prevention (CDC) estimates 36,000 excess deaths are caused by influenza each year in the United States. The continuous genetic changes in the virus, called “antigenic drift,” means that people can get sick from a slightly different influenza virus each year; last year’s flu shot does not prevent this year’s illness.

Historians estimate that over the last three centuries, there have been 10 influenza pandemics. A pandemic is an epidemic that affects the entire world. Influenza pandemics occur when the virus undergoes such dramatic changes that virtually no one has resistance to infection and there is no vaccine readily available for use. When this occurs, the number of people infected is much higher than during ordinary flu seasons. In addition, during some pandemics, the severity of illness is higher. For example, in 1918–1919, not only was the number of ill people high, but also the death rate was 50 times higher than usual. Furthermore, there was a shift in the age group most severely affected from the elderly to those 20–40 years of age. In contrast, the more recent pandemics of 1957 and 1968 caused far less dramatic increases in the death rate (only about two times the norm of 36,000 per year from regular flu). The H1N1 novel influenza virus rapidly established itself as a pandemic in 2009–2010, becoming the dominant influenza strain in most parts of the world. The current influenza vaccine includes this strain of virus and protects against H1N1. The outbreak of the H5N1 influenza strain (bird flu) in wild and domestic birds, which began in Asia in late 2003, is being carefully watched as a potential precursor to a pandemic since several hundred humans have been infected and died. Although the number of human infections is quite small, about 60 percent of those infected have died, demonstrating the severity of this infection. The conditions to trigger a pandemic are not yet present since, at this point, the H5N1 virus is not efficiently transmitted from human to human.

Vulnerability Assessment

All populations within Carver County are susceptible to epidemic/pandemic events that occur in the county.

Source: Minnesota Public Radio



Assets Exposed to Hazard

- **Property Risk/Vulnerability.** It was determined that all critical facilities as well as all public, private, and commercial properties are susceptible to being affected by an epidemic/pandemic incident due to people being ill and possibly being unable to maintain the facilities.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of Carver County since there is no way to determine the impact/magnitude of an epidemic/pandemic incident and no way to predict which target group(s) will be the most susceptible to the virus. In addition to sickness (morbidity) and death (mortality), the impact of human resources would suffer with the potential of 40 percent of the workforce becoming ill. Carver County’s current just-in-time economy would suffer major setbacks in community infrastructure such as public water supply, food, trucking, health care delivery, and energy resources.
- **Environment Risk/Vulnerability.** Risks to the environment are low should an epidemic/pandemic incident occur.

Vulnerability

Epidemics/Pandemics	
Frequency of Occurrence	Likely
Warning Time	More than 12 hours
Geographic Extent	Countywide
Potential Impact	Minor to Moderate

Although pandemics/epidemics like polio and plague have largely been eradicated from the world and tuberculosis is under control in the United States, past historical complications on human health were devastating and any new infectious diseases introduced to the world could have health emergency implications. Recent SARS, H1N1, and seasonal influenza cases demonstrate that health emergencies are unpredictable, can erupt quickly, and have significant impact on communities, including Carver County.

Land Use and Development Trends

As more and more people move into populated areas, all of Carver County is susceptible to outbreaks of pandemics/epidemics.

Multijurisdictional Concerns

No one area in Carver County is less susceptible than another from the effects of an epidemic/pandemic incident. Of course, the more densely populated the area is, the greater threat of the spread of the epidemic/pandemic.

Hazard Summary

Pandemics/epidemics pose a threat to all of Carver County. As part of a county effort, the staff from the Carver County Public Health department participates in emergency preparedness planning, drills, tabletop and functional exercises, and education and outreach together with local, state, and federal government agencies as well as health care organizations, private businesses, and other individuals from the community.

4.4 Technological Hazards

Technological hazards are distinct from natural hazards primarily in that they originate from human activity. In contrast, while the risks presented by natural hazards may be increased or decreased as a result of human activity, they are not inherently human-induced. The term “technological hazards” refers to the origins of incidents that can arise from human activities such as the manufacturing, transportation, storage, and use of hazardous materials.

4.4.1 Dam/Levee Failure

Hazard Identification

According to the State of Minnesota, dam hazard ranking is based on the National Inventory of Dams (NID) classification located in Carver County. The NID ranks dams according to the potential loss of life as well as the potential impacts on economic, environmental, and important community lifelines.

Hazard Profile

There have been no dam or levee failures in Carver County in the past. There have been no known deaths, injuries, or property damage from dam or levee failures in the County. The effects on life and property in the area could be significant if a dam were to fail because of the nature of the built environment.

There are three levees located in Carver County. There is currently a temporary levee located in Watertown that is in place to protect the wastewater treatment facility and a non-certified levee on the South Fork Crow River. There is a certified levee in Chaska and an uncertified levee in Carver.

Vulnerability Assessment

The probability of any dam failure or levee failure in the area is minimal. The low probability of an incident suggests that the potential for impacts is minimal. Based on historical records from the past 75 years, the probability of future dam and levee failure occurring in Carver County and the planning area is considered low.

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** It was determined that critical facilities as well as public, private, and commercial properties are susceptible to being affected by a dam failure if they are located in the inundation area.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the population of the county that is located in the dam failure inundation area in Chaska. Additionally, the populations of Carver and Watertown are vulnerable to levee failure. People are vulnerable to the effects of dam failure through power outages, effects on transportation routes, establishment of shelters, flooding, etc.
- **Environment Risk/Vulnerability.** Risks to the environment are high should a dam failure occur, but the frequency of dam failures in



Uncertified levee in the city of Carver (Chaska Herald)

Carver County is low. Environmental concerns would be interruption of water supply, water contamination, and loss of properties.

Vulnerability

Dam/Levee Failure

Frequency of Occurrence	Unlikely
Warning Time	3-6 Hours
Geographic Extent	Community-wide
Potential Impact	Major

Multijurisdictional Concerns

Areas located below around the aforementioned levees are susceptible to flooding and therefore should be included in any prospective mitigation projects. The probability of levee failure occurring in the future is relatively low based on previous data.

Hazard Summary

Carver County has experienced no dam or levee failures over the last 75+ years.

4.4.2 Terrorism

Hazard Identification

Terrorism is defined in the Code of Federal Regulations as, “The unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” The primary objectives of most terrorist groups include the following:

- Gain publicity.
- Stimulate loss of confidence in the government.
- Attract recruits.
- Get public support.
- Gain financial support, and ultimately weaken and overthrow the government.

Techniques used to gain an audience for their platform include hostage-taking, product-tampering, criminal extortion, arson, sabotage, threats against individual family members, assassinations, kidnapping, bombings, and armed attacks. The most likely targets of these forms of terrorism are political leaders, key military personnel, foreign missions, military facilities, corporate executives and facilities, and celebrities.

Hazard Profile

A major terrorism hazard incident has been determined to have a low likelihood of occurrence in Carver County. Therefore, although some hazard characterization information is presented below, no further risk assessment has been performed for this hazard. Additional analyses to further characterize the risks of this hazard and the development of suitable mitigation action



Section 4

items will be conducted in the future based on periodic reviews of this HMP and available resources

Terrorist incidents in this country prior to the September 11, 2001 attacks have included bombings of the World Trade Center (1993) in New York City, the United States Capitol Building in Washington, D.C., and Mobil Oil corporate headquarters in New York City. There was also the 1995 bombing of the Murrah Federal Building in Oklahoma City. In the United States, most terrorist incidents have involved small extremist groups using terrorism to further a designated objective or obtain publicity for a cause. Bombings have been the most frequent method of attack in the United States. Other possibilities include attacks against transportation facilities, utilities, or other public services, or an incident involving chemical or biological materials.

Unfortunately, the risk of terrorist acts exists in the state of Minnesota and cannot be ruled out for Carver County. Terrorist attacks can take a wide variety of forms, ranging from a verbal threat to sabotage to biological weapons to a bomb.

The most frequently used terrorist methods in the United States include, but are not limited to:

- **Bombs, Guns, and Explosives.** These are the “traditional” weapons used by terrorists worldwide. Typically, these weapons are less technically and resource demanding.
- **Biological Weapons.** These weapons use infectious microbes or toxins to produce illness or death in people, animals, or plants. Potential biological weapons include anthrax, botulism, smallpox, viral hemorrhagic fevers, water safety threats (for example, cholera), and food safety threats (for example, salmonella). Biological weapons are relatively difficult to cultivate and disseminate.
- **Chemical Weapons.** Chemical weapons cause severe health reactions designed to incapacitate or cause death. There is a wide array of potential chemical agents that could be used as weapons. These agents vary in how their effects on the body, required dose, exposure mechanism, length of exposure, toxicity, origination, and form (for example, liquid gas). Examples of chemical agents include sarin, mustard agent, VX, and cyanide.
- **Radiological and Nuclear Weapons.** Although there has been much speculation by media and various governmental agencies regarding the potential for a terrorist to obtain fissionable material or a nuclear bomb, there are no known unclassified cases of any such organization or group actually obtaining weapons-grade material. Constructing a nuclear bomb would be relatively difficult and require special resources, training, and materials.

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** All assets within Carver County are susceptible to being affected by a terrorist incident.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in the County, it was determined that risk/vulnerability includes the entire population of Carver County since there is no way to determine the impact/magnitude of a terrorist incident and no way to predict where and when a terrorist incident will occur. People are vulnerable to terrorist events through physical injury or disease, power outages, effects on transportation routes, establishment of shelters, effect of incident on mental state of the public, confidence of public in law enforcement support, etc.
- **Environment Risk/Vulnerability.** Risks to the environment are high should a terrorist incident occur but the frequency of terrorist events in Carver County are low. Environmental concerns would be interruption or contamination of water or food supplies, secondary events such as fires and hazardous materials accidents (such as gas pipelines rupturing, rupture of hazardous material containers at facilities, etc.).

Vulnerability

Terrorism	
Frequency of Occurrence	Unlikely
Warning Time	None - Minimal
Geographic Extent	Community-wide
Potential Impact	Negligible to Major

Land Use and Development Trends

Future development throughout Carver County will take into consideration possible events.

Multijurisdictional Concerns

All of the County is subject to events and therefore should be included in any prospective mitigation projects.

Hazard Summary

Although there have been no terrorist incidents in Carver County, multiple attacks in different areas of the United States remind us that terrorism is always a threat. Carver County officials work with state and federal officials on domestic preparedness efforts, the details of which go beyond the scope of this plan. The community should always remain vigilant to the threat of an attack, whether it be via explosives, agriculture, or a cyber-attack.

4.4.3 Hazardous Materials Spills

Hazard Identification

Hazardous materials (hazmat) incidents are technological events that involve large-scale releases of chemical, biological, or radiological materials. Hazardous materials are substances that are harmful to the health and safety of people and property. Hazardous materials spills often occur along roadways, highways, and railways. Facilities that produce, process, or store hazardous materials are at risk, as are facilities that treat or dispose of hazardous waste. Carver County is required by the State of Minnesota to regulate generators of hazardous waste.

Hazard Profile

Hazardous materials spills occur occasionally within the county. In recent years, there have been two hazardous materials incidents. In April 2007, a Carver County Sheriff’s Deputy discovered an ammonia leak after noticing a strong smell of ammonia near Highway 212 and County Road 36, in Cologne.¹⁶ The leak was from a 2,000-gallon tank and determined to be accidental. The response included the Cologne Fire Department, Waconia Fire department, Carver county hazmat team, Ridgeview Ambulance, and other environmental service crews.

¹⁶ http://www.chaska Herald.com/view/full_story/13405702/article-Ammonia-leak-closes-highway?instance=article_results

Section 4

The Carver County Hazmat Team was also required at a June 2009 explosion in Waconia.¹⁷ A gas explosion and fire occurred at Waconia Farm supply when an employee was refilling propane tanks. One person was killed. Fire departments from Waconia, Cologne, Hamburg, Norwood Young America, Watertown, and Victoria responded in addition to the Carver County Hazmat Team.

Carver County is also at risk to transportation related hazardous materials incidents. This is directly attributable to the presence of multiple highways (U.S. Hwy 212, MN Hwy 5, 7, 25, 41, 285) running through portions of the county as well as the several railroads that carry materials through the county. This is evidenced by a train derailment that occurred in 2007.¹⁸ A train bridge collapsed near the Minnesota River, derailing six Union Pacific railroad cars. No one was injured in the incident but the sugar from the train spilled into a swampy area, causing environmental services personnel to respond and determine how to remove the sugar from the riverbank. This incident demonstrates the potential for hazardous materials incidents in the county.

Carver County has an average of 15 hazardous materials spills in any given year.

**Table 4-9
Hazardous Materials Incidents in Carver County**

Location	Date	Type
Cologne	2/28/2003	Hazmat – Anhydrous Ammonia Leak
NYA	3/19/2003	Hazmat – Assist with Meth Lab contents disposal (phone)
Cologne	3/24/2003	Hazmat – Assist with Meth Lab contents disposal (phone)
Chaska	4/24/2003	Hazmat – Natural Gas Line Break
Chaska	4/28/2003	CRASH/Hazmat – Tanker Truck Rollover Highway 212 and Highway 41
San Francisco Twp.	5/20/2003	CRASH/Hazmat – Milk Tanker Truck Rollover County Road 45
Camden Twp.	6/6/2003	CRASH – Cement Truck Rollover (phone)
Benton Twp	7/2/2003	Hazmat – Assist with Meth Lab ID and Clean-up (phone)
Chanhassen	8/2/2003	Hazmat – Sewer Line Break - Lotus Lake
NYA	8/4/2003	Hazmat – ELP Tanker Leak
Chanhassen	8/11/2003	Hazmat – Ammonia Release at Business
Chaska	8/14/2003	Hazmat – Natural Gas Line Break
Chanhassen	8/22/2003	CRASH/Hazmat – Truck rollover Highway 41 and Highway 5
Benton Twp	9/24/2003	Hazmat – Chemical odor at Cologne PW Shop

¹⁷ http://www.chaskaerald.com/view/full_story/13426580/article-Explosion-kills-Waconia-boy?instance=article_results

¹⁸ http://www.chaskaerald.com/view/full_story/13404710/article-Train-bridge-collapses-near-Minnesota-River?instance=article_results

RISK AND VULNERABILITY ASSESSMENT

Location	Date	Type
Chanhassen	10/7/2003	Hazmat – Propane Tank Leak
Chaska	10/21/2003	Hazmat – Chemical reaction in a school
Cologne	12/24/2003	CRASH/Hazmat – Bus-Car crash at Hwy 284 and Paul Ave.
Chaska	1/16/2004	Hazmat – Possible Meth Lab in Vehicle
Chaska	2/5/2004	Hazmat – Antifreeze spill from hose failure at Government Center
Chanhassen	5/21/2004	Hazmat – Gas Spill - Holiday - Taken care of by phone
Chanhassen	5/29/2004	Hazmat – Gas Spill - Lotus Lake - Taken care of by phone
Chaska	6/1/2004	Hazmat – Fire/Release - LifeCore Biomedical
Watertown Twp	6/30/2004	CRASH/Hazmat – PI Accident Hwy 7 and Hwy 25
Chaska	7/11/2004	Hazmat – Possible Anhydrous Ammonia Leak
Chaska	9/14/2004	Hazmat – Gas Leak from Vehicle
Chaska	3/17/2005	Hazmat – Suspicious Odor/School Evacuated - Guardian Angles
Chanhassen	3/21/2005	Hazmat/CRASH – Semi Rollover Hwy 41 and Hwy 5
Waconia	4/14/2005	Hazmat – Oil Spill from a Ruptured Hydraulic Line on a Truck
San Francisco Twp	4/22/2005	Hazmat – Assist with Blasting Cap Disposal
YA Twp	5/5/2005	Hazmat – Assist with Blasting Cap Disposal
Waconia	5/10/2005	Terrorism/Suspicious Threats -Package – Assist with incident management
Chanhassen	6/27/2005	Hazmat/CRASH – Semi Rollover Hwy 101 & Pioneer Trail
Dahlgren Twp	7/17/2005	Hazmat – Container along road on Dahlgren Road
Carver	8/8/2005	Hazmat – Oil spill from a ruptured hydraulic line on a truck
San Francisco Twp	8/14/2005	Hazmat/CRASH – Semi vs. car County Road 40/Homestead Road
Victoria	9/19/2005	Hazmat – Fuel Leak (Trailer out of Chan for Absorbents)
Hollywood Twp	11/7/2005	Hazmat/CRASH – Semi vs. car Hwy 7 and Cty Road 33
Watertown Twp	12/16/2005	Hazmat/CRASH – Semi vs. car Hwy 7 and Oxford (Phone consultation)
Chanhassen	1/11/2006	Hazmat – Fuel oil spill at business in Chan that affected storm water system in Chaska
Hollywood Twp	1/29/2006	Hazmat – Possible Fuel spill in area of Hwy 7 and Tacoma Ave (Phone only)
Chaska	1/31/2006	Hazmat – Fuel spill at a Gas Station in Chaska

Section 4

Location	Date	Type
Waconia	8/23/2006	Hazmat – Smell of gas at Ridgeview Hospital
Cologne	9/13/2006	Hazmat – Anhydrous Ammonia Leak
Waconia	1/13/2007	Gasoline Spill – Parking Lot (Assisted Waconia Fire)
Chanhassen	4/10/2007	Transformer Oil Spill – Ground (Assisted County Environmental Services)
Cologne	4/26/2007	Anhydrous Ammonia Leak – Valve Leak
New Germany	4/26/2007	Anhydrous Ammonia Leak – Valve Leak (Not Sure)
Hamburg	5/25/2007	Spill/Odor – Taken care over the phone
Waconia	8/27/2007	Chemical Odor/Smell
Chanhassen	9/7/2007	Unlabeled 55 Gal Drums (Abandon)
Dahlgren Township	9/10/2007	Fuel Spill (Diesel Fuel)
Chaska	10/9/2007	Gas Line Break – Air Monitor Request
Chanhassen	10/18/2007	Building Explosion – Phone Conversation Only
City of Chaska		Air Monitoring Request (Water Treatment Plant)
City of Chanhassen		Fuel Spill (Holiday)
San Francisco Township	5/16/2008	Hazmat – Taken care of over the phone
City of Waconia	7/7/2008	Hazmat – Taken care of over the phone
City of Chaska	7/8/2008	Hazmat – 4" Gas Line Break
Dahlgren Twp	8/26/2008	Hazmat – Fuel Spill
Watertown Township	10/13/2008	Hazmat – Fuel Spill
Norwood Young America	10/21/2008	Hazmat – Fuel Spill
City of Cologne	12/9/2008	Hazmat – Liquid Spill (Absorbents Used)
Chaska	1/6/2009	Hazmat – Level I - Fuel Spill
Chanhassen	2/25/2009	Hazmat – Check on 55 Gal. Drum in ditch
Carver	3/31/2009	Hazmat – Gas Leak
Waconia	6/10/2009	Hazmat – Propane Explosion with Fatality
Cologne	6/26/2009	Hazmat – Level II – Formaldehyde Spill
Victoria	6/27/2009	Hazmat – Level I – Fuel Spill (Semi Crash)

Location	Date	Type
Chanhassen	7/21/2009	Hazmat – Level III – Ammonia Leak
Cologne	7/28/2009	Hazmat – Level I – Fuel Spill/Taken Care of by Phone
Chaska	8/7/2009	Possible Hazmat – Garbage Truck Rollover – No spill, no report – Assist to Chaska Fire
Chanhassen	8/31/2009	Assist Chanhassen Fire – Gas line break at Hwy 101 So of Pioneer – No report
Victoria	11/10/2009	Hazmat – Level I – Lime Spill
Camden Twp.	11/16/2009	Hazmat – Level I – Fuel Barrel Fire
City of Mayer	1/1/2010	Hazmat – Level I (Requesting Air Monitors for Natural Gas Leak)
City of Mayer	1/2/2010	Hazmat – Level I (Requesting Air Monitors for Natural Gas Leak)
Dahlgren Township	1/8/2010	Hazmat – Level I (Environmental Services – Phone Call)
City of Chaska	3/12/2010	Hazmat – Level I (Anhydrous Ammonia Leak – MGK Companies)
City of Chanhassen	3/22/2010	Hazmat – Level II (Anhydrous Ammonia Leak – General Mills)
City of Chaska	4/9/2010	Hazmat – Level I (Unknown Chemical Smell) – (Used 2 Air Monitors)
City of Chaska	5/27/2010	Hazmat – Level I (Requesting Pool/Plug-N-Dike – Gas Leak)
City of Mayer	7/3/2010	Hazmat – Level I (Soda Ash to Mayer Fire – Acid Spill)
City of Waconia	7/6/2010	Hazmat – Level I (Garbage Truck Rollover)
Hancock Township	7/6/2010	Hazmat – Level I (Milk Truck Rollover)
City of Hamburg	7/6/2010	Hazmat – Level I (Oil Spill)
Camden Township	9/9/2010	Hazmat – Level I (Milk Truck Rollover with Fuel Leak)
City of Chanhassen	10/7/2010	Hazmat – Level I (Gas Leak Assist)
City of Carver	11/17/2010	Hazmat – Level I (Gas Spill – Taken care of over the phone)
Benton Township	12/1/2010	Hazmat – Level I (Gas Leak Assist)

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** With multiple highway system, all critical facilities have the possibility of being affected by a hazardous materials incident.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the County since there is no way to determine the impact/magnitude of a hazardous materials incident and no way to predict where and when a hazardous materials incident will occur. People are vulnerable to hazardous materials incidents through effects on transportation routes, establishment of shelters, etc.

Section 4

- **Environment Risk/Vulnerability.** Risks to the environment are high should a hazardous materials accident occur. Environmental concerns would be interruption of water supply and secondary events such as fires and hazardous materials accidents (such as gas pipelines rupturing, rupture of hazardous material containers at facilities, etc.). When spills do occur, whether inside or outside facilities or along roadways, shutdowns, lost time, and expended man-hours are all factors mitigation planners must take into account. Carver County Emergency Management can provide a listing of facility locations throughout the county if requested.

Vulnerability

Hazardous Materials

Frequency of Occurrence	Highly Likely
Warning Time	None - Minimal
Geographic Extent	Localized to Community-Wide
Potential Impact	Moderate

Damage Assessment

It is difficult to determine the damage to the environment associated with hazardous materials spills. Carver County has no recorded instances of critical facilities and/or other property being damaged as a result of hazardous materials spills.

Land Use and Development Trends

Carver County currently has no land use or development trends related to hazardous materials spills.

Multijurisdictional Concerns

All of Carver County is vulnerable to both fixed location and transportation-related hazardous materials spills. The highways (U.S. Hwy 212, MN Hwy 5, 7, 25, 41, 284) are most vulnerable to transportation-related spills. Fixed location spills are possible in all areas of the county. Carver County Emergency Management can provide a list of the facilities located in the county.

Hazard Summary

Hazardous materials spills are a relatively common occurrence in Carver County. The volume of spills experienced in the past dictates that mitigation measures be considered. The types of hazardous materials passing through Carver County are many and varied. The presence of multiple highways with an unknown quantity of hazardous materials traveling through the county on a daily basis poses a challenge in the development of adequate mitigation measures.

4.4.4 Energy/Fuel Shortage

Hazard Identification

Recent tropical storm events in the past 20 years have identified the possibility of energy/fuel shortage for Carver County. This is due to limited supplies coming into the area following an incident and therefore causing fuel rations or the prioritization of fuel supply for both emergency services and residents of the county. An energy/fuel shortage could also be due to damage to natural gas pipelines post-storm and the need to shut down the pipelines for repairs.

Hazard Profile

There have been no energy/fuel shortages in the past in Carver County. However, in the last five years, events have shown the potential is there for an interruption/shortage of fuel supply.

The probability of energy/fuel shortage is minimal. The low probability of an incident suggests that the potential for impacts is minimal. Based on historical records from the past 10 years, the probability of future energy/fuel shortage occurring in Carver County and the planning area is considered low.

Assets Exposed to Hazard

■ **Property Risk/Vulnerability.** All critical facilities are considered as having the possibility of being affected by an energy/fuel shortage.



■ **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the County since there is no way to determine the impact/magnitude of an energy/fuel shortage incident and no way to predict where and when an energy/fuel shortage incident will occur. People are vulnerable to energy/fuel shortage events through effects on transportation routes, pipelines being damage, etc.

■ **Environment Risk/Vulnerability.** Risks to the environment are low should an energy/fuel shortage occur. Environmental concerns would be interruption of natural gas fuel supply and secondary events such as fires and hazardous materials accidents (such as gas pipelines

rupturing, rupture of hazardous material containers at facilities, etc.). When spills do occur, whether inside or outside facilities or along roadways, shutdowns, lost time, and expended man-hours are all factors mitigation planners must take into account.

Vulnerability

Energy/Fuel Shortage

Frequency of Occurrence	Occasionally
Warning Time	More than 12 hours
Geographic Extent	Countywide
Potential Impact	Moderate

Damage Assessment

Interruption of fuel supply to the County would have a detrimental effect on the county. The magnitude of the interruption and the long-term expectations of the incident would determine the impact on both emergency services and residents of Carver County

Land Use and Development Trends

Carver County currently has no land use or development trends related to energy/fuel shortage.

Multijurisdictional Concerns

All of Carver County is vulnerable to an energy/fuel shortage.

Section 4

Hazard Summary

Energy/fuel shortages are an uncommon occurrence in Carver County. However, the potential for an energy/fuel shortage in the county poses an interesting challenge in the development of adequate mitigation measures.

4.4.5 Aircraft Accidents

Hazard Identification

Carver County is located approximately 20 miles southwest of Minneapolis-St. Paul, Minnesota. Carver County is located in the flight pathway of the Minneapolis-St. Paul International Airport, making it vulnerable to the effects of aircraft accidents. Additionally, Flying Cloud Airport is in the neighboring City of Eden Prairie and causes small plane air traffic over Carver County.

Hazard Profile

There has only been one aircraft accident in Carver County in recent history. There was a small airplane emergency crash landing north of the City of Waconia on September 27, 2001 but fortunately, there were no fatalities. However, the potential exists due to the high volume of air traffic that goes in and out of the Minneapolis-St. Paul International Airport.

The probability of an aircraft accident is minimal. The low probability of an incident suggests that the potential for impact is minimal. Based on historical records from the past 10 years, the probability of an aircraft accident occurring in Carver County and the planning area is considered low.

Assets Exposed to Hazard

- **Property Risk/Vulnerability.** It was determined that all critical facilities have the possibility of being affected by an aircraft accident.
- **People Risk/Vulnerability.** In evaluating vulnerability of the population in Carver County, it was determined that risk/vulnerability includes the entire population of the County since there is no way to determine the impact/magnitude of an aircraft accident incident and no way to predict where and when an aircraft accident incident will occur. People are vulnerable to aircraft accident events due to the location of the county to the Minneapolis-St. Paul International Airport.
- **Environment Risk/Vulnerability.** Risks to the environment are low should an aircraft accident occur. Environmental concerns would be impact of the aircraft in or near a natural gas line and secondary events such as fires and hazardous materials accidents (gas pipelines rupturing, rupture of hazardous materials containers at facilities, etc.).



Vulnerability

Aircraft Accidents

Frequency of Occurrence	Occasionally
Warning Time	None
Geographic Extent	Localized
Potential Impact	Minor to Moderate

Damage Assessment

An aircraft accident in the County could have a detrimental effect. The magnitude of the accident and the long-term effects of the incident would determine the impact on both emergency services and residents of Carver County.

Land Use and Development Trends

Carver County currently has no land use or development trends related to aircraft accidents.

Multijurisdictional Concerns

All of Carver County is vulnerable to an aircraft accident.

Hazard Summary

Aircraft accidents are an uncommon occurrence in Carver County. However, the potential for an aircraft accident in the county poses a challenge in the development of adequate mitigation measures.

4.4.6 Critical Facilities and Infrastructure Loss

Requirement 44 CFR 201.6(c) (2) (ii)(A)(B)

The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area. (B) An estimate of the potential dollar losses to vulnerable structures identified in ... this section and a description of the methodology used to prepare the estimate.

Hazard Identification

According to FEMA, critical facilities and infrastructure are those systems “whose incapacity or destruction would have a debilitating impact on the defense or economic security of that community.” These systems include the following seven general categories: fire and emergency services, telecommunications infrastructure, hospitals, law enforcement, educational buildings, government services, and public utilities.

Hazard Profile

Carver County Emergency Management maintains a database for critical facilities and infrastructure. Participating organizations provided the critical facilities and/or assets within their communities. Carver County Emergency Management identifies the structure value of all critical assets and structures.

All facilities and infrastructure within Carver County are susceptible to natural and terrorist events. Lightning and wind within the county can cause damage to facilities. The possibility of a fire within the facilities could cause damage, as could flooding and hazardous materials incidents.

**Table 4-10
Carver County Critical Facility Summary**

Critical Infrastructure	Number of Critical Facilities
Fire Stations	13
Care Facilities	6
Law Enforcement Facilities	2
Educational Buildings	78
Totals	99

Assets Exposed to Hazard

All assets within the County are susceptible to being affected by natural or terrorist incident. Plans have been developed to prevent terrorist events from impacting facilities and infrastructure. Natural events may have some impact on facilities and infrastructure, but building codes have been developed to reduce the damage to facilities. The table below details the critical facilities in the county, where they are located, and the assessed loss should they be damaged or destroyed.

Critical Facilities	City	Address	Estimated Loss
Fire Stations			
Carver Fire Station	Carver	801 Jonathon Carver Parkway	\$2.1 Million
Chanhassen Fire Station #1	Chanhassen	7610 Laredo Drive	\$2.3 Million
Chanhassen Fire Station #2	Chanhassen	6400 Minnewashta Parkway	\$290,000
Chaska Fire Station	Chaska	285 Engler Boulevard	\$2.9 Million
Cologne Fire Station	Cologne	110 Louis Street West	\$800,000
Hamburg Fire Station	Hamburg	181 Broadway Avenue	\$820,000
Mayer Fire Station	Mayer	400 Ash Avenue North	\$315,000
New Germany Fire Station	New Germany	300 Broadway Street East	\$287,000
Victoria Fire Station	Victoria	1500 80 th Street	\$2.3 Million
Waconia Fire Station	Waconia	26 South Maple Street	\$820,000
Watertown Fire Station	Watertown	401 Carter Street Northeast	\$1.6 Million
Hospitals			
Ridgeview Medical Center	Waconia	500 Maple Street	\$35.0 Million
Ridgeview 212 Facility	Chaska	111 Hundertmark Road	\$23.1 Million

Critical Facilities	City	Address	Estimated Loss
Law Enforcement			
Carver County Sheriff's Office	Chaska	606 East Forth Street	\$45.0 Million
Chaska Police Department	Chaska	1 City Hall Plaza	\$4.7 Million
Other			
National Weather Service	Chanhasen	1733 Lake Drive West	\$2.1 Million

The table below lists all city hall and township offices within the county that are potentially vulnerable to a hazard.

Hall	Address
Townships	
Hollywood	15855 County Road 122, Hollywood
Watertown	3580 County Road 10, Watertown
Camden	315 State Avenue South, New Germany
Waconia	12777 102 nd Street, Waconia
Laketown	9530 Laketown Road, Chaska
Dahlgren	15180 County Road 40, Carver
Benton	13235 County Road 51, Norwood Young America
Young America	181 Broadway Avenue, Hamburg
Hancock	16610 Otis Avenue, Norwood Young America
San Francisco	17380 Homestead Road, Carver
Cities	
Carver	316 Broadway Avenue, Carver
Chanhasen	7700 Market Boulevard, Chanhasen
Chaska	One City Hall Plaza, Chaska
Cologne	1211 Village Parkway, Cologne
Hamburg	181 Broadway Avenue, Hamburg
Mayer	413 Bluejay Avenue, Mayer
New Germany	300 Broadway Street, New Germany

Section 4

Hall	Address
Norwood Young America	310 Elm Street, Norwood Young America
Victoria	7951 Rose, Victoria
Waconia	201 Vine Street South, Waconia
County	
Carver County Government Center	600 East 4 th Street, Chaska

Vulnerability

Critical Facilities and Infrastructure

Frequency of Occurrence	Occasionally
Warning Time	None–More than 12 hours
Geographic Extent	Localized to Countywide
Potential Impact	Negligible to Major

Damage Assessment

Carver County has recorded instances of critical facilities and/or other property being damaged as a result of natural events such as wind and rain. There are no recorded instances of damage to critical facilities or infrastructure from terrorist events.

Land Use and Development Trends

Future development throughout the County will take into consideration possible natural and terrorist events.

Multijurisdictional Concerns

All of the County is subject to events and therefore should be included in any prospective mitigation projects. Critical facilities are mapped on a jurisdictional basis in appendix D.

Hazard Summary

Critical facilities in Carver County are susceptible to many hazards, including flood, wildfires, severe weather (including tornadoes), terrorism, and energy shortages. The destruction of critical facilities or outage of infrastructure can affect the entire community for a vast amount of time. Mitigating against their loss is of the utmost importance to maintain county operations.

Section 5

HAZARD MITIGATION GOALS AND OBJECTIVES

5.1 Previous Hazard Mitigation Accomplishments

44 CFR Requirement 201.6 (d) (3)

A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit if for approval within 5 years in order to continue to be eligible for mitigation project grant funding.

No significant changes in land development have been recorded in Carver County since the 2006 Carver County Hazard Mitigation Plan (HMP). The Carver County Multijurisdictional Hazard Mitigation Planning Committee determined that the priorities in 2006 still apply for this plan update. In the 2006 Carver County HMP, several action items were identified to mitigate hazards in the community.

The following mitigation activities have taken place in accordance with the action steps listed (see chapter 10 of the 2006 Carver County HMP).

Action Item 1: Building Code Improvements. This action item was completed in 2008 with an amendment to the county plumbing plan and ongoing fee process updates. This effort is ongoing and is included in the all hazards action items in section 5.2.6.

Action Item 2: Improved Code Enforcement. A new building official was contracted and one in-house employee was certified in building official duties to complete this action item in 2010. This effort is ongoing and is included in the all hazards action items in section 5.2.6.

Action Item 3: Review of Plans and Development Regulations. This action item was completed in 2011 following new zoning maps, zoning codes, floodplain maps, and the Carver County 2030 Comprehensive Plan update.

Action Item 4: Facility Audits. All existing county-owned critical facilities were audited in 2008. Other critical facilities, as well as new facilities, will be audited and therefore this effort is ongoing. This action item is included in the all hazards action items in section 5.2.6.

Action Item 5: Drainage Maintenance: The local drainage system has been mapped but there is still work to be done on this particular action item. Remaining work for this action item is included in section 5.2.1.

Action Item 6: Improved Emergency Response. Carver County Emergency Management annually updates emergency response plans and meets quarterly with county fire chiefs and hazardous materials teams in an effort to continually improve emergency response capabilities. This item is ongoing and is included in the all hazards action items in section 5.2.6.

Action Item 7: Flood Control Projects. Carver County completed bridge work on County Road 11 and the City of Carver levee in 2011 in accordance with this action item. Flood control projects are ongoing and several new projects are listed as action items in section 5.2.1.

Action Item 8: Hazard Mitigation Items. Throughout the development of the Carver County Multijurisdictional HMP update, public outreach was conducted via website postings and press releases. Informing and educating the public is an essential objective of the mitigation planning process and several action items are included to ensure it is accomplished. This action item is therefore ongoing.

Section 5

Action Item 9: Outreach Projects. Several outreach projects were completed in accordance with this action item. Through the Carver County website and ReadyCarver website, safety campaigns on severe weather, winter weather, and infectious disease are conducted annually. Several action items are included throughout this HMP update addressing public outreach on the topics of severe storms, tornadoes, hazardous materials incidents, pandemics, and flooding.

Action Item 10: Property Protection References. This action item has not been completed due to a lack of staff time. As a result, the effort to educate citizens on property protection is ongoing and is included in the all hazards action items in section 5.2.6.

5.2 Natural Hazard Mitigation Goals and Objectives

44 CFR Requirement

- | | |
|--------------------------|--|
| §201.6(c)(3) | The plan shall include the following: A <i>mitigation strategy</i> that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools. |
| §201.6(c)(3)(i) | The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards. |
| §201.6(c)(3)(ii) | The hazard mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate. |
| §201.6(c)(3)(iii) | The hazard mitigation strategy shall include an action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs. |
| §201.6(c)(3)(iv) | For multijurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan. |
| §201.6(c)(4)(ii) | The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate. |

The foundation of this plan is the identification of strategies through which Carver County implement natural hazard mitigation goals, objectives, and actions. As identified in section 4, the Multijurisdictional 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 multijurisdictional hazard mitigation goals, objectives, and actions are listed in this section are listed in order of priority. The methodology that was used to determine the priority of projects was based on repetition of the incident, monetary loss, anticipated costs, and the potential for loss of life. For each of the hazards identified in section, the Multijurisdictional Hazard Mitigation Planning Committee has outlined goals and objectives as part of the mitigation strategy. Mitigation actions for all the cities and townships within Carver County are incorporated into Carver County's goals, objectives, and actions.

5.2.1 Flooding

Mitigation Goals. Flooding has caused significant damage in Carver County. There are three major locations throughout the county where localized flooding is a problem. Mitigation strategies, which reduce the negative effects of flooding, must be considered. Flooding issues that arise following the development of this plan should be addressed in a timely manner with mitigation projects that address all aspects of the situation.

Range of Mitigation Options. The mitigation options to reduce the effects of flooding in Carver 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:

- **Mitigation Goal #1:** Elevate highway bridge approaches in Carver County to reduce road closures.
- **Mitigation Goal #2:** Improve the flood levee on the northern bank of the East Creek in the City of Chaska, MN.
- **Mitigation Goal #3:** Update Notification and Warning Siren System in Carver County.
- **Mitigation Goal #4:** Identify and map all structures located in the identified floodplain in Carver County.
- **Objective #1:** Elevate the Highway 101 and Highway 41 bridge approaches to mitigate flooding.
- **Objective #2:** Protect the property and infrastructure located in the flood fringe in the City of Watertown.
- **Objective #3:** Evaluate and update activation system and install new sirens throughout Carver County and the cities and townships.
- **Objective #4:** Identify all residential and commercial structures in the floodplain throughout Carver County.

Action Steps:

- Review and update the FEMA flood maps for Carver County and its cities and townships so as to accurately map the actual floodplain and identify structures, both residential and commercial, not already on the FEMA maps.

Section 5

Responsible Organization	Carver County Land Management
Coordinating Organization	Carver County GIS Department
Time Line	Current –2011
Funding Sources	General funds, mitigation grants

- Work with the Minnesota Department of Transportation (MnDOT) to construct a 3,080-foot land bridge, raised to a minimum centerline elevation of 724 feet, within the existing MnDOT right-of-way to mitigate flooding on Highway 101.

Responsible Organization	Minnesota Department of Transportation
Coordinating Organization	Carver County Public Works
Time Line	Unknown
Approximate Cost	\$27.7 million ¹⁹
Funding Sources	State funds

- Follow the MnDOT recommendation to construct a 1,350-foot land bridge within the existing MnDOT right-of-way to increase the elevation of Highway 41 and avoid concerns over carrying traffic while partially submerged.

Responsible Organization	Minnesota Department of Transportation
Coordinating Organization	Carver County Public Works
Time Line	Ongoing
Approximate Cost	\$17 million ²⁰
Funding Sources	State funds

- Improve the flood levees and storm water control systems in the cities of Carver, Chaska, and Watertown.

Responsible Organization	City of Carver, Chaska, Watertown
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2017
Funding Sources	General City Funds and Mitigation Grants

¹⁹ Minnesota River Flood Mitigation Study Final Report. Minnesota Department of Transportation. September 28, 2011.

²⁰ Minnesota River Flood Mitigation Study Final Report. Minnesota Department of Transportation. September 28, 2011.

HAZARD MITIGATION GOALS AND OBJECTIVES

- Develop a permanent solution to protect the wastewater treatment plant in Watertown from flooding.

Responsible Organization	City of Watertown
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2017
Funding Sources	General Funds and Grant Funding

- Evaluate current needs and identify locations of new sirens and acquisition of new activation system and new sirens.

Responsible Organization	All cities
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2017
Funding Sources	County General Funds, FEMA

- Have sand bags available and manpower ready when a flood occurrence occurs in the cities and townships located within Carver County.

Responsible Organization	Carver County Emergency Management, individual cities
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2013
Funding Sources	Individual cities general funds and Carver County general funds, FEMA

- Continue to develop the drainage system maintenance program, including determining which areas can be accessed for inspection and maintenance, preparing procedures modeled on floodplain management program guidance, conducting an annual inspection, and removing debris as needed. Additionally, educate homeowner associations and other nongovernmental entities responsible for maintenance on their own properties.

Responsible Organization	Carver County Planning and Zoning Department, Carver County Soil and Water Department, All Cities
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	Individual cities general funds and Carver County general funds, FEMA

Section 5

Multijurisdictional Considerations. Flooding events have affected all areas of Carver County. All of the cities and townships in Carver County participate in flood mitigation activities. Carver County is part of the National Flood Insurance Program. Carver County and the participating cities plan to continue and encourage non-participating cities/townships to participate in the NFIP by developing and implementing public awareness campaigns, further identification of critical infrastructure in floodplains, promotion of storm water management plans and/or activities and continuation of updating of flood maps for all of Carver County.

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

5.2.2 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 incident. 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 Carver County provide enhanced sheltering, advanced warning, and as well as options for more sustainable facilities.

Mitigation Strategy for Tornadoes:

- **Mitigation Goal #1:** To minimize the losses of life and property due to tornadoes in Carver County.
- **Mitigation Goal #2:** To develop policies and plans to handle reconstruction from wind and storm damage.
- **Mitigation Goal #3:** To provide backup generators in identified critical facilities throughout Carver County.
- **Objective #1:** To provide advanced severe weather warning and to protect the residents and their property from the effects of tornadoes in Carver County.
- **Objective #2:** To provide safe rooms or community shelters needed for mobile home parks, recreation/open areas.
- **Objective #3:** To provide information on benefits of tie-down straps for mobile homes.
- **Objective #4:** To minimize the wait time for residents and business owners to get building permits and inspections of construction activities.
- **Objective #5:** To provide automatic emergency power in identified critical facilities throughout Carver County.

Action Steps:

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

HAZARD MITIGATION GOALS AND OBJECTIVES

Responsible Organization	School districts within Carver County
Coordinating Organization	Carver County Emergency Management
Time Line	2012
Funding Sources	General funds, FEMA grants

- Identify facilities throughout Carver County that need backup generators to provide emergency power in case of power outages due to tornadoes/storms.

Responsible Organization	Each individual city, Carver County Facilities Department
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2012
Funding Sources	General funds and/or State and federal grants

- Identify community areas (parks, recreation areas) and facilities (schools, government buildings) that are vulnerable to tornadoes and provide tornado-safe rooms to each area and facility.

Responsible Organization	Each individual city, Carver County Public Works, Carver County Parks, Carver County Facilities Department, Three Rivers Park District
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2013
Funding Sources	General funds and/or State and federal grants, FEMA 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 Carver, Chanhassen, Chaska, Cologne, Hamburg, Mayer, New Germany, Norwood Young America, Victoria, Waconia, and Watertown.

Responsible Organization	Individual cities, Carver County Emergency Management, and local law enforcement
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2012
Funding Sources	Individual Cities General Funds and County General Funds, FEMA grants

Multijurisdictional Considerations. Tornadoes can affected all areas of Carver County. All of the cities and townships in Carver County should be participants in tornado mitigation activities.

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

5.2.3 Severe Thunderstorms

Mitigation Goals. Thunderstorm winds and lightning has caused numerous injuries and deaths as well as millions of dollars in property damage in Carver 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:

- **Mitigation Goal #1:** To minimize the loss of life and property due to thunderstorm winds and lightning in Carver County.
- **Objective #1:** To adequately warn and protect the people and property from the effects of thunderstorm winds and lightning of Carver County.

Action Steps:

- Equip all county and city recreation parks with adequate early severe weather warning devices and lightning detection devices.

Responsible Organization	Carver County Parks, Three Rivers Park District
Coordinating Organization	Carver County Emergency Management
Time Line	2011–Ongoing
Funding Sources	Grants, general fund, FEMA grants

- 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	Carver County Emergency Management
Time Line	2011
Funding Sources	General funds, FEMA grants

- Develop and distribute information by mail/website/press release to citizens to promote and educate citizens on severe thunderstorm issues to include the cities of Carver, Chanhassen, Chaska, Cologne, Hamburg, Mayer, New Germany, Norwood Young America, Victoria, Waconia, and Watertown.

Responsible Organization	Individual Cities and Carver County Emergency Management
Coordinating Organization	Individual Cities and Carver County Emergency Management
Time Line	2011–2012
Funding Sources	Individual cities general funds and county general funds, FEMA grants

Multijurisdictional Considerations. All of Carver 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 Carver 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 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 Carver County school districts participate in the statewide tornado drill as an exercise each year.

5.2.4 Severe Winter Storms

Mitigation Goals. Winter storms are a frequent occurrence in Carver County and have the potential to cause extensive problems when they occur. Carver 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 Carver County in relation to winter storms is to educate and prepare residents of our community for winter storms.

Mitigation Strategy for Severe Winter Storms:

- **Mitigation Goal #1:** To minimize the losses of lives and property due to winter storms in Carver County.
- **Objective #1:** To educate and prepare the residents of Carver County for effects of winter storms.
- **Objective #2:** To reduce power failure due to winter storms (high winds, heavy snow, and ice).

Action Steps:

- Develop and implement an education and preparedness campaign that includes groups such as a Citizens Emergency Response Team (CERT) and Medical Reserve Corps (MRC) in an effort to reduce the effects of winter storms on our citizenry.

Responsible Organization	Carver County Emergency Management, Fire Departments
Coordinating Organization	Carver County Emergency Management
Time Line	2012
Funding Sources	General funds, FEMA grants

Multijurisdictional Considerations. Winter storms have affected all areas of Carver County. All of the cities and townships in Carver County should participate in winter storm mitigation and preparedness activities.

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

5.2.5 Wildfires

Mitigation Goals. Wildfires have had severe effects upon Carver 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 Wildfires:

- **Mitigation Goal #1:** To minimize the effects of wildfires in Carver County.
- **Objective #1:** Protect people and property from the effects of wildfires by ensuring an adequate response capability in Carver County and educating communities in becoming members of the MN Firewise Program and National Firewise Program.
- **Objective #2:** Acquire portable dry water pumps and portable generator for county fire departments.

Action Steps:

- Improve the process for distributing and tracking burn permits.

Responsible Organization	Various Fire Departments
Coordinating Organization	Carver County Emergency Management
Time Line	2012–Ongoing
Funding Sources	City and county general funds, FEMA

- Work with the Minnesota Department of Natural Resources (DNR) to develop state-level and county-level burning regulations.

Responsible Organization	Minnesota DNR, Carver County
Coordinating Organization	Carver County Emergency Management
Time Line	2012–Ongoing
Funding Sources	City and county general funds, FEMA

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

Responsible Organization	Various Fire Departments
Coordinating Organization	Carver County Emergency Management
Time Line	2012–Ongoing
Funding Sources	None

Multijurisdictional Considerations. Wildfires have affected all areas of Carver County. All of the cities and townships in Carver County should participate in wildfire related mitigation activities.

Public Information and Awareness Strategies. The Carver County Hazard Mitigation Steering Committee has identified and implemented public awareness campaigns to ensure that the citizens of Carver 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.

5.2.6 All Hazards

Mitigation Goals. Carver 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 section.

Range of Mitigation Goals. All-hazards mitigation goals cover a wide variety of areas. There is a great need in Carver County for countywide National Incident Management System (NIMS) training and planning for all-hazards in Carver County.

Mitigation Strategies for All Hazards:

- **Mitigation Goal #1:** To minimize the losses of life and property due to all natural hazards in Carver County.
- **Mitigation Goal #2:** To provide training to all department heads and staff in the Basic NIMS course.
- **Mitigation Goal #3:** To provide continuing education of NIMS to all emergency response agencies in Carver County.
- **Mitigation Goal #4:** To provide education and training to all City Mayors and Councils on emergency preparedness (Public Safety) within Carver County.
- **Mitigation Goal #5:** To ensure computer operations for city and county infrastructure.
- **Mitigation Goal #6:** To identify access alternatives for neighborhoods with single access points.
- **Mitigation Goal #7:** To develop and further enhance GIS throughout Carver County.
- **Objective #1:** To protect people and property from the effects of all potential hazards in Carver County.
- **Objective #2:** To provide understanding of unified command structure through NIMS training.
- **Objective #3:** Ensure all city and county officials understand their roles and responsibilities in the county in the incident of an emergency.
- **Objective #4:** Conduct public meetings to educate all of Carver County citizens on safety and emergency preparedness.
- **Objective #5:** Integrate GIS throughout all cities and townships and Carver County governments.

Action Steps:

- Provide NIMS training to all incoming emergency response personnel throughout Carver County.

Responsible Organization	Carver County Emergency Management and Fire Department Chiefs
Coordinating Organization	Carver County Emergency Management
Time Line	2012
Funding Sources	County and City General Funds

Section 5

- Develop and implement a Community Emergency Response Team (CERT) program.

Responsible Organization	Carver County Emergency Management
Coordinating Organization	Carver County Emergency Management
Time Line	2011–2017
Funding Sources	FEMA grants

- Work with local media to develop and broadcast public education on Emergency Preparedness.

Responsible Organization	Carver County Emergency Management
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2014
Funding Sources	County and City General Funds

- 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	Carver County Emergency Management
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2015
Funding Sources	General funds, state grants

- Explore the possibility of adding CAD capability to county fire departments.

Responsible Organization	City Fire Departments and Carver County Sheriff's Office
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2015
Funding Sources	General funds, state grants

- Continue training of all emergency response personnel in Carver County on NIMS.

Responsible Organization	Carver County Emergency Management
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2017
Funding Sources	General funds

- Expand emergency management use of GIS resources that are available.

HAZARD MITIGATION GOALS AND OBJECTIVES

Responsible Organization	Carver County GIS and city GIS Departments
Coordinating Organization	Carver County Emergency Management
Time Line	2012–2017
Funding Sources	County and city general funds

- Continue to adopt updates from the International Building Code. Any code revisions should be consistent with the efforts undertaken by multi-community organizations of building department staff.

Responsible Organization	Planning and Zoning Department
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	Staff time

- Train building department staff on natural hazards aspects of the International Building Code, regulation of mobile home installation, and the county water management ordinance and its flood protection, wetland protection, erosion and sediment control, and best management practices provisions.

Responsible Organization	Planning and Zoning Department
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	Staff time

- Evaluate critical facilities for exposure to damage from all hazards, especially high impact hazards affecting Carver County. If major work is needed to protect a facility and it can be shown that the project would be cost-effective, funding assistance could be applied for from FEMA. New facilities will be reviewed when they are permitted.

Responsible Organization	Carver County Facilities
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	Staff time

- Provide building departments, libraries, and other interested offices with a list of references on property protection that can be ordered for free from state and federal offices. Include a request that

Section 5

they make the references available for public use. A special effort should be made to identify references on insurance, flood-proofing, and other methods of flood protection. Additionally, identify websites that provide property protection information and provide their address to the county and municipal webmasters.

Responsible Organization	Carver County Planning Department
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	Staff time, County funding

Multijurisdictional Considerations. Some of the above projects cross-jurisdictional boundaries. All jurisdictions should be involved in the planning process.

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

5.2.7 Pandemics/Epidemics

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

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

Mitigation Strategy for Pandemics/Epidemics Incidents:

- **Mitigation Goal #1:** To provide mass dispensing of medication and vaccines for all county citizens and emergency response personnel in Carver County.
- **Mitigation Goal #2:** To provide accurate and prompt health communications with regard to pandemics/epidemics in Carver County.
- **Mitigation Goal #3:** To provide public health workforce readiness throughout Carver County.
- **Mitigation Goal #4:** To have personnel trained in epidemic/pandemic procedures throughout Carver County.
- **Objective #1:** To plan, train, and exercise for biological terrorist events and infectious disease outbreaks.
- **Objective #2:** To inform, educate, and empower citizens about specific health issues pertaining to an epidemic/pandemic outbreak in Carver County.
- **Objective #3:** To monitor health status throughout Carver County.

HAZARD MITIGATION GOALS AND OBJECTIVES

- **Objective #4:** To ensure competent and trained public health staff and volunteers throughout Carver County.

Action Steps:

- Update and improve policies and plans that support the health response to an epidemic/pandemic in Carver County.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	2012
Funding Sources	Centers for Disease Control and Prevention (CDC) grant

- Continue to purchase supplies and equipment needed for an epidemic/pandemic incident in Carver County.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	2012
Funding Sources	CDC grant

- Continue to enhance interoperable communications with City Watch, Amateur Radio, 800 MHz, and other new technologies.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	CDC grant, FEMA grants

- Maintain 24/7 community partner contacts.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	CDC grant

- Identify risks specific to public health, behavioral/mental health, and healthcare in Carver County following an emergency.

Responsible Organization	Carver County Public Health
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Section 5

Coordinating Organization	Carver County Social Services
Time Line	Ongoing
Funding Sources	CDC Grant

- Maintain the ability to communicate to all citizens through multiple channels the potential health hazards and the response needed during an emergency.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	CDC Grant

- Continue to conduct staff training and participate in yearly exercises.

Responsible Organization	Carver County Public Health
Coordinating Organization	Carver County Emergency Management
Time Line	Ongoing
Funding Sources	CDC Grant

Multijurisdictional Considerations. Epidemic/pandemic events have occurred throughout Carver County through the years.

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

5.3 Technological Hazard Mitigation Goals and Objectives

Hazard materials release was identified in section 4 as a potential risk to the community. The Multijurisdictional Hazard Mitigation Planning Committee has identified and will work toward implementation of the following goals and objectives that will reduce Carver County's vulnerability to technological hazards.

5.3.1 Hazardous Materials Release

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

HAZARD MITIGATION GOALS AND OBJECTIVES

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:

- **Mitigation Goal #1:** To minimize the losses of lives, property, and damage to the environment due to hazardous materials spills in Carver County.
- **Objective #1:** To protect the people, property, and the environment from the effects of hazardous materials spills in Carver County.

Action Steps:

- Conduct a hazardous materials exercise annually.

Responsible Organization	All Emergency Response Agencies
Coordinating Organization	Carver County Emergency Management
Time Line	2013
Funding Sources	Local Emergency Planning Committee (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	Carver County LEPC Local Fire Departments
Coordinating Organization	Carver County Emergency Management
Time Line	2012–Ongoing
Funding Sources	LEPC funds

- Educate private sector stakeholders on security strategies and safeguards for the containment of hazardous materials at fixed facilities.

Responsible Organization	Carver County Local Emergency Planning Committee
Coordinating Organization	Carver County Emergency Management
Time Line	2012–Ongoing
Funding Sources	Private funding

Multijurisdictional Considerations. Carver County is always susceptible to transportation accidents on its state highway system. Carver County relies on outside resources to respond to hazardous materials releases. The area fire departments in Carver County have individuals certified in various levels of hazardous materials response.

Public Information and Awareness Strategies. The Carver County Multijurisdictional Hazard Mitigation Planning Committee has identified public awareness campaigns to ensure that the citizens of

Section 5

Carver County are kept abreast of the hazards affecting them and the mitigation efforts to alleviate potential situations. The Carver County LEPC regularly meets with industry in an effort to mitigate and plan for hazardous material incidents in our community.

Section 6 EXECUTING THE PLAN

44 CFR Requirement 201.6 (c) (4)(i)

[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

6.1 Plan Implementation

The Carver County Multijurisdictional Hazard Mitigation Planning Committee process was overseen by Carver County Emergency Management. The plan will then be submitted to the Minnesota Division of Homeland Security and Emergency Management (HSEM) and the Federal Emergency Management Agency (FEMA) for approval. The Carver County Board of Commissioners and all cities and townships will formally adopt the plan by resolution in accordance with the 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, Carver 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 Carver County Multijurisdictional Hazard Mitigation Planning Committee and the emergency management director will be responsible for ensuring that the Carver County Multijurisdictional Hazard Mitigation Plan is evaluated as required. The evaluation will include analyzing current mitigation projects and evaluating success and reevaluating future mitigation needs and prioritization based upon changes in needs and/or capabilities of Carver County.

The Carver County Multijurisdictional 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 an evolving, dynamic document.

6.3 Multijurisdictional Strategy and Considerations

The Carver 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 Multijurisdictional Hazard Mitigation Planning Committee.

6.4 Plan Update

The Disaster Mitigation Act of 2000 requires that the Multijurisdictional Hazard Mitigation Plan be updated at least once every five years. The Carver County emergency management director will be responsible for ensuring that this requirement is met. The Carver County emergency management director and the Multijurisdictional Hazard Mitigation Planning Committee will annually review the plan for needed updates. The Multijurisdictional 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

44 CFR Requirement 201.6 (c) (5)

The plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County commissioner, Tribal Council). For multijurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

It is the intention of all documented plan participants to formally adopt the Multijurisdictional Hazard Mitigation Plan after each maintenance revision. Once all participants adopt the changes, the revised plan will be submitted to HSEM and FEMA. The plan will be revised and maintained as required under the guidance of the Multijurisdictional Hazard Mitigation Planning Committee and formally adopted by the Board of Commissioners after each revision.

44 CFR Requirement 201.6 (c) (4)(iii)

The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

Public participation will be sought throughout the implementation, evaluation, and maintenance of the hazard mitigation plan. This participation will be sought in a multitude of ways, including but not limited to periodic presentations on the plan's progress to elected officials, schools, or other community groups; annual questionnaires or surveys; public meetings; and postings on social media and interactive websites.

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 Carver County Multijurisdictional Hazard Mitigation Plan into other local planning documents, processes, or mechanisms such as the following:

- Comprehensive plans
- Strategic plans
- Capital improvement plans
- Growth management plans
- Ordinances, resolutions, and 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 (for example, 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 Carver County Multijurisdictional Hazard Mitigation Plan and will not contribute to increased hazard vulnerability in Carver 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, Carver County will provide a copy of the Carver County Multijurisdictional 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 Carver County Multijurisdictional 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 Carver 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 Carver County Multijurisdictional 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, Carver 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 Carver County Multijurisdictional 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 Carver County.

Continued public participation is encouraged and will be continued through the ongoing multijurisdictional hazard mitigation process.

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
 - Carver County Emergency Operations Plan
- Web Sites
 - FEMA (www.fema.gov)
 - Minnesota Division of Homeland Security and Emergency Management (www.hsem.state.mn.us)
 - Carver County (www.co.Carver.mn.us)
 - National Climatic Data Center (www.ncdc.noaa.gov)
 - National Weather Service (www.srh.noaa.gov/ffc/default.html)
- Other Sources
 - American Red Cross
 - Carver County
 - Minnesota Forestry Commission

Section 7

- Minnesota Department of Natural Resources
- National Weather Service Peachtree City
- U.S. Geological Survey

Appendix A

STORM DATA FREQUENTLY ASKED QUESTIONS²¹

When does data become available?

Due to the amount of time it takes to collect, validate, and enter post Storm Data information, the National Climatic Data Center (NCDC) regularly receives Storm Data from the National Weather Service (NWS) approximately 60-90 days after the end of the data month.

The NWS has 60 days to submit their data files to the NWS Headquarters in Silver Spring, MD. The NWS Headquarters (NWSHQ) then collects all of the data files from the 124 NWS Forecast Offices (NWSFO). The NWSHQ then uses several algorithms to prepare the Storm Data product into the integrated database. The NCDC receives a copy of this database approximately 75-90 days after the end of the month. A publication and archive are produced and the Storm Events Database is then updated within 90-120 days after the end of the month.

Where does the data come from?

NCDC receives Storm Data from the National Weather Service. The National Weather service receives their information from a variety of sources, which include but are not limited to: county, state and federal emergency management officials, local law enforcement officials, skywarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public.

How accurate is the data?

Storm Data Disclaimer:

Storm Data is an official publication of the National Oceanic and Atmospheric Administration (NOAA) which documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. In addition, it is a partial record of other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occurs in connection with another event. Some information appearing in Storm Data may be provided by or gathered from sources outside the National Weather Service (NWS), such as the media, law enforcement and/or other government agencies, private companies, individuals, etc. An effort is made to use the best available information but because of time and resource constraints, information from these sources may be unverified by the NWS. Therefore, when using information from Storm Data, customers should be cautious as the NWS does not guarantee the accuracy or validity of the information. Further, when it is apparent information appearing in Storm Data originated from a source outside the NWS (frequently credit is provided), Storm Data customers requiring additional information should contact that source directly. In most cases, NWS employees will not have the knowledge to respond to such requests. In cases of legal proceedings, Federal regulations generally prohibit NWS employees from appearing as witnesses in litigation not involving the United States.

²¹ <http://www.ncdc.noaa.gov/oa/climate/sd/sdfaq.html>

How are the latitude and longitudes determined?

Storm data is entered into the database as a distance in miles and a direction on 16-point compass scale from a known location, usually a town or city. Example: 4.5 miles ESE Atlanta. The NWS uses a database of over 106,000 cities and towns including their latitudes and longitudes. Using an algorithm, the location 4.5 miles ESE of Atlanta can be derived from the known latitude and longitude of Atlanta. These latitude and longitude pairs are generated by the NWS and populated into the database. The latitude and longitude are in DMS (degrees, minutes, seconds) format.

How are the damage amounts determined?

The National Weather Service makes a best guess using all available data at the time of the publication. The damage amounts are received from a variety of sources, including those listed above in the Data Sources section. Property and Crop damage should be considered as a broad estimate.

Why is there no lightning strike information?

At this time, the only lightning data contained within Storm Data are lightning events that result in fatality, injury and/or property and crop damage. These events are reported to the NWS for inclusion into the Storm Events Database. If you need information on lightning strikes that do not result in this criteria, you can obtain the lightning strike data from Vaisala here: [Vaisala Lightning Strike Data](#)

How are tornadoes counted?

Tornadoes may contain multiple segments. A tornado that crosses a county line or state line is considered a separate segment. Also, a tornado that lifts off the ground for less than 5 minutes or 2.5 miles is considered a separate segment. If the tornado lifts off the ground for greater than 5 minutes or 2.5 miles, it is considered a separate tornado. Tornadoes reported in Storm Data and the Storm Events Database are in segments. For official tornado counts by state, please use the Annual Summaries, found here: [NCDC Annual Summaries](#) or use the monthly counts at the Storms Prediction Center here: [Storms Prediction Center Tornado Data](#)

Other information:

- Fatality Codes:
 - For events that include a fatality, there is a code containing the gender, age and fatality location at the end of the event narrative.
 - 1st letter: Gender (M/F)
 - 2nd numbers: Age
 - 3rd letters: Fatality location (see table below)
 - Example: M51IW Male, 51 years of age, fatality occurred In Water.

STORM DATA FREQUENTLY ASKED QUESTIONS

Fatality Location Abbreviations:	
Code	Location
BF	Ball Field
BO	Boating
BU	Business
CA	Camping
EQ	Heavy Equipment/Construction
GF	Golfing
IW	In Water
LS	Long Span Roof
MH	Mobile Home
PH	Permanent Home
OT	Other
OU	Outside/Open Areas
SC	School
TE	Telephone
UT	Under Tree
VE	Vehicle

List of Acronyms:

WCM - Warning Coordination Meteorologist
 NWS - National Weather Service
 NOAA- National Oceanic and Atmospheric Administration

■ **More Notes**

An Episode is an entire storm system and can contain many different types of events.

An Event is an individual type of storm event. (Thunderstorm Wind, Hail, Tornado and Flood are events)

When listing wind speed values under Magnitude, Ex. 81 kts., the value listed is can be either estimated by damage caused, or measured by official NWS approved calibrated anemometers. 1 kt. = 1.152 mph.

When listing hail size under Magnitude, ex. 2.25 in, the hail size is given in inches and hundredths of inches. These values are assigned a size in inches from their appearance.

Approximate hail size	
Appearance	Approximate size in inches
Pea	0.25 - 0.50 inch
Penny	0.75 inch
Nickel	0.88 inch

Approximate hail size	
Appearance	Approximate size in inches
Quarter	1.00 inch
Half dollar	1.25 inch
Walnut/Ping Pong	1.50 inch
Golf ball	1.75 inch
Hen Egg	2.00 inch
Tennis Ball	2.50 inch
Baseball	2.75 inch
Tea Cup	3.00 inch
Grapefruit	4.00 inch
Softball	4.50 inch

When listing property and crop damage, the figures indicated are the best guess made by the NWS from the available sources of information at the time of the printing.

The fatalities, injuries, and damage amounts appearing in tropical cyclone events are attributed only to wind damage experienced in the coastal counties/parishes listed. Other tropical cyclone related events such as tornadoes and flooding are listed within their separate event types.

Appendix B

PUBLIC MEETING ATTENDANCE ROSTERS, MEETING MINUTES, AND NOTICES

Carver County Hazard Mitigation Plan Project Kickoff Meeting Summary

August 9, 2011

Purpose

The purpose of this meeting was to introduce Carver County stakeholders to the hazard mitigation planning process. The meeting also gave stakeholders an opportunity to discuss their involvement in the project, the phases of the project, and the time line for each phase.

Meeting Attendees

Name	Organization	Phone Number	E-mail
Aamodt, Greg	Carver Water Resources	952-361-1804	gaamoldt@co.carver.mn.us
Carlson, Ken	PHE Emergency Management	952-361-1527	
Duzan, Mike	Chaska Police Department	952-448-4200	mduzan@chaska.mn.com
Enfield, Joe	Carver ES	952-361-1801	Jenfield@co.carver.mn.us
Just, Steve	PHE Land Management		
Kerber, Francis	Public Works	952-466-5205	
Larsen, Deb	Emergency Preparedness	952-361-1319	dlarsen@co.carver.mn.us
Lein, Matt	Cologne City Council	952-220-2149	mlein@robertsautomatic.com
Lein, Mike	Carver County Manager	952-361-1802	mlein@co.carver.mn.us
Maetzold, Rod	Mayer Chief	612-554-5477	mayerlumber@frontier.net
Mann, Tamala	Science Applications International Corporation (SAIC)	260-729-7589	tamala.g.mann@saic.com
McMille, Karen	Laketown Township Clerk	952-442-5278	laketowntownship@broadband.mn.com
Nelson, Jen	Minnesota HSEM	651-201-7427	jennifer.e.nelson@state.mn.us

Name	Organization	Phone Number	E-mail
Schroeder, Ned	Watertown Assistant Chief	952-292-9732	nedschro@aol.com
Schultz, Paul	Carver Public Works	612-282-7608	pschultz@co.carver.mn.us
Sorensen, Randy	Waconia Fire Chief	612-616-5176	fire@waconia.org
Uram, Don	Victoria Administrator	952-443-4211	duram@ci.victoria.mn.us
Wolf, Randy	PHE CC Director		
Ziemberse, Steve	NYA Chief	507-469-9145	stevez@locherbros.com

Overview of Activities

WELCOME AND INTRODUCTIONS

Mr. Ken Carlson of Carver County opened the meeting by discussing the previous mitigation planning effort that took place in 2005–2006 and the importance of each jurisdiction’s participation in the process. He then introduced Ms. Tami Mann of SAIC.

Ms. Mann presented a high-level summary of the hazard mitigation plan (HMP). Below is a summary of the key discussion points in the presentation. The full presentation is available through Carver County.

PURPOSE AND IMPORTANCE OF HAZARD MITIGATION PLANNING

Hazard mitigation planning is required under the Disaster Mitigation Act of 2000. It guides post-disaster recovery, engages multiple community stakeholders, promotes public participation, evaluates hazards and risks, builds support for mitigation activities, helps educate community officials, and develops more effective community policies. In the future, federal funding will be contingent upon having an HMP or being in the process of developing one.

The benefits of an HMP include reducing vulnerability to future hazards, saving lives and property, facilitating disaster funding, maintaining economic stability, and quickening the recovery period.

APPROACH TO HAZARD MITIGATION PLANNING

SAIC’s approach to hazard mitigation planning complies with industry standards and includes five phases.

The first phase of planning involves initiating the planning project and organizing resources. A kickoff meeting with the Hazard Mitigation Planning Team will occur and data collection will begin. The first site visit and public meeting will also occur in the phase, with SAIC providing minutes from the public meeting to the project sponsor.

PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

The second phase is used for hazard identification and gathering preliminary risk assessment results. This includes developing a base list of hazards, gathering information about those hazards, and conducting a risk assessment.

The third phase is used to draft the risk assessment results through a risk assessment and consequence analysis.

In the fourth phase, mitigation strategies will be developed. Ms. Mann reviewed specific objectives and she provided examples of mitigation strategies. In addition to drafting the mitigation strategies and actions, the second site visit and public meeting will be conducted. SAIC will provide minutes from the public meeting to the project sponsor.

The HMP will be completed in the fifth and final phase. This includes submitting draft plans to state and Federal Emergency Management Agency (FEMA) officials for review. The third and final public meeting will also occur in this phase and SAIC will provide minutes.

Following the five phases, the HMP will be presented to the county for adoption and they can begin working towards achieving the plan's goals and strategies. Maintenance of the plan, including identifying its successes and areas for improvement, will be an ongoing process.

ADDITIONAL DISCUSSION

Ms. Jennifer Nelson pointed out that jurisdictions can receive post disaster assistance such as Public Assistance (PA) and Individual Assistance (IA) after a disaster declaration even if they do not have an HMP, but funds for mitigation projects will not be authorized if an approved HMP is not in place.

Mr. Carlson clarified that the plan will be authorized and signed by each jurisdiction's elected board. This includes Carver County, the cities, and the townships.

Participants were encouraged to bring additional stakeholders to the next meeting if they identify that there are other individuals who should be involved with them or in place of them.

PROJECT TIME LINE

Ms. Mann reviewed the project time line with the group.

Project Deliverables/Tasks	Target Completion Date
Client Project Planning Meeting (Conference Call)	July 18, 2011
Project Work Plan	July 22, 2011
Project Kickoff Meeting with HMSC	August 9, 2011
Public Meeting #1	August 9, 2011
Minutes from Kickoff Meeting/Public Meeting #1	August 15, 2011
Survey Forms	August 15, 2011
Draft Updated Hazard Identification and Profiles	September 19, 2011

Appendix B

Project Deliverables/Tasks	Target Completion Date
Draft Updated Draft Risk Assessment	September 19, 2011
Final Updated Hazard Identification and Profiles	September 26, 2011
Final Updated Risk Assessment	September 26, 2011
Draft Mitigation Strategy	September 26, 2011
Draft Updated HMP	September 26, 2011
Public Meeting #2	September 29, 2011
Minutes from Public Meeting #2	October 6, 2011
Final Mitigation Strategy	October 10, 2011
Draft Updated HMP w/Changes required from Public Meeting for Submittal to HSEM and FEMA for Official Review	October 10, 2011*
HSEM Review Period	October 10–November 4, 2011
FEMA Review Period	November 10–December 9, 2011
Final Draft Updated Plan Based on State of Minnesota and FEMA Recommendations	December 20, 2011
Public Meeting #3	December 20, 2011
Minutes from Public Meeting #3	December 23, 2011
Final Project Closeout	December 30, 2011

PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

Carver County, Minnesota
 Hazard Mitigation Plan Update Kickoff/ Public Meeting #1
 August 9, 2011

Name	Department	Position	Phone	E-mail
MATT LEIN	COLOGNE	CITY COUNCIL	(952) 220-2149	mlein@robertsautomatic.com
PAUL SCHWITZ	CARVER	Public Works	612-282-7608	pschwitz@co.carver.mn.us
Steve Zembke	NWA	Chief	507 469 9145	SteveZ@LockerBox.com
ROD MAETZOLD	MAYER	CHIEF	612 554-5477	MAYERLUMBER@FRONTIERNET.NET
Joe Entfield	Carver Co.	ES	952-361-1801	jentfield@co.carver.mn.us
Greg Ammodt	Carver Co LWS	Water Resources	952-361-1804	gammolt@co.carver.mn.us
Mike Lein	Carver Co	Manager	952-361-1802	mleim@carver.mn.us
MIKE DUZAN	CHASKA PD	SGT	448.4700	MIDUZAN@CHASKA.MN.COM
Ned Schindler	Lakewood	asst. Chief	952-292-9732	nedschindler@aol.com
Randy Sorensen	Waconia Fire	Fire Chief	612-616-5176	fire@waconia.org
Jan Mills	Lakewood	Clerk	952-442-5078	lakewood@abroadhead-mn.com
Jen Nelson	MNDEM	Mitigation	651 2017427	Jennifer.e.nelson@state.mn.us
Don Uram	Victoria	Administrator	952-443-4211	duvan@ci.victoria.mn.us
RANDY WOLF	PHE CC	DIRECTOR		
Steve Just	PHE Land mgmt	Dept mgr		
Ken Carlson	PHE - Emerg Mgmt	Project Mgr	952-361-1527	
FRANCIS KERBER	PUBLIC WORKS	ADM. SER. MGR	952-446-5205	
Tami Mann	SAIC	Project Mgr	260-729-7589	tamala.g.mann@saic.com
Deb Larsen	Emerg Preparedness	Data Specialist	952-361-1319	dlarsen@co.carver.mn.us

**Carver County Hazard Mitigation Plan Project
Public Meeting #2
Meeting Summary**

September 29, 2011

Purpose

The purpose of this meeting was to introduce Carver County stakeholders to the recently developed hazard identification and profiles, the risk assessment, and the draft Carver County Hazard Mitigation Plan (HMP), which was updated in September 2011. The meeting also gave stakeholders an opportunity to provide input on the draft plan before it is submitted to the Minnesota Division of Homeland Security and Emergency Management (HSEM) and the Federal Emergency Management Agency (FEMA) for review and approval.

**Meeting Attendees
1:00 p.m. Meeting**

Name	Organization	Phone Number	E-mail
Carlson, Ken	Carver County Emergency Management (EM)	952-361-1527	kcarlson@co.carver.mn.us
Carlyle, Josh	Carver County Public Health and Environment Division	952-361-1303	jcarlyle@co.carver.mn.us
Essig, Ken	Laketown Township	952-442-5271	laketowntownship@broadband-mn.com
Habib, Tamara	Science Applications International Corporation (SAIC)	312-848-4318	tamara.a.habib@saic.com
Kerber, Francis	Carver County Public Works	952-466-5205	fkerber@co.carver.mn.us
Larsen, Deb	Carver County Public Health and Environment Division	952-361-1319	dlarsen@co.carver.mn.us
Maetzold, Rod	City of Mayer Fire Department	612-554-5477	mayerlumber@frontier.net
Mann, Tamala	SAIC	260-729-7589	tamala.g.mann@saic.com
Marquat, Vina	Carver County Public Health and Environment Division	952-361-1371	vmarquat@co.carver.mn.us
Meyer, Dan	City of Carver Fire Department	952-292-5193	dmeyer@ci.carver.mn.us
Walsh, Tim	Carver County EM and City of Victoria	952-361-1539	twalsh@co.carver.mn.us

PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

Meeting Attendees 6:00 p.m. Meeting

Name	Organization	Phone Number	E-mail
Carlson, Ken	Carver County EM	952-361-1527	kcarlson@co.carver.mn.us
Fineran, Shane	City of Waconia	952-442-3101	sfineran@waconia.org
Habib, Tamara	SAIC	312-848-4318	tamara.a.habib@saic.com
Larsen, Deb	Carver County Public Health and Environment Division	952-361-1319	dlarsen@co.carver.mn.us
Lein, Matt	City of Cologne	952-220-2149	mlein@robertsautomatic.com
Mann, Tamala	SAIC	260-729-7589	tamala.g.mann@saic.com
Paulson, Noelle	Public Participant	N/A	N/A
Sorensen, Randy	City of Waconia	612-616-5176	fire@waconia.org
Zumberge, Steve	NYA Fire Department	952-220-2149	stevez@locherbras.com

Host: Ken Carlson

Consultants: Tami Mann, SAIC
Tamara Habib, SAIC

Minutes: Deb Larsen

Handouts: Presentation slides, agenda, and draft Carver County Hazard Mitigation Plan, updated in September 2011

Overview of Activities

WELCOME AND INTRODUCTIONS

Mr. Ken Carlson of Carver County opened the meetings. He introduced Ms. Tami Mann and Ms. Tamara Habib of SAIC.

Ms. Mann provided an overview of why an HMP is necessary for Carver County and discussed the regulations supporting the development of the plan. Below is a summary of the key discussion points in the presentation. The full presentation is available through Carver County.

PURPOSE AND IMPORTANCE OF HAZARD MITIGATION PLANNING

Hazard mitigation planning is required under the Disaster Mitigation Act of 2000. It guides post-disaster recovery, engages multiple community stakeholders, promotes public participation, evaluates hazards and risks, builds support for mitigation activities, helps educate community officials, and develops more effective community policies. In the future, federal funding for mitigation projects will be contingent upon having an HMP in place or being in the process of developing an HMP.

The benefits of an HMP include reducing vulnerability to future hazards, saving lives and property, gaining disaster funding, maintaining economic stability, and expediting the recovery period.

HAZARD MITIGATION STEERING COMMITTEE (HMSC)

The HMSC was identified as:

- Aamodt, Greg
- Carlson, Ken
- Carlyle, Josh
- Duzan, Mike
- Enfield, Joe
- Essig, Ken
- Fineran, Shane
- Just, Steve
- Kerber, Francis
- Larsen, Deb
- Lein, Matt
- Lein, Mike
- Maetzold, Rod
- Marquat, Vina
- McMullen, Karen
- Nelson, Jen
- Meyer, Dan
- Paulson, Noelle
- Schroeder, Ned
- Schultz, Paul
- Sorensen, Randy
- Uram, Don
- Walsh, Tim
- Wolf, Randy
- Zumberge, Steve

HMSC Goals and Objectives

- Actively involve and gain support from all city and township governments and Carver County for the mitigation of disasters in our community.
- Prioritize identified mitigation projects.
- Seek and implement any grant funding for the mitigation of disasters in Carver County and its cities and townships.
- Monitor, evaluate, and update the progress of the plan as needed.
- Form partnerships among local, state, and federal agencies to make Carver County more resistant to the effects of disasters.

HAZARD MITIGATION PLANNING PROCESS

The first phase of the plan update involved initiating the planning project and organizing resources. A kickoff meeting with the HMSC was conducted and data collection began at that time.

SAIC identified hazards and gathered preliminary risk assessment results. This included developing a base list of hazards, gathering information about those hazards, and conducting a risk assessment.

Additionally, SAIC drafted a findings report based on a risk assessment and consequence analysis.

SAIC developed mitigation strategies and a draft plan, which will be reviewed in this meeting and updated based on input from this meeting.

CALENDAR OF EVENTS

- Letter requesting support for the plan to all interested parties July 2011
- Kickoff meeting and public meeting of mitigation process August 9, 2011
- First draft written September 26, 2011
- Public meeting #2 for review of draft updated plan September 29, 2011
- Final mitigation strategy October 10, 2011
- Draft updated HMP with changes required from public meeting for submittal to HSEM and FEMA for official review October 10, 2011
- HSEM review period 2011 October 10–November 4,
- FEMA review period 2011 November 10–December 9,
- Final draft updated plan based on HSEM and FEMA recommendations December 20, 2011
- Public meeting #3 for review of final updated plan December 20, 2011

- Completed plan

December 30, 2011

REVIEW OF HAZARDS AND RISKS

Specific information on hazards and risks is located in section 4 of the draft HMP. Ms. Habib stated that hazards that are not included in the plan are not considered hazards for Carver County.

A summary of the conversation regarding hazards and risks is as follows. SAIC will update the Carver County Draft HMP to reflect the outcomes of the discussion.

Natural Hazards

Winter Storms. Make note in the plan to explain the \$18 million in damage during the December 10, 2010 storm.

Thunderstorms. Death number is inaccurate in table 1-5. This is actually wind speed. Update table to fix headers.

Hail. Correct table 1-10.

Lightning. Add PGA event in the City of Chaska in 1991, which caused one fatality.

Flooding. Add fall 2010 flooding. Add 2011 spring flooding. Take out Action Step #3. Add Carver County to Action Step #6. Make sure City of Carver is included in permanent measures to keep the city from flooding.

Wildfires. Update with information on wildfires in Laketown Township in 2010 and the wildfires that occurred between Waconia and Cologne in 2008–2009. Mr. Tim Walsh from emergency management will get detailed information for the plan. The Chaska Herald Newspaper may be another good resource for this information.

Technological Hazards

Agriculture/Animal Health Issues. Include this information and also identify the effects on the food supply.

Airports. Flying Cloud Airport is in neighboring city of Eden Prairie, but causes a lot of small plane air traffic over Carver County. Add small airplane emergency crash landing north of City of Waconia on September 27, 2001 (no fatalities).

Dams. Look further into dams in the county, in particular in the downtown area of City of Watertown – Crow River, certified levee in Chaska, and uncertified Carver levee. Verify Lake Grace Dam in Chaska.

Hazardous Materials Incidents. Mr. Tim Walsh will provide list of hazardous materials incidents to be incorporated into the plan.

Critical Facilities and Infrastructure. Rename police facilities to law enforcement facilities. Most police agencies in Carver County are county agencies. Add Ridgeview Medical Center, which could be considered two facilities. Ms. Habib will coordinate with Mr. Carlson on the list of critical facilities to include since there may be issues with displaying critical facilities in a public document.

Overall. Reorganize all hazards in order of priority.

MITIGATION GOALS, OBJECTIVES, AND ACTION STEPS

Specific information on the mitigation goals, objectives, and action steps is located in section 5 of the draft updated plan.

A summary of the conversation regarding mitigation goals, objectives, and action steps is as follows:

Flooding. Take out mitigation goal #1 and objective #1. Add as a goal to strengthen or replace the downtown Watertown Bridge. They have already completed some temporary measures, but need a permanent solution at the wastewater treatment plant in Watertown. Take out City of Delano references. Take out Action Step #4. Add an action step for a permanent solution for protecting the levee in the City of Carver. Modify Action Step #8 to reflect that the cities all rely on Carver County for sandbags, but cities and townships are encouraged to stockpile for their own needs.

Tornadoes. Action Step #1 should reflect that school districts have the responsibility for this action step.

Extreme Winter Storms. Add Medical Reserve Corps (MRC) in addition to Community Emergency Response Teams (CERT).

Wildfires. Take out Action Step #1. Add improve permitting process. Add county and DNR development of plan for burning regulations, as they are in the process of doing this and the plan should be complete by spring 2012.

All Hazards. In Action Steps, change “Provide NIMS training...” to “Ensure all incoming emergency response personnel throughout the county are trained...” Change Action Step #6 to say “Expand emergency management use of GIS resources that are available.”

Pandemic/Epidemic. Change Action Step #1 to mention the need to continually update the plans. Remove the third Action Step regarding interoperable communications. Change Action Step #4 to “update and maintain...” Continue to maintain equipment-not purchase-Action Step #2. Action Step #5 is not the county’s responsibility; it is the state’s responsibility. Include social media in Action Step #6.

Hazardous Materials Release. In Action Step #1, change to indicate this will be done annually. In Action Step #3, change to “educate.” Carver County cannot mandate or force this to happen.

ADDITIONAL DISCUSSION

Remove cost estimates of mitigation strategies if possible. They do not align with historical costs.

Emergency Management is part of the Public Health and Environment Division in Carver County and is not under the Sheriff’s Department. This needs to be corrected in the plan.

The City of Chaska and the City of Waconia have CERTs.

Add the MRC to the plan. Carver County Public Health and Environment Division is the housing agency for the Medical Reserve Corps of Carver County.

Add CAD/GIS capabilities being made available to the entire county as a mitigation recommendation/action step. Explore possibility of adding CAD capability to fire departments.

ACTION ITEMS/ASSIGNMENTS

- Mr. Walsh will provide Ms. Habib a list of hazardous materials incidents to be incorporated into the plan.
- Ms. Habib will coordinate with Mr. Carlson on the list of critical facilities to include since there may be issues with displaying critical facilities in a public document.
- Ms. Habib will research further the dams and levees in Carver County and update the information in the plan.
- Ms. Habib will update the plan with information on Laketown Township wildfires in 2010 and the wildfires that occurred between Waconia and Cologne in 2008–2009. Mr. Walsh from Emergency Management will get detailed information for the plan. Update with fall 2010 flooding and spring 2011 flooding.
- Mr. Carlson will discuss the drought section with the Farm Service Agent for the county and see if this section should be eliminated from the plan.
- Ms. Habib will update the draft plan based on the items listed above and corrections that Mr. Carlson provided and allow him to review the second draft before preparing for submission to HSEM.

NEXT MEETING (TENTATIVE)

On December 20, 2011, Carver County Emergency Management will host final HMP meetings that are open to the public. The same agenda will be used for both meetings, so citizens can attend either session: **1:00 p.m. at the Government Center, Township Hall, 600 East 4th Street, Chaska (Enter Door #1), or 6:00 p.m. at Carver County Public Works Headquarters, Public Works Conference Room 1, 11360 Hwy 212 West in Cologne.** No RSVP required. Walk-in registration begins 15 minutes prior to start time.

POST MEETING COMMENTS

The following comments were received from Carver County after the meeting. SAIC will incorporate these changes into the revised version of the HMP.

Section 4.2.5:

- First paragraph, third sentence – after the word *Influenza*, put in (*e.g. H1N1, H5N1*). Delete the word *smallpox* (if we have a smallpox epidemic, it will be an intentional release, not a natural occurrence). Delete *H1N1*.
- Under *People Risk/Vulnerability* – change *30 percent of workforce becoming ill to 40 percent*.
- Under *Damage Assessment* – Remove *smallpox* from this part of the paragraph. Smallpox has been eradicated from the general environment, unlike polio or TB. At this point, it would make it into the environment through intentional/accidental means. You could consider adding plague instead.

- After *tuberculosis is under control*, add *in the United States*. TB is not under control in much of the world.

Section 5.2.8:

- Remove all of the dollar figures from the tables. These figures do not match our past investments in these categories.
- First action step – Change *Develop* to *Update and improve*.
- Second action step – Change *pandemic/epidemic* to *biological*.
- Third action step – Change *HAM* to *amateur radio*. Remove the *and* before *800 MHz* and insert at the end *and other new technologies*.
- Fourth action step – Remove *Compile and* so it starts with *Maintain*.
- Fifth action step – Remove completely. Not our job.
- Sixth action step – Add at the beginning *Maintain ability to*.
- Seventh action step – Add at the beginning *Continue to*.

CARVER COUNTY

HAZARD MITIGATION PLANNING MEETING – SEP 29, 2010 1:00 PM

PLEASE SIGN IN

NAME	TITLE/ROLE	ORGANIZATION	PHONE	EMAIL
Dan Moyer	Fire Chief	Carver Fire Dept	952-292-5193	dmoyer@ci.carver.mn.us
KEN ESSIG	SUPERVISOR	LAKE TOWN Twp	952-442-5211	
ROD MAETZOLD	FIRE CHIEF	MAYER FIRE	612-554-5477	MAYERLUMBER@FRONTIERNET.NET
Vina Marguaret	PH Planner	Carver City PH+E	952-361-1371	vmarguaret@co.carver.mn.us
Josh Carlyle	PH Planner	Carver Co PH+E	952-361-1308	jcarlyle@co.carver.mn.us
Ken Carlson	E.M.	Carver Co EM	952-361-1527	kcarlson@co.carver.mn.us
Tim Wald	E.M / FIRE CHIEF	COUNTY / VICTORIA	952-361-1539	TWALSH@CO.CARVER.MN.US.
FRANCIS KERBER	ADM. SERV. MGR PUBLIC WORKS	CARVER COUNTY	952-466-5205	fkerber@co.carver.mn.us
Deb Larsen	Data Specialist - Public Health + MRC of CC program coordinator	CARVER COUNTY PH+Env.	952-361-1319	dlarsen@co.carver.mn.us
Tami Mann	PM PM	SAIC	260-729-7589	tamela.g.mann@saic.com
Tamara Habib	Consultant	SAIC	312-848-4318	tamara.habib@saic.com

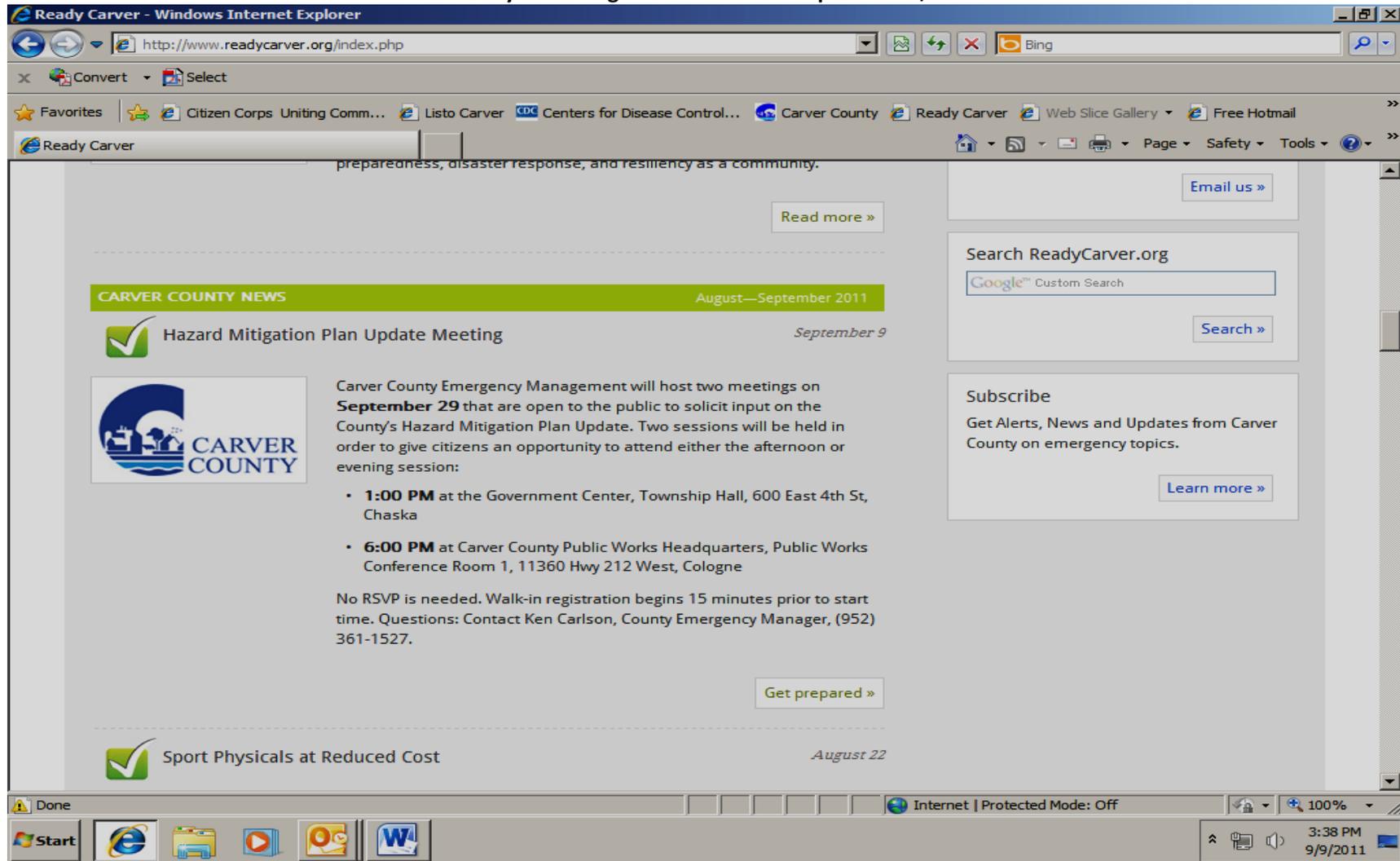
CARVER COUNTY

HAZARD MITIGATION PLANNING MEETING – SEP 29, 2010 6:00 PM

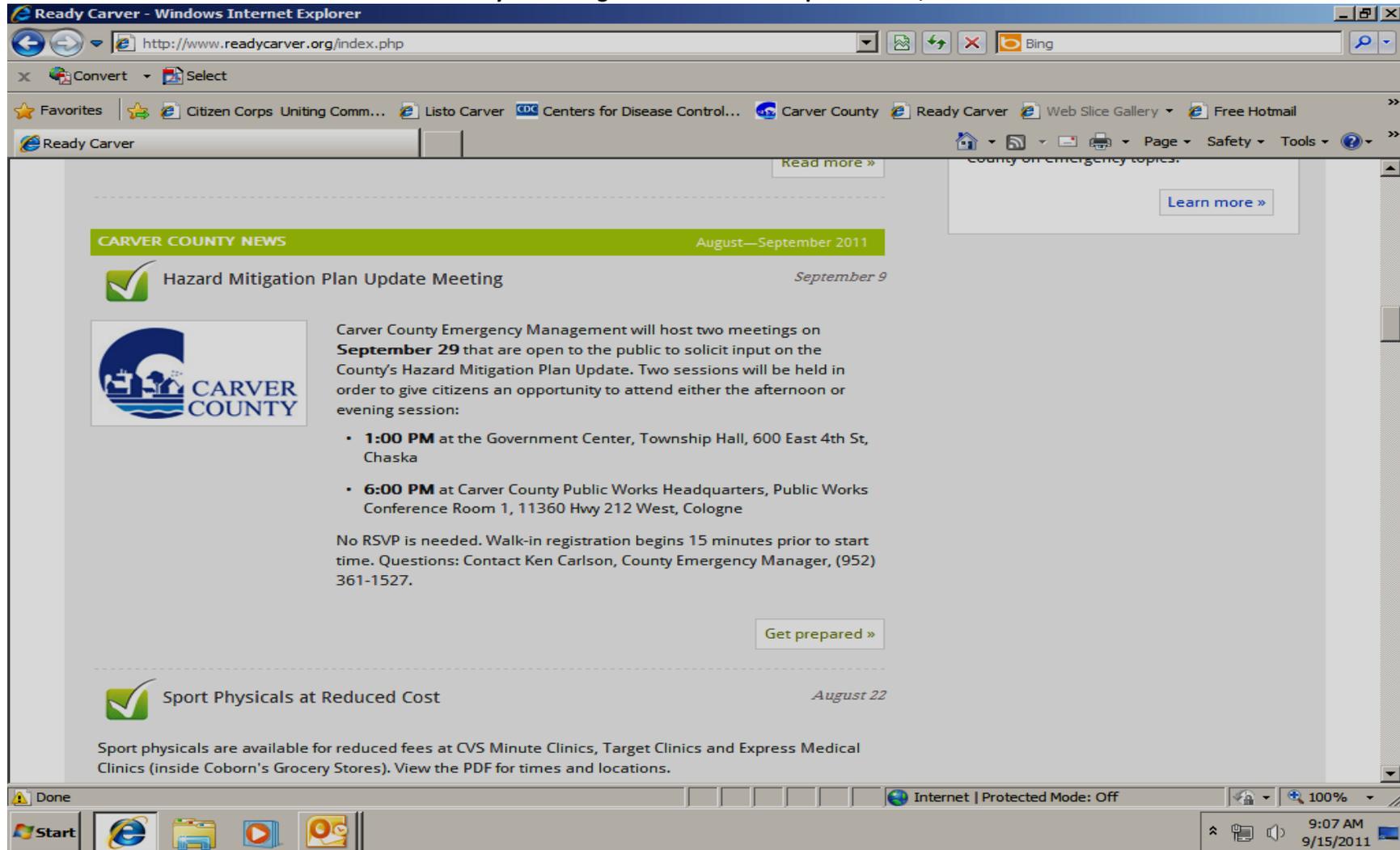
PLEASE SIGN IN

NAME	TITLE/ROLE	ORGANIZATION	PHONE	EMAIL
Deb Larsen	Data Specialist/cc Public Health	CARVER COUNTY	952-361-1319	dlarsen@co.carver.mn.us
Noelle Paulson		Self		mnpw@comcast.net
Wade Stark	Asst Chief	Watertown Fire	612-508-2238	Watertownchief@ci.watertown.mn.us
Steve Zumbert	Chief	NYA Fire	507-469-9145	stevez@lockerbrand.org
MATT LEIM	COLOGNE CITY COUNCIL	COLOGNE	(952)220-2149	mlein@robertsautomotive.com
Shane Fineran	Asst City Admn	Waconia	952-442-3103	sfineran@waconia.org
Gandy Sorensen	Waconia Fire Chief	Waconia	612-616-5176	fire@waconia.org
Tami Mann	PM	SAIC	260-729-7589	tamela.simann@saic.com
Tamara Habib	Consultant	SAIC	312-848-4318	tamara.habib@saic.com
XXXX				

Hazard Mitigation Plan Update Meeting Posting to ReadyCarver.org Public Website – September 9, 2011



Hazard Mitigation Plan Update Meeting Posting
to ReadyCarver.org Public Website – September 15, 2011



Hazard Mitigation Plan Update Meeting Invitation to Public Posting
to ReadyCarver.org Public Website – September 26, 2011

Appendix B

Ready Carver - Windows Internet Explorer

http://www.readycarver.org/index.php

Convert Select

Favorites MDH Workspace - Login MDH Minnesota Department of H... Ready.gov - Prepare. Plan. ... ECHO Minnesota Citizen Corps Uniting Comm... Listo Carver

Ready Carver

2. Bullying involves a pattern of behavior repeated over time.

3. Bullying involves an imbalance of power or strength.

[Read more »](#)

Hazard Mitigation Plan Update Meeting *Sept. 9*

 Carver County Emergency Management will host two meetings on **September 29** that are open to the public to solicit input on the County's Hazard Mitigation Plan Update. Two sessions will be held in order to give citizens an opportunity to attend either the afternoon or evening session:

- **1:00 PM** at the Government Center, Township Hall, 600 East 4th St, Chaska
- **6:00 PM** at Carver County Public Works Headquarters, Public Works Conference Room 1, 11360 Hwy 212 West, Cologne

No RSVP is needed. Walk-in registration begins 15 minutes prior to start time. Questions: Contact Ken Carlson, County Emergency Manager, (952) 361-1527.

[Get prepared »](#)

Sport Physicals at Reduced Cost *August 22*

Sport physicals are available for reduced fees at CVS Minute Clinics, Target Clinics and Express Medical.

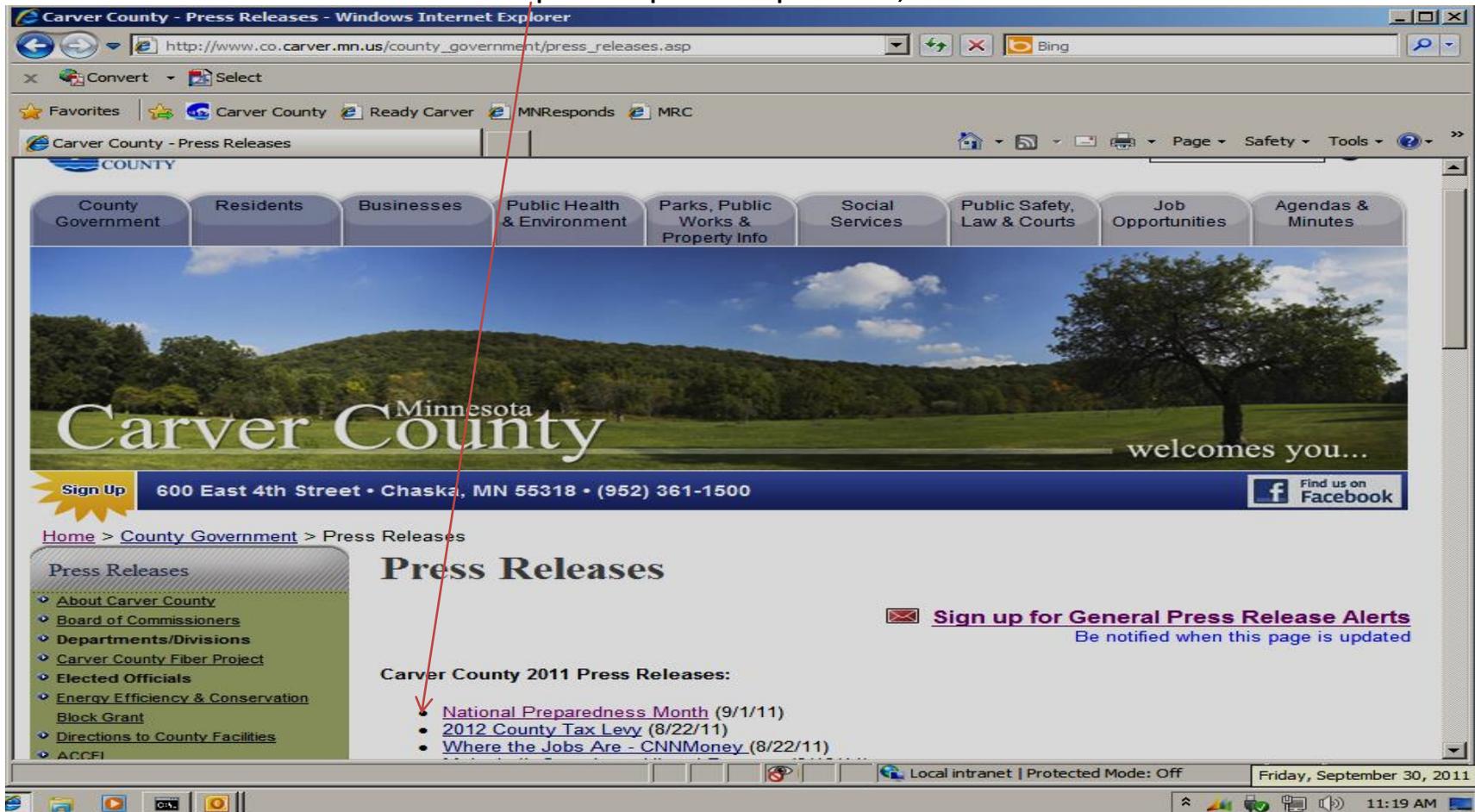
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Start Start

12:53 PM 9/26/2011

Announcement of “National Preparedness Month” (9/1/11) Press Release Page on the Carver County Public Website.

This included announcement of Hazard Mitigation Planning Meeting #2 open to the public on September 29, 2011



Hazard Mitigation Planning Meeting #2 announced and posted on Carver County public website calendar:

[ReadyCarver](#)
[Request for Information](#)
[Requests for Bids/Proposals](#)
[Risk/Emergency Management](#)
[Service Centers](#)
[Sheriff](#)
[Veterans Services](#)

[Sign up for News & Events updates](#)

Calendar of Events

< SEPTEMBER 2011 >

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	1
2	3	4	5	6	7	8

[Back to Event List](#)

September 29th, 2011
1:00 pm: Hazard Mitigation Plan Update Meeting
Location: Government Center, Chaska
[Additional Information](#)

6:00 pm: Hazard Mitigation Plan Update Meeting
Location: Carver County Public Works Headquarters
[Additional Information](#)

Hazard Mitigation Plan Update Meeting Posting to
 Carver County Public Website NEWS & EVENTS on Homepage and Detail Page – September 8, 2011

The screenshot shows the Carver County website homepage in Internet Explorer. The browser address bar shows <http://www.co.carver.mn.us/>. The website features a navigation menu with categories: County Government, Residents, Businesses, Public Health & Environment, Parks, Public Works & Property Info, Social Services, Public Safety, Law & Courts, Job Opportunities, and Agendas & Minutes. A search bar is located in the top right. Below the navigation is a banner for Carver County, Minnesota, with the text "Carver County Minnesota welcomes you..." and contact information: "600 East 4th Street • Chaska, MN 55318 • (952) 361-1500". A "Sign Up" button and a "Find us on Facebook" link are also present. The "News & Events" section is highlighted, containing the following information:

- Public Invitation: [County Hazard Mitigation Plan Update Meeting on September 29](#) new
- September is [National Preparedness Month](#). This is a time for Carver County citizens to prepare for emergencies. new
- The [Administrator's Message for the 2012 Budget](#) has been released new
- Volunteers wanted for [Stream Health Program!](#)
- Blue-green algae, found in lakes and rivers, can be toxic to people. To

The "Online Applications & Services" section lists: Assessment Applications & Forms, Building Permit Information Sheets, Court Forms, Crime Mapping, Employment Info & Application, GIS (Mapping), and Homestead Information & Application. The Windows taskbar at the bottom shows the Start button, Internet Explorer icon, and system tray with the time 4:27 PM on 9/8/2011.

Hazard Mitigation Plan Update Meeting Posting to
 Carver County Public Website NEWS & EVENTS on Homepage – September 15, 2011



Carver County Public Website Posting to NEWS & EVENTS on Homepage
of Hazard Mitigation Planning Meeting 2 – September 26, 2011

The screenshot shows the Carver County website homepage in Internet Explorer. The browser address bar displays <http://www.co.carver.mn.us/>. The website header features the Carver County logo and the text "Minnesota Carver County welcomes you...". Below the header, the address "600 East 4th Street • Chaska, MN 55318 • (952) 361-1500" is displayed, along with a "Sign Up" button and a Facebook link.

The main content area is titled "News & Events" and contains a list of announcements:

- [Notice of Road Closure](#): Flying Cloud Drive (CSAH 61) from Stoughton Ave. to Hwy. 101 on September 16 & 17 **new**
- Public Invitation: [County Hazard Mitigation Plan Update Meeting on September 29](#) **new**
- September is [National Preparedness Month](#). This is a time for Carver County citizens to prepare for emergencies. **new**
- The [Administrator's Message for the 2012 Budget](#) has been released **new**
- Volunteers wanted for [Stream Health Program!](#)
- Blue-green algae, found in lakes and rivers, can be toxic to people. To learn more, [visit here](#).
- Visit the [Chaska Farmers Market](#) at the Government Center on Wednesdays!
- [Carver County's 2011 Strategic Plan](#)
- Information on the county [fiber optic project](#), including bid notification sign-up
- [Salary Compliance Notice](#)
- [Public Health Emergencies](#)

On the left side, there are sections for "Most Frequent Stops" and "Quick Links". On the right side, there are sections for "Online Applications & Services" and "County Facilities & Locations".

Carver County Public Website: Hazard Mitigation Planning Meeting Posting-2: September 26, 2011



Carver County Hazard Mitigation Plan Project
Public Meeting #3
Meeting Summary

May 7, 2012

Purpose

The purpose of this meeting was to review the recently developed Carver County Hazard Mitigation Plan (HMP) with county stakeholders. This included summarizing the purpose, community profile, hazard identifications, and mitigation strategies identified in the plan, as approved by Minnesota Homeland Security and Emergency Management (HSEM) and the Federal Emergency Management Agency (FEMA).

Meeting Attendees
1:30 p.m. Meeting

Name	Position	Organization
Debra Larsen	Data Specialist, Emergency Preparedness, Public Health & Environment Division	Carver County
Josh Carlyle	Public Health Planner, Emergency Preparedness, Public Health & Environment Division	Carver County
Ken Carlson	Carver County Emergency Management Manager	Carver County
Mark Morse	Fire Chief, Waconia Fire Department	City of Waconia
Mike Lein	Environmental Services Dept. Manager, Public Health & Environment Division	Carver County
Steve Just	Land Management Dept. Manager, Public Health & Environment Division	Carver County
Tim Walsh	Carver County Emergency Management Specialist	Carver County
Vina Marquart	Public Health Planner, Emergency Preparedness, Public Health & Environment Division	Carver County
Tamara Habib	Emergency Management Specialist	Science Applications International Corporation (SAIC)

Host: Ken Carlson
Consultants: Tamara Habib, SAIC
Handouts: Draft Carver County HMP

Overview of Activities

WELCOME AND INTRODUCTIONS

Mr. Ken Carlson of Carver County Emergency Management opened the meetings. He introduced Ms. Tamara Habib of SAIC.

Appendix B

Ms. Habib provided an overview of why an HMP is necessary for Carver County and discussed the regulations supporting the development of the plan. Below is a summary of the key discussion points in the presentation. The full presentation is available through Carver County.

PURPOSE AND IMPORTANCE OF HAZARD MITIGATION PLANNING

Hazard mitigation planning is required under the Disaster Mitigation Act of 2000. It guides post-disaster recovery, engages multiple community stakeholders, promotes public participation, evaluates hazards and risks, builds support for mitigation activities, helps educate community officials, and develops more effective community policies. In the future, federal funding for mitigation projects will be contingent upon having an HMP in place or being in the process of developing an HMP.

The benefits of an HMP include reducing vulnerability to future hazards, saving lives and property, gaining disaster funding, maintaining economic stability, and expediting recovery.

HAZARD MITIGATION PLANNING PROCESS

The first phase of the plan update involved initiating the planning project and organizing resources. A kickoff meeting with the Hazard Mitigation Steering Committee was conducted and data collection began at that time.

SAIC identified hazards and gathered preliminary risk assessment results. This included developing a base list of hazards, gathering information about those hazards, and conducting a risk assessment.

Additionally, SAIC drafted a findings report based on a risk assessment and consequence analysis.

SAIC developed mitigation strategies and a draft HMP, which was reviewed at a second public meeting and updated based on input from this meeting.

The HMP was then submitted to HSEM, where the HMP was approved and then HSEM submitted to FEMA. FEMA has conditionally approved the HMP on the basis that it must still be approved by all participating jurisdictions and the Carver County Board of Commissioners.

The third public meeting was an opportunity for members of the community to learn about the HMP and its contents.

CALENDAR OF EVENTS

- Letter requesting support for the plan to all interested parties July 2011
- Kickoff meeting and public meeting of mitigation process August 9, 2011
- First draft HMP written September 26, 2011
- Public meeting #2 for review of draft updated HMP September 29, 2011
- Final mitigation strategy October 10, 2011
- Draft updated HMP with changes required from public meeting for submittal to HSEM and FEMA for official review February 9, 2012

PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

- HSEM review period February 13– March 13, 2012
- FEMA review period March 20–April 20, 2012
- Final draft updated plan based on HSEM and FEMA recommendations April 20, 2012
- Public meeting #3 for review of final updated HMP May 7, 2012
- Completed HMP May 14, 2012

COMMUNITY PROFILE

Ms. Habib reviewed the community profile. This section of the HMP includes the demographics and land use and development trends for the county. Ms. Habib pointed out that Carver County is experiencing rapid population and workforce growth and this is something that should be considered as mitigation actions occur. Participants had no questions or comments regarding this section of the plan.

REVIEW OF HAZARDS AND RISKS

Specific information on hazards and risks is located in section 4 of the draft HMP. Ms. Habib stated that hazards that are not included in the plan are not considered hazards for Carver County. Participants had no questions or comments regarding this section of the plan.

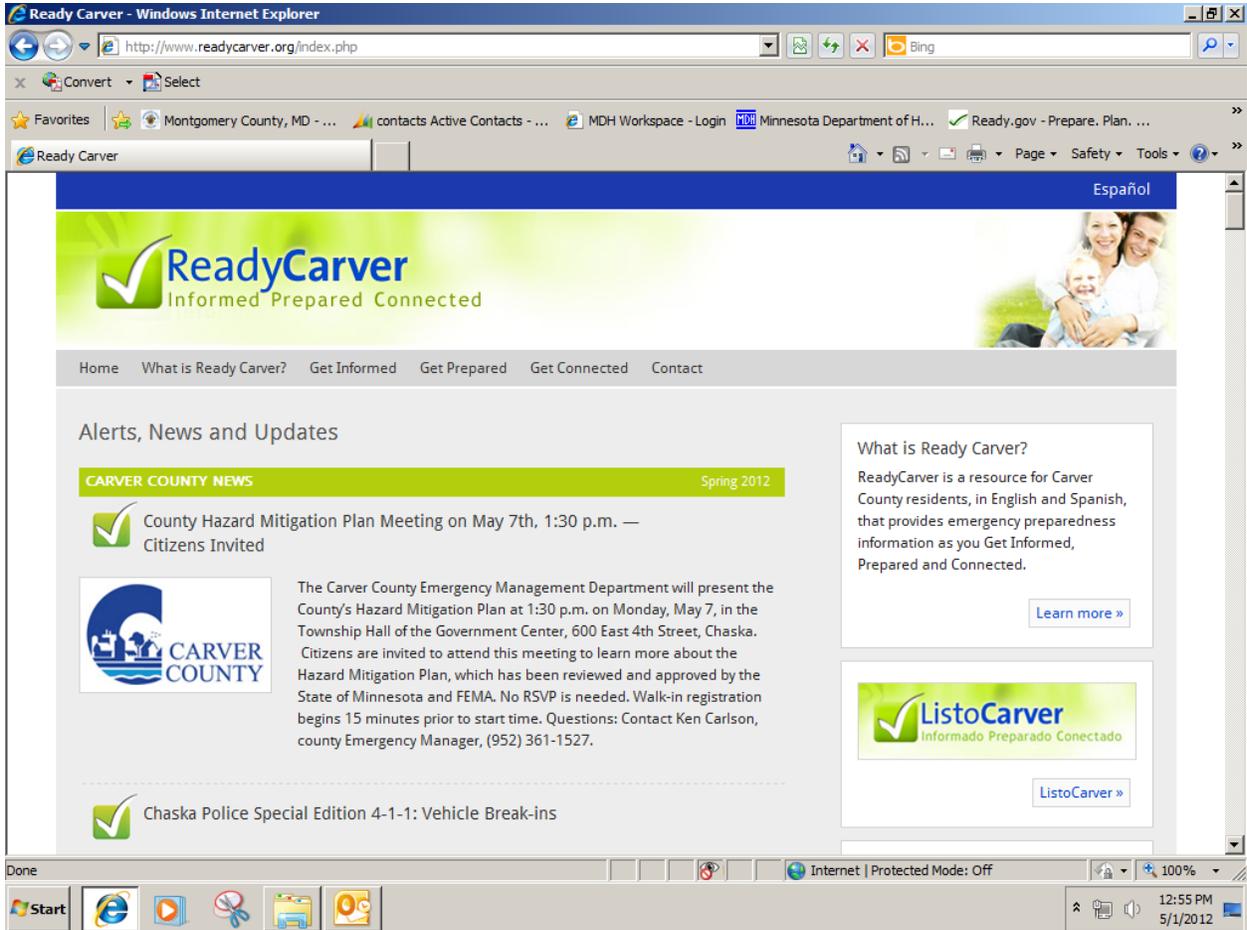
MITIGATION GOALS, OBJECTIVES, AND ACTION STEPS

Specific information on the mitigation goals, objectives, and action steps is located in section 5 of the draft updated HMP. Participants had no questions or comments regarding this section of the plan.

FINAL COMMENTS

Following the presentation, Mr. Carlson thanked all participants for attending and SAIC for developing the plan. The next steps would be to take the plan to all of the participating cities and the Carver County Board of Commissioners for approval. Once this is complete, Mr. Carlson will submit the approved HMP to FEMA for final approval.

Announcement of Public Meeting #3 on Carver County's website, readycarver.org



PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

Sign-in sheet for Public Meeting #3 on May 7, 2012

CARVER COUNTY

HAZARD MITIGATION FINAL PLAN MEETING - May 7, 2012

PLEASE SIGN IN

NAME	TITLE/ROLE	ORGANIZATION	PHONE	EMAIL
Ken Carlson	EM DIRECTOR	Carver County EM	952-361-1527	Kcarlson@co.carver.mn.us
Tim Walsh	EM SPECIALIST	CARVER COUNTY EM	952-361-1539	TWALSH@CO.CARVER.MN.US
Josh Carlyle	Planner	Carver County PH+E	952-361-1303	jcarlyle@co.carver.mn.us
Mark Morse	Fire Chief	Waconia Fire	651-357-3155	fire@waconia.org
Debra Larsen	Data Specialist	Carver Co. PH+E	952-361-1319	dlarsen@co.carver.mn.us
Vina Marguerite	Planner	Carver City PH+E	952-361-1371	Vmarguerite@carver.mn.us
Steve Just	Land Management	Carver City PH+E	952-361-1826	SJust@co.carver.mn.us
Mike Lein	Env. Services	Carver City PH+E	952-361-1802	mlein@co.carver.mn.us

Photos documenting public meeting #3 – May 7, 2012



PUBLIC MEETING ATTENDANCE RECORDS AND NOTICES

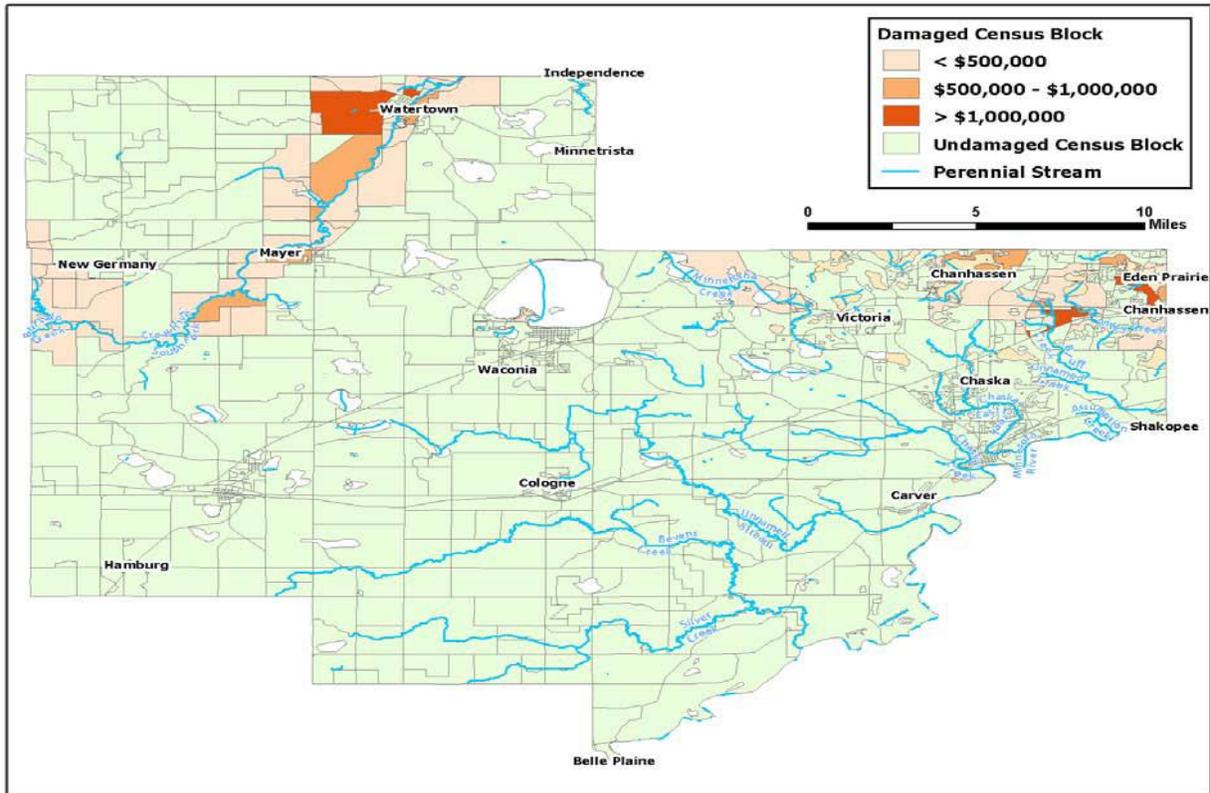


Appendix B



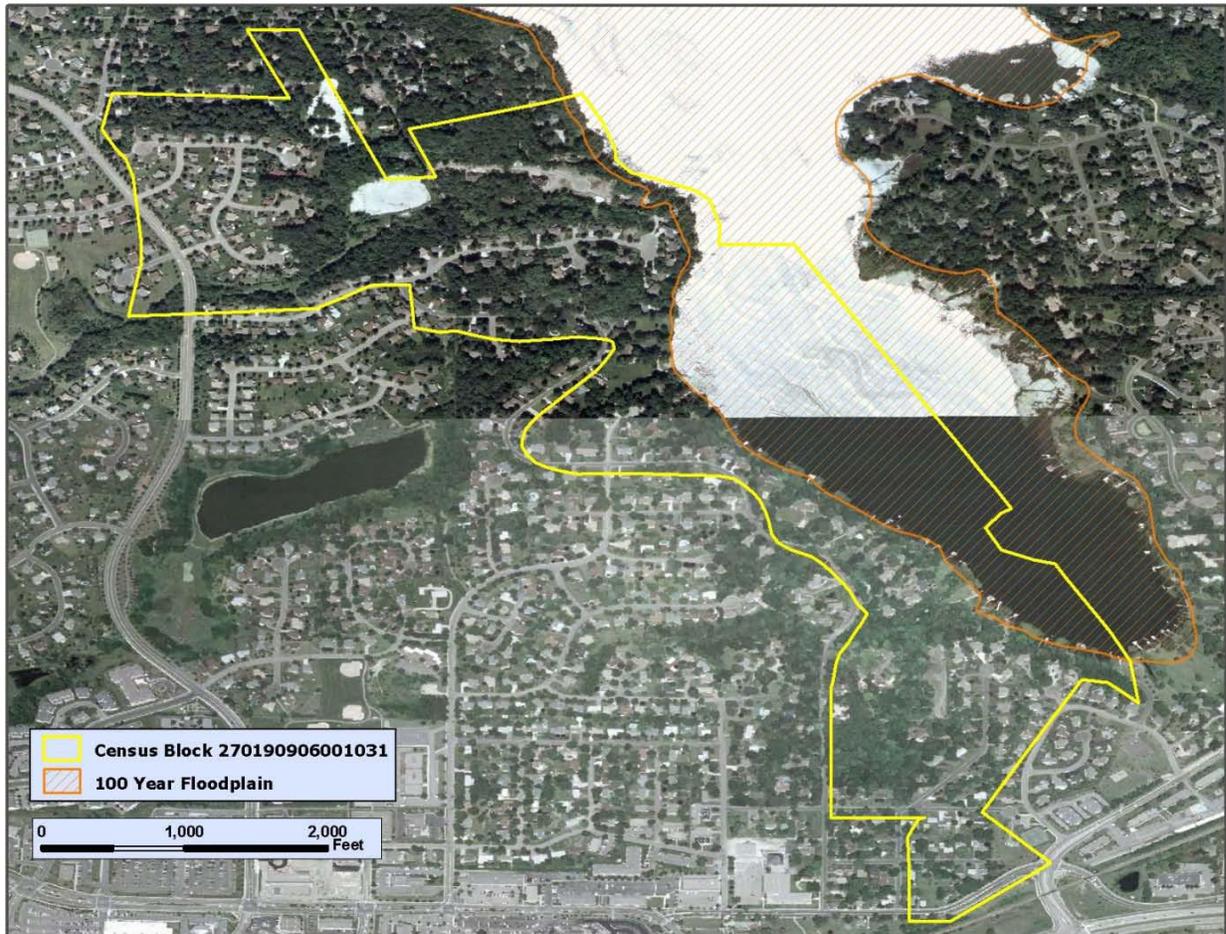
Appendix C FLOODPLAIN MAPS

Carver County Total Economic Loss – 100 Year Flood²²



²² Minnesota Pre-Disaster Mitigation Plan, Flood Analysis for Carver County. Geographic Information Services Lab, UMD.

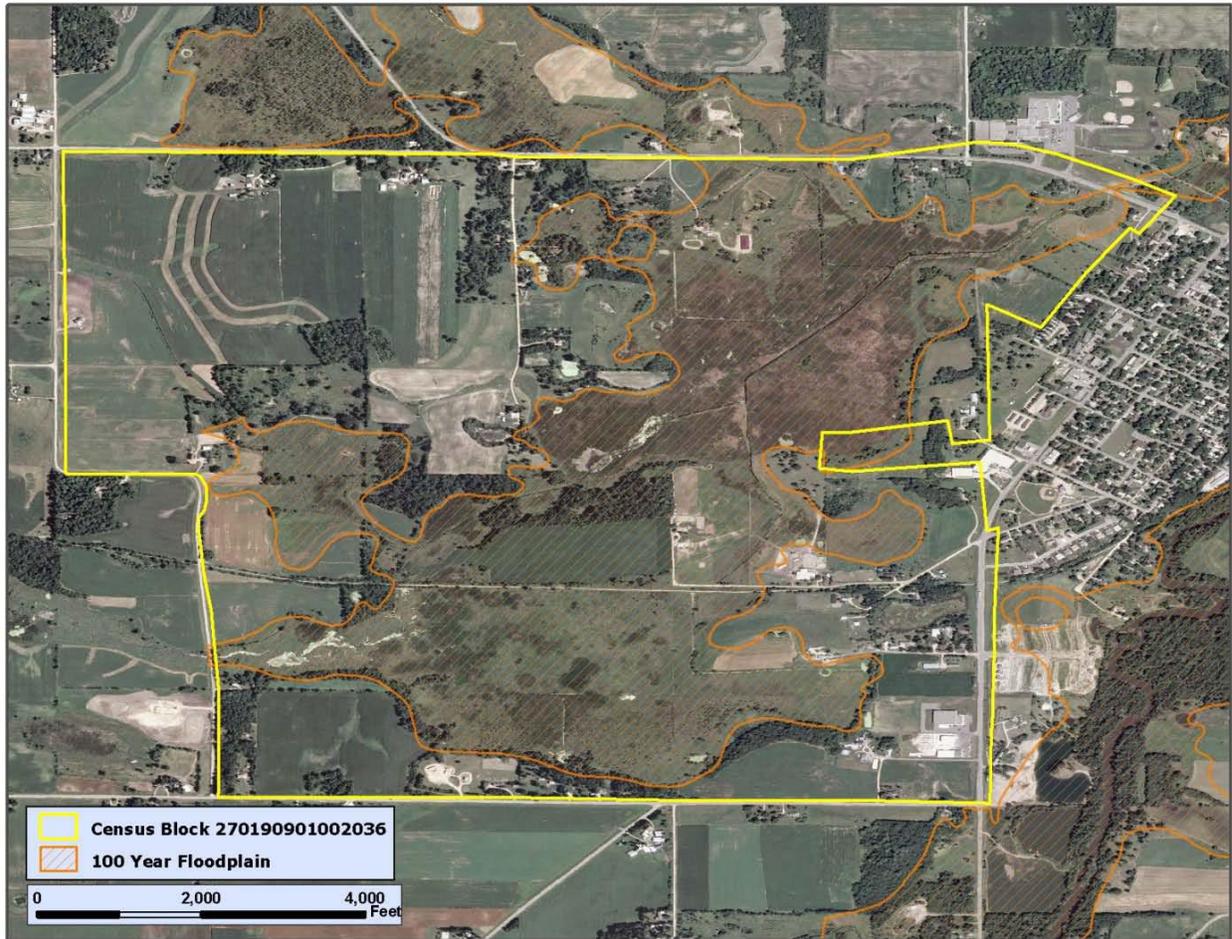
Flood Damage Exposure – Central Chanhassen²³



This figure shows census blocks overlaid with the flood boundary and orthophoto of Chanhassen. Census block #270190906001031 has an estimated building loss of \$1.37 million and a total economic loss of \$2.33 million. Although the overlay shows some flooding in this census block, very few buildings are at risk.

²³ Minnesota Pre-Disaster Mitigation Plan, Flood Analysis for Carver County. Geographic Information Services Lab, UMD.

Flood Damage in Western Watertown²⁴



This figure shows census blocks overlaid with the flood boundary and orthophoto of Watertown. Census block #270190901002036 has an estimated building loss of \$701,000 with a total loss of \$2.1 million. The overlay shows significant flooding in this census block and several buildings are at risk.

²⁴ Minnesota Pre-Disaster Mitigation Plan, Flood Analysis for Carver County. Geographic Information Services Lab, UMD.

Appendix C

100-Year Flood Boundary Overlaid with Essential Facilities in the City of Chaska²⁵



²⁵ Minnesota Pre-Disaster Mitigation Plan, Flood Analysis for Carver County. Geographic Information Services Lab, UMD.

100-Year Flood Boundary Overlaid with Essential Facilities in the City of Cologne²⁶

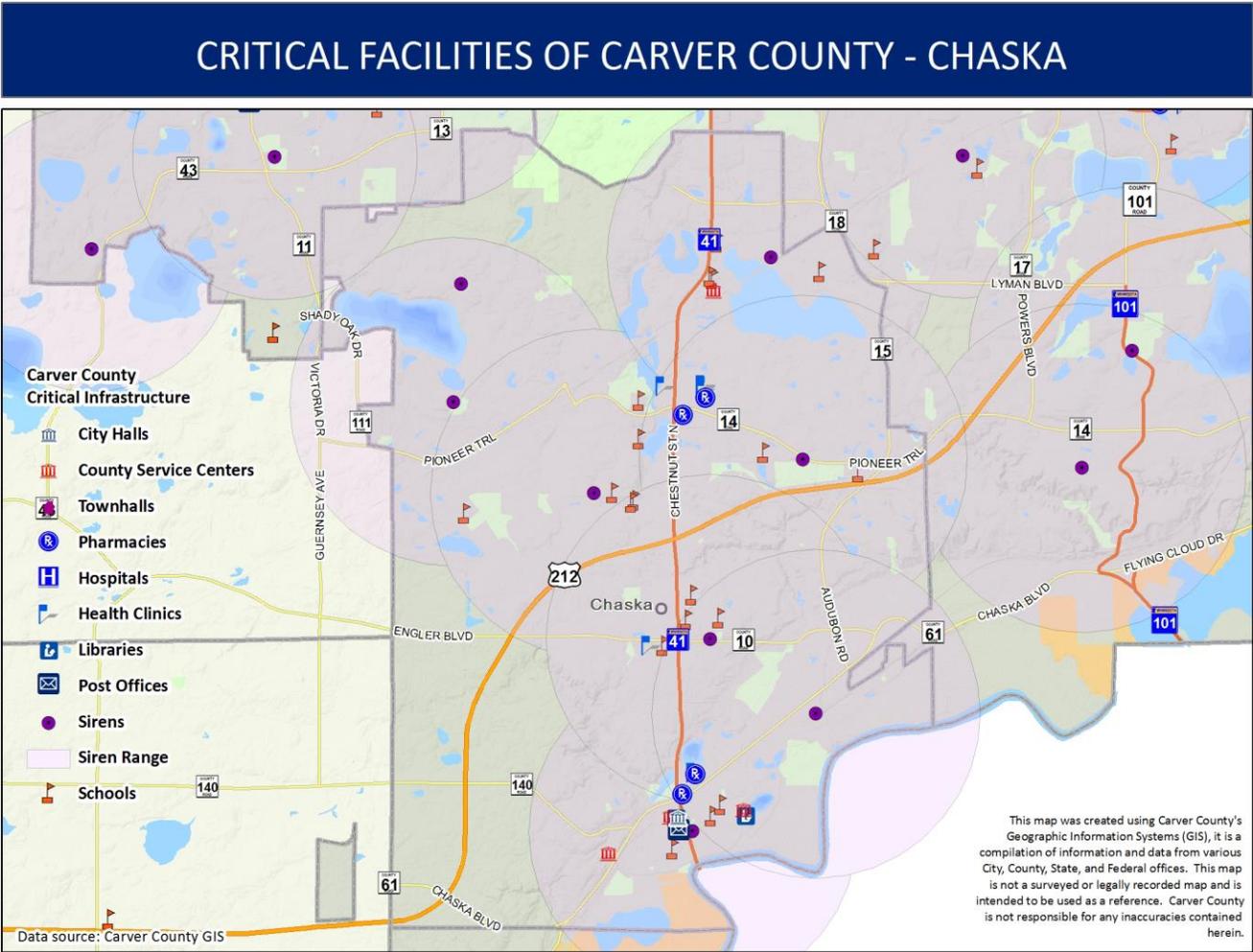


Essential facility locations were imported from the best available statewide sources. The essential facility damages reported by HAZUS-MH may be overstated.

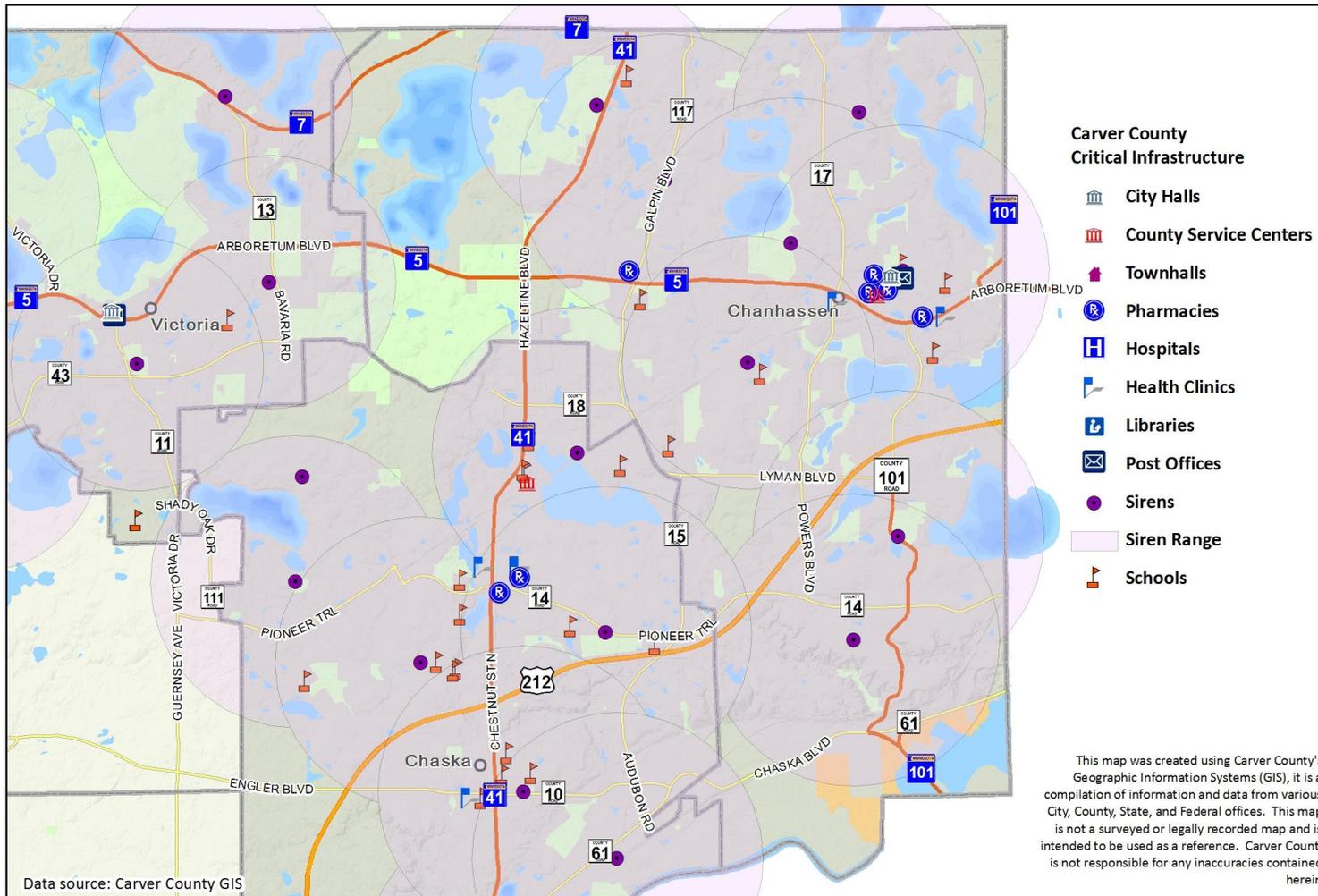
²⁶ Minnesota Pre-Disaster Mitigation Plan, Flood Analysis for Carver County. Geographic Information Services Lab, UMD.

Appendix D CRITICAL FACILITIES BY JURISDICTION

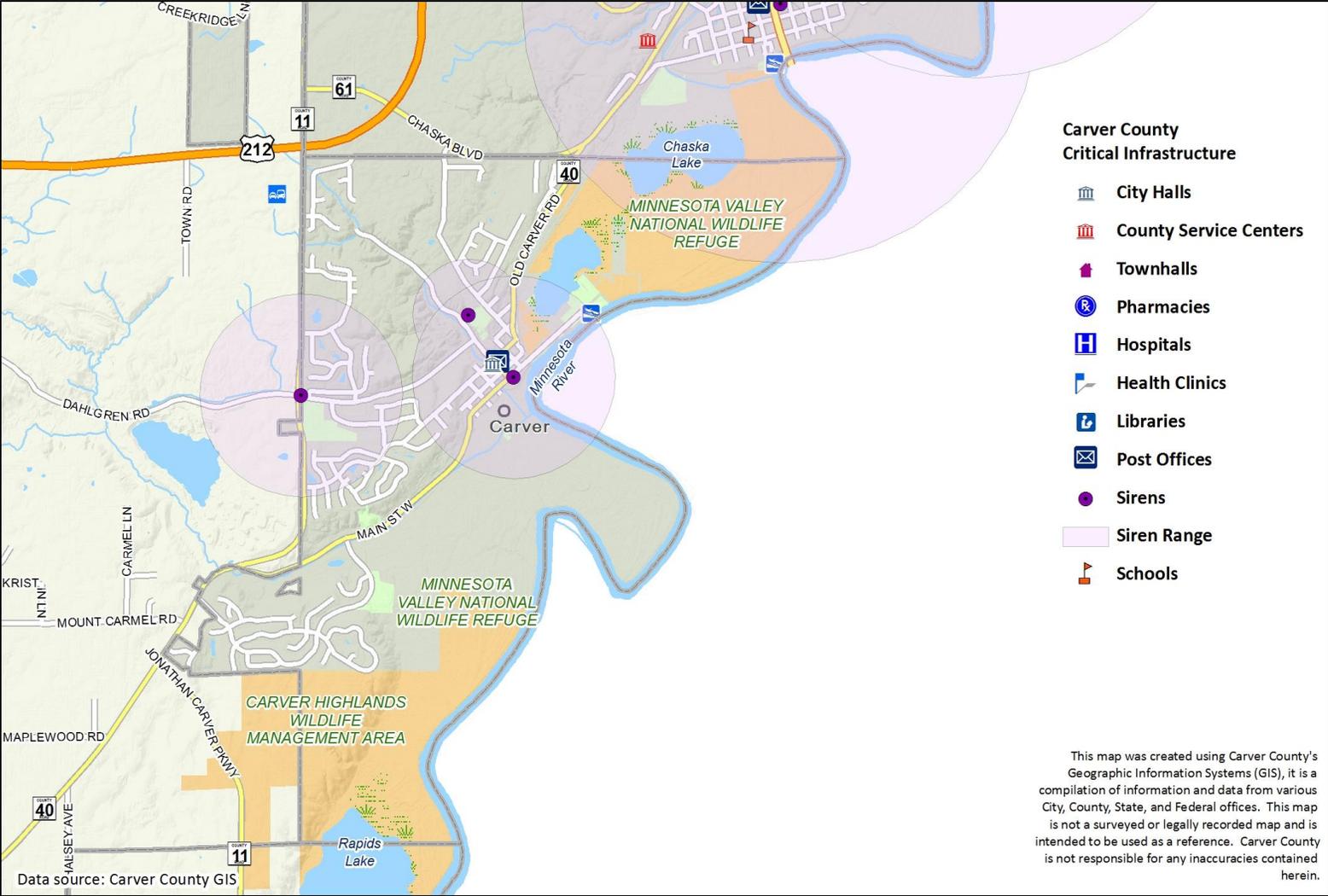
The following pages show critical facilities maps on an individual city-by-city basis. Almost all structures are susceptible to the hazards listed in the plan.



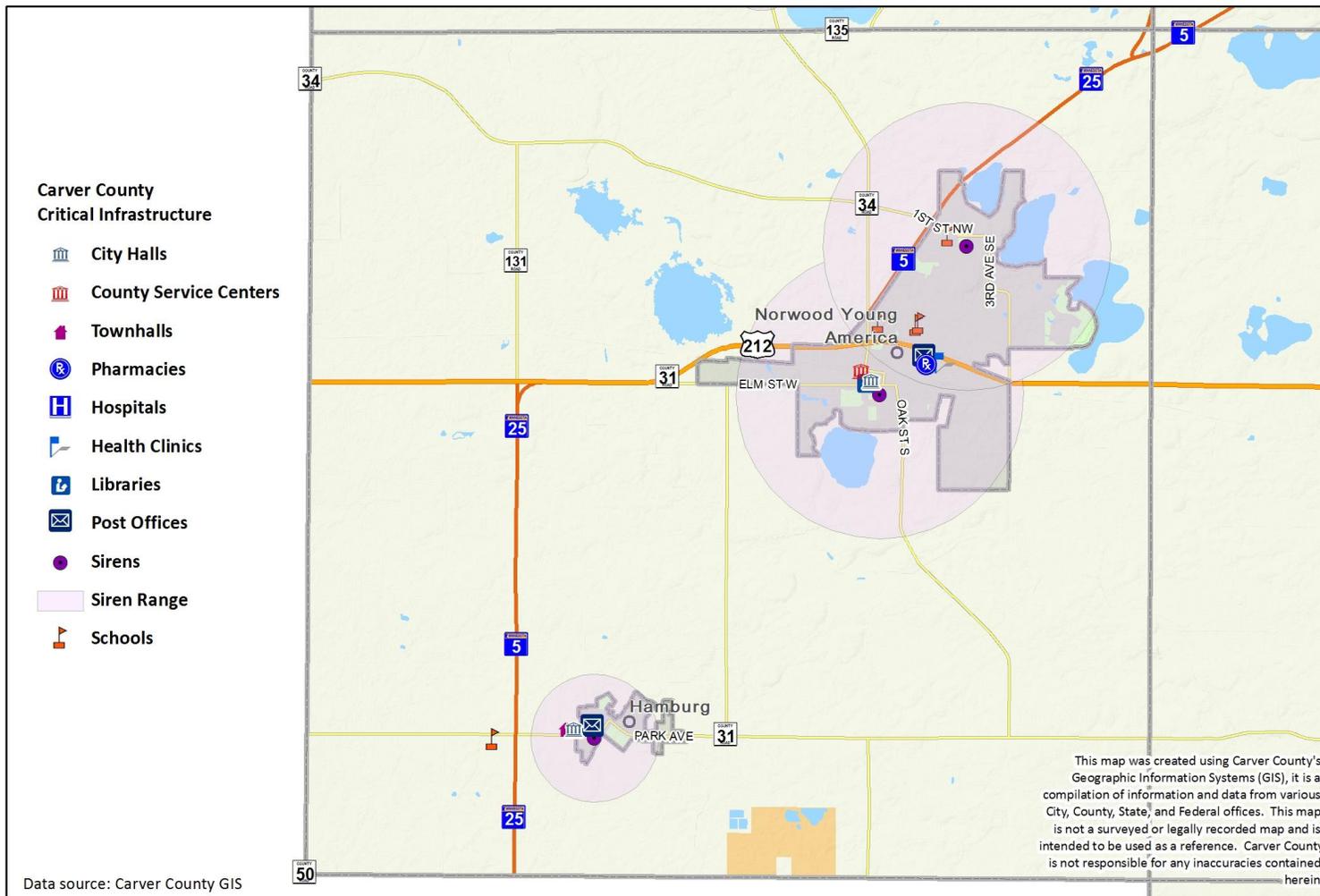
CRITICAL FACILITIES OF CARVER COUNTY - CHANHASSEN



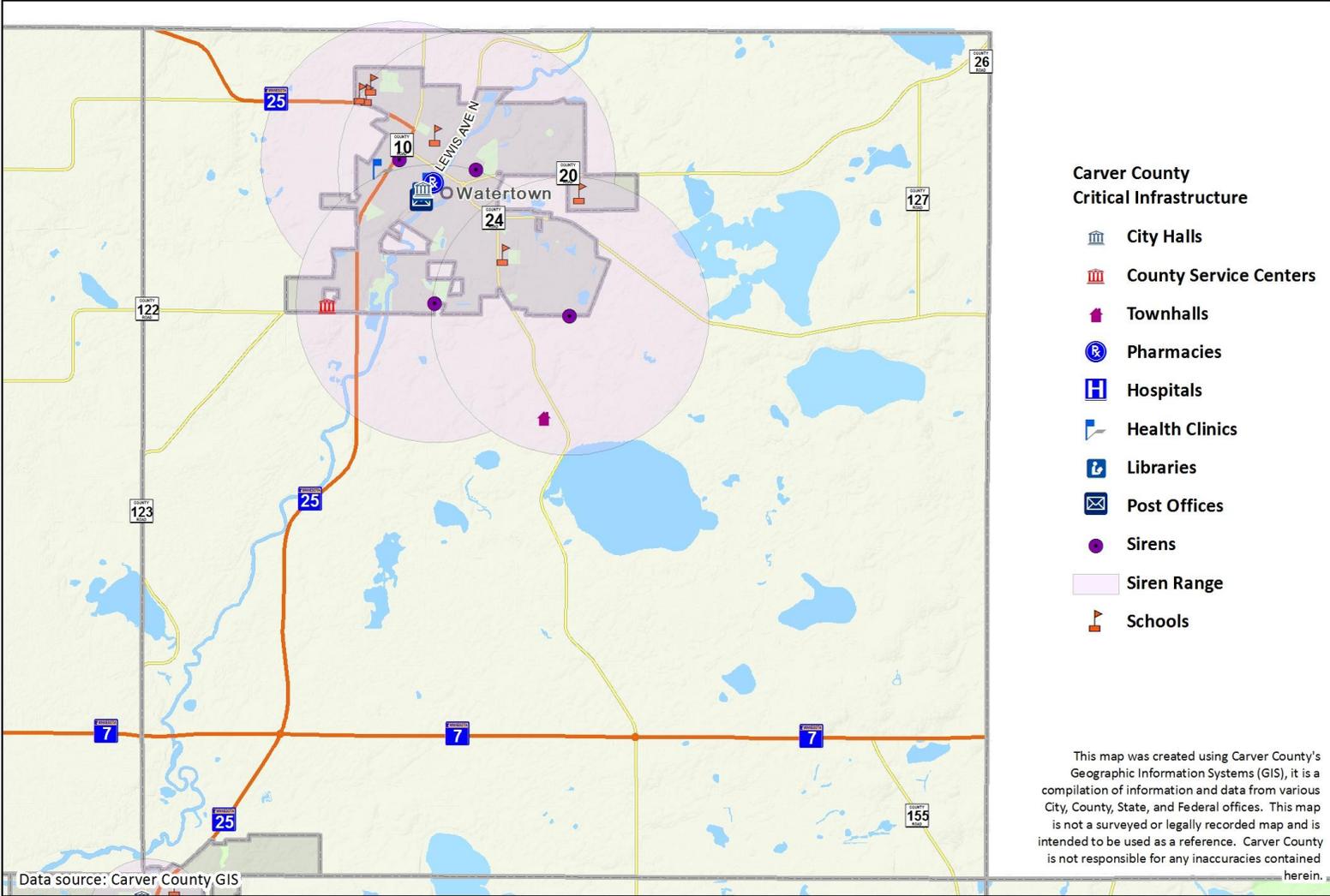
CRITICAL FACILITIES OF CARVER COUNTY - CARVER



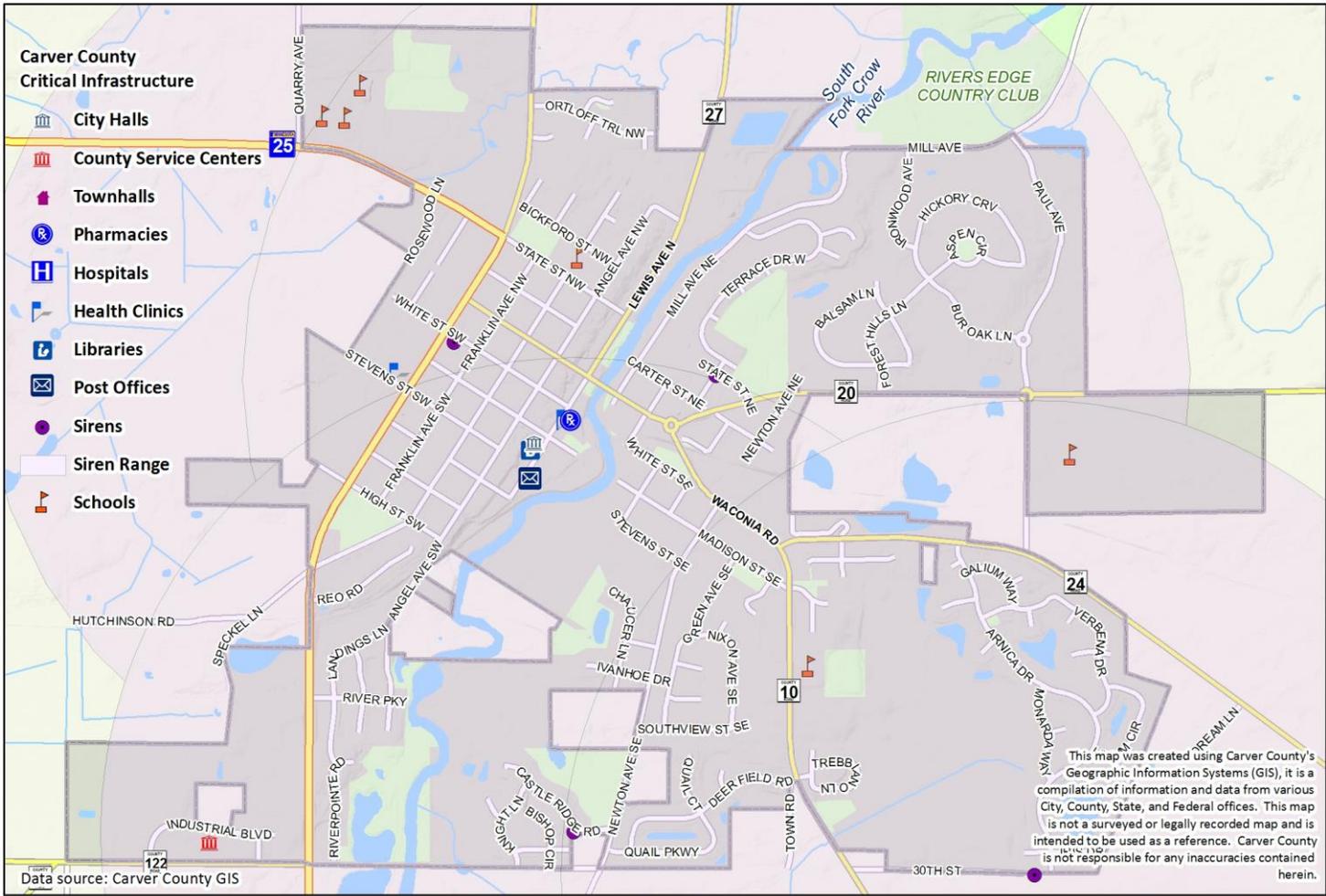
CRITICAL FACILITIES OF CARVER COUNTY - YOUNG AMERICA TOWNSHIP



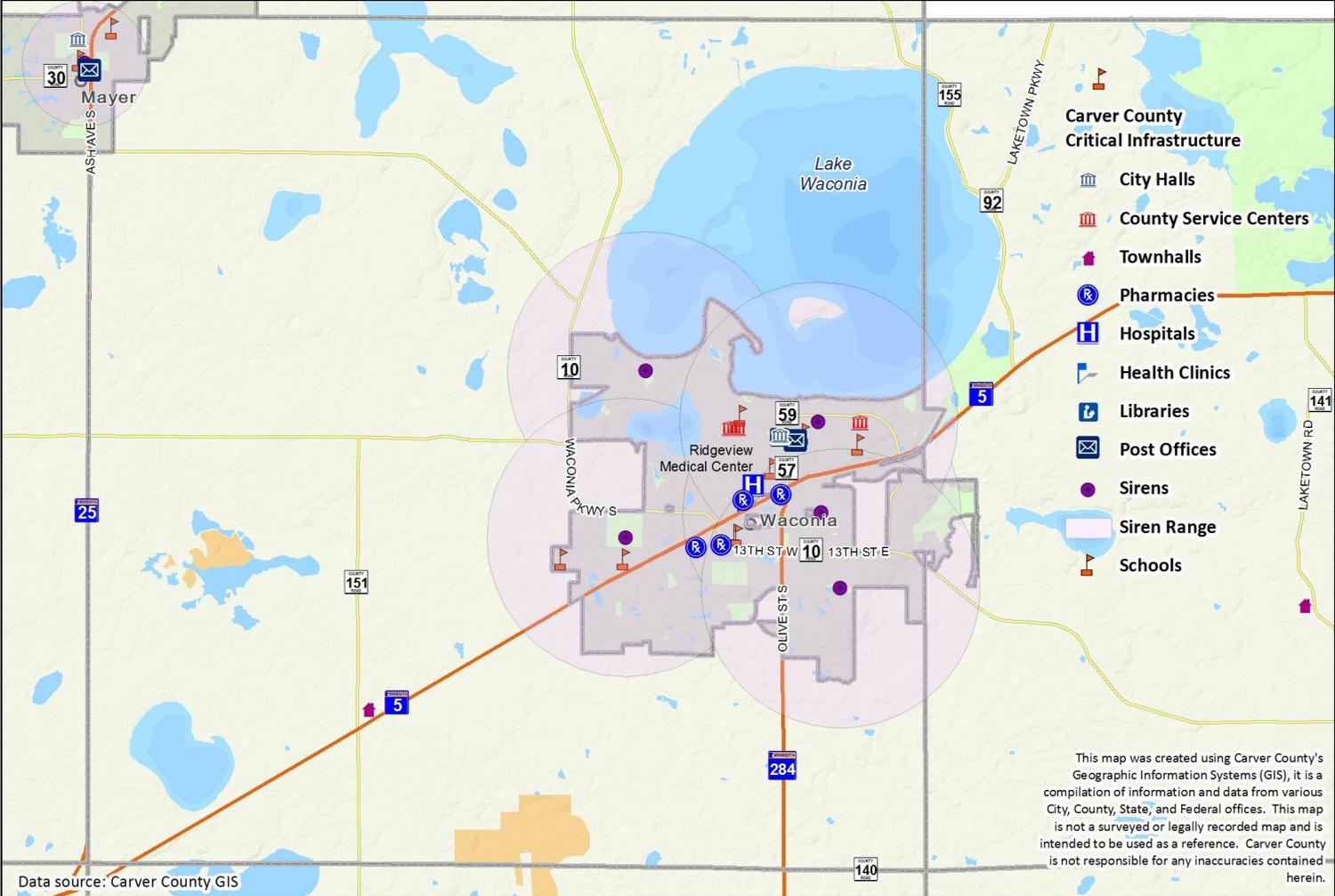
CRITICAL FACILITIES OF CARVER COUNTY - WATERTOWN TOWNSHIP



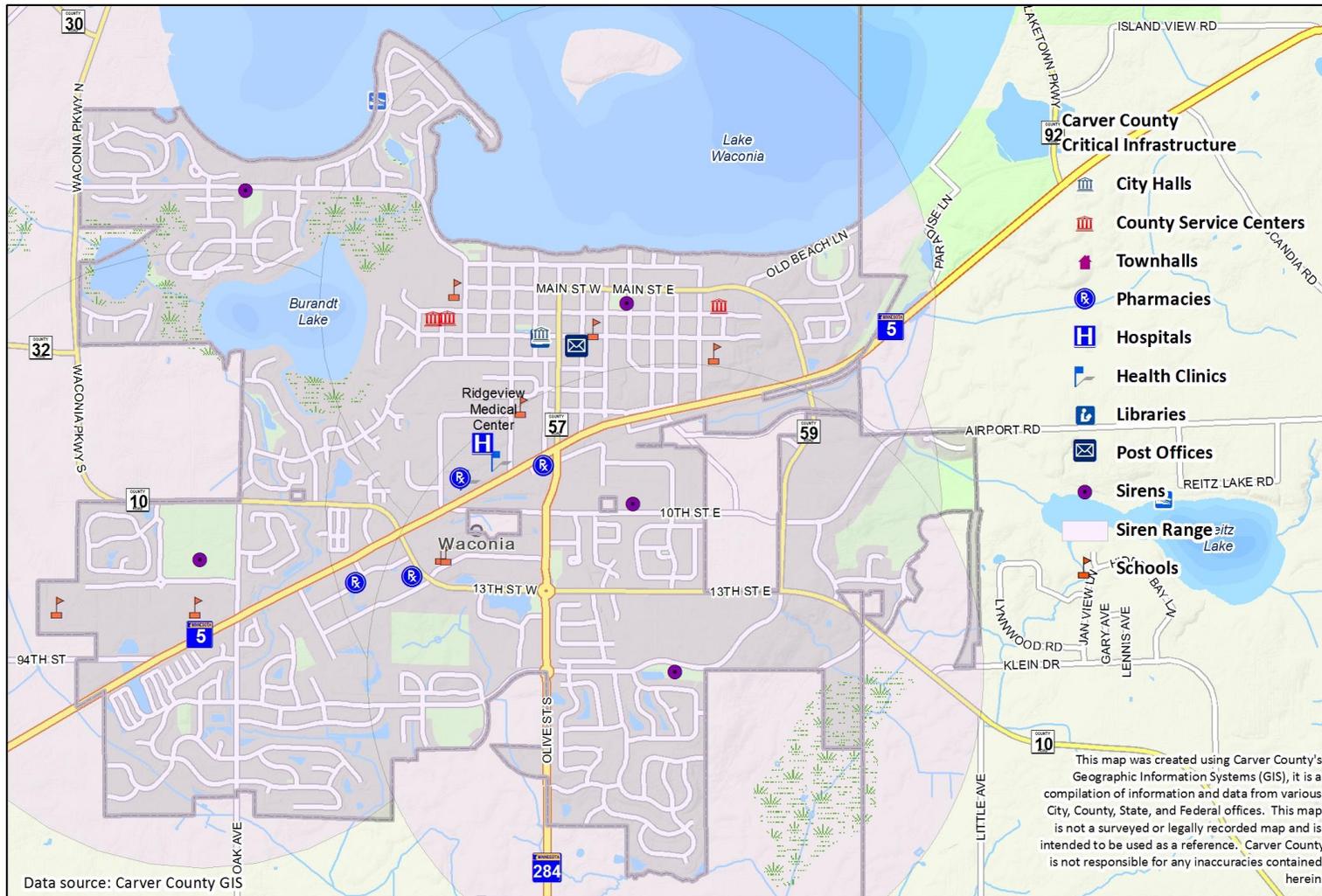
CRITICAL FACILITIES OF CARVER COUNTY - WATERTOWN



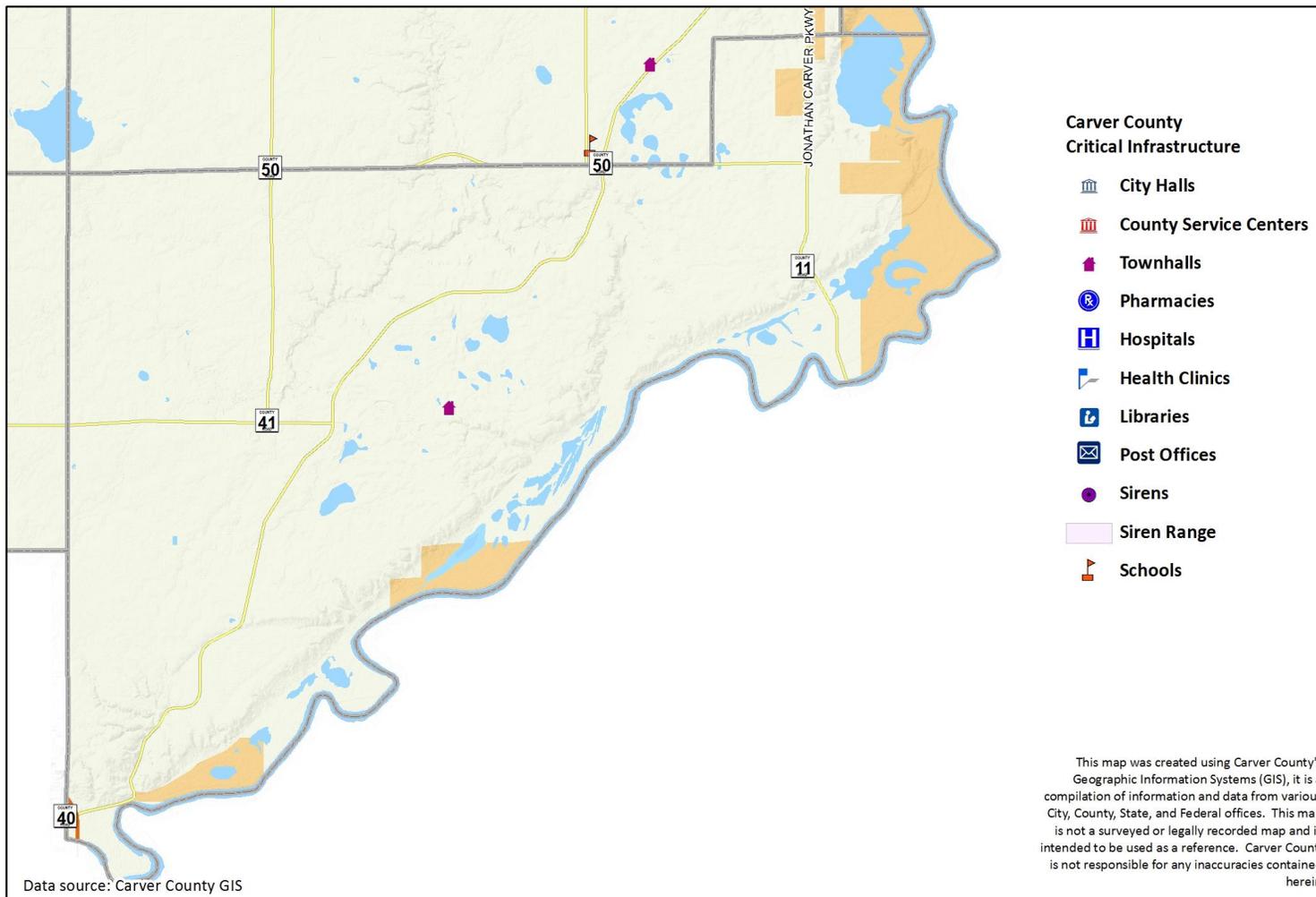
CRITICAL FACILITIES OF CARVER COUNTY - WACONIA TOWNSHIP



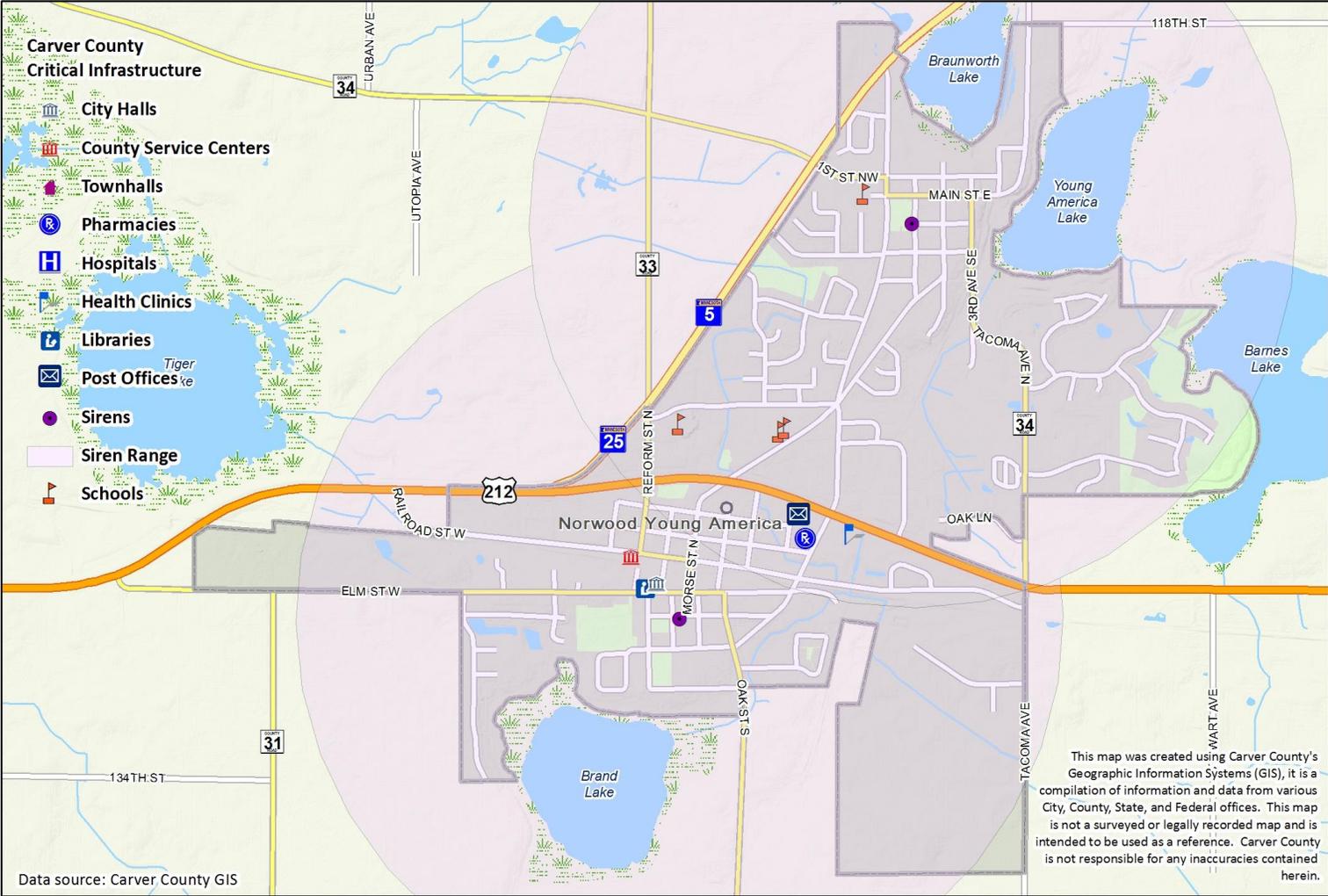
CRITICAL FACILITIES OF CARVER COUNTY - WACONIA



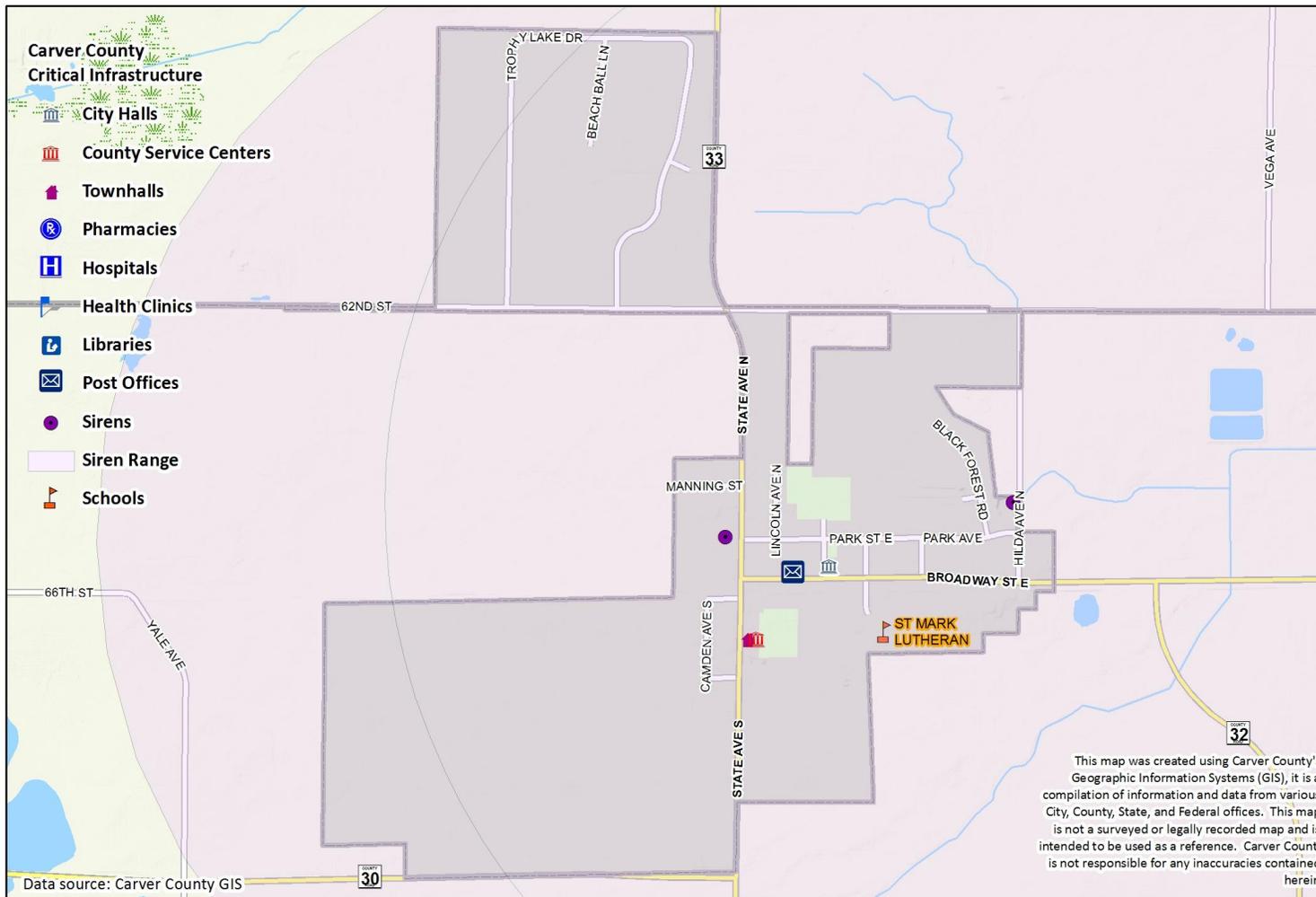
CRITICAL FACILITIES OF CARVER COUNTY - SAN FRANCISCO TOWNSHIP



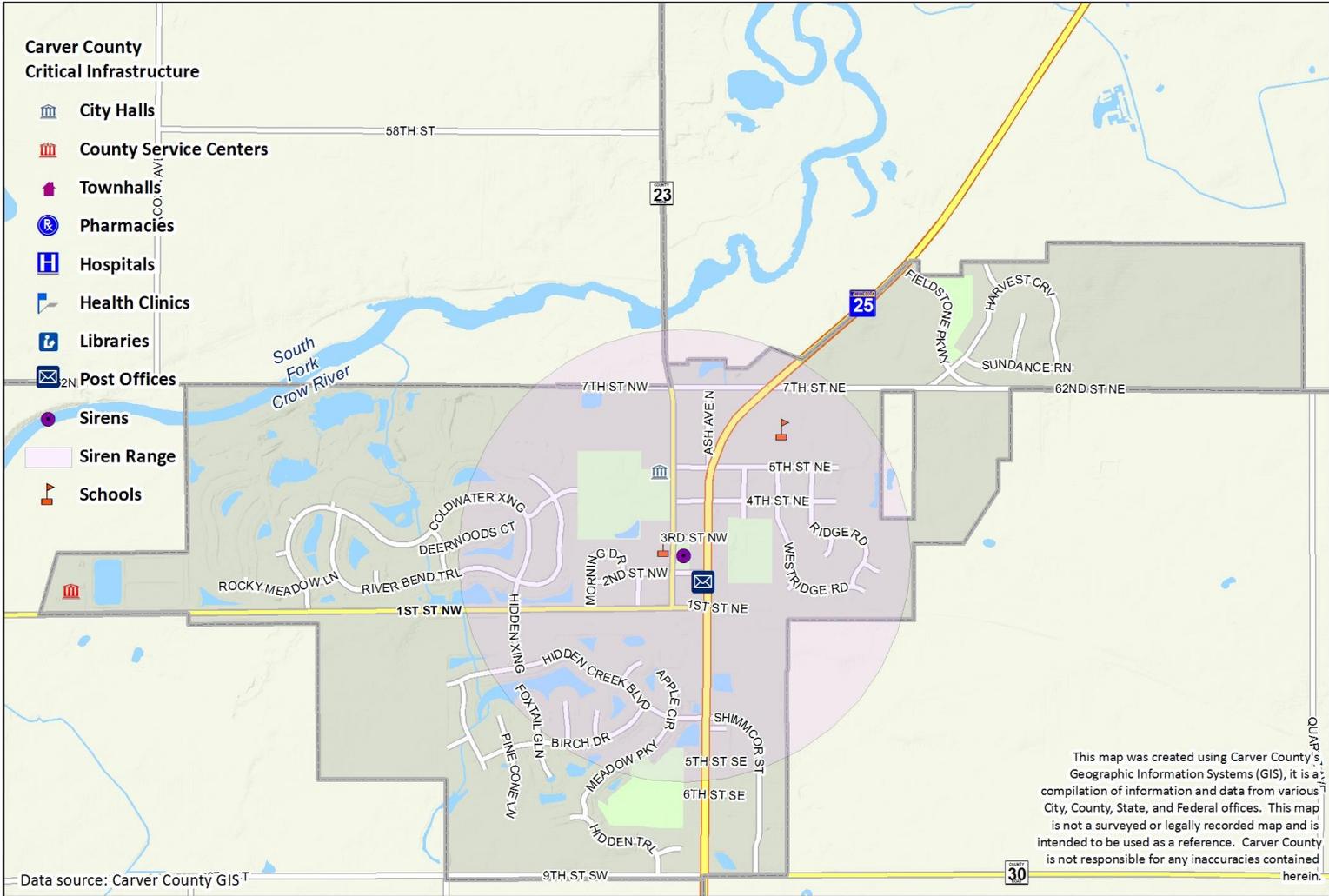
CRITICAL FACILITIES OF CARVER COUNTY - NORWOOD YOUNG AMERICA



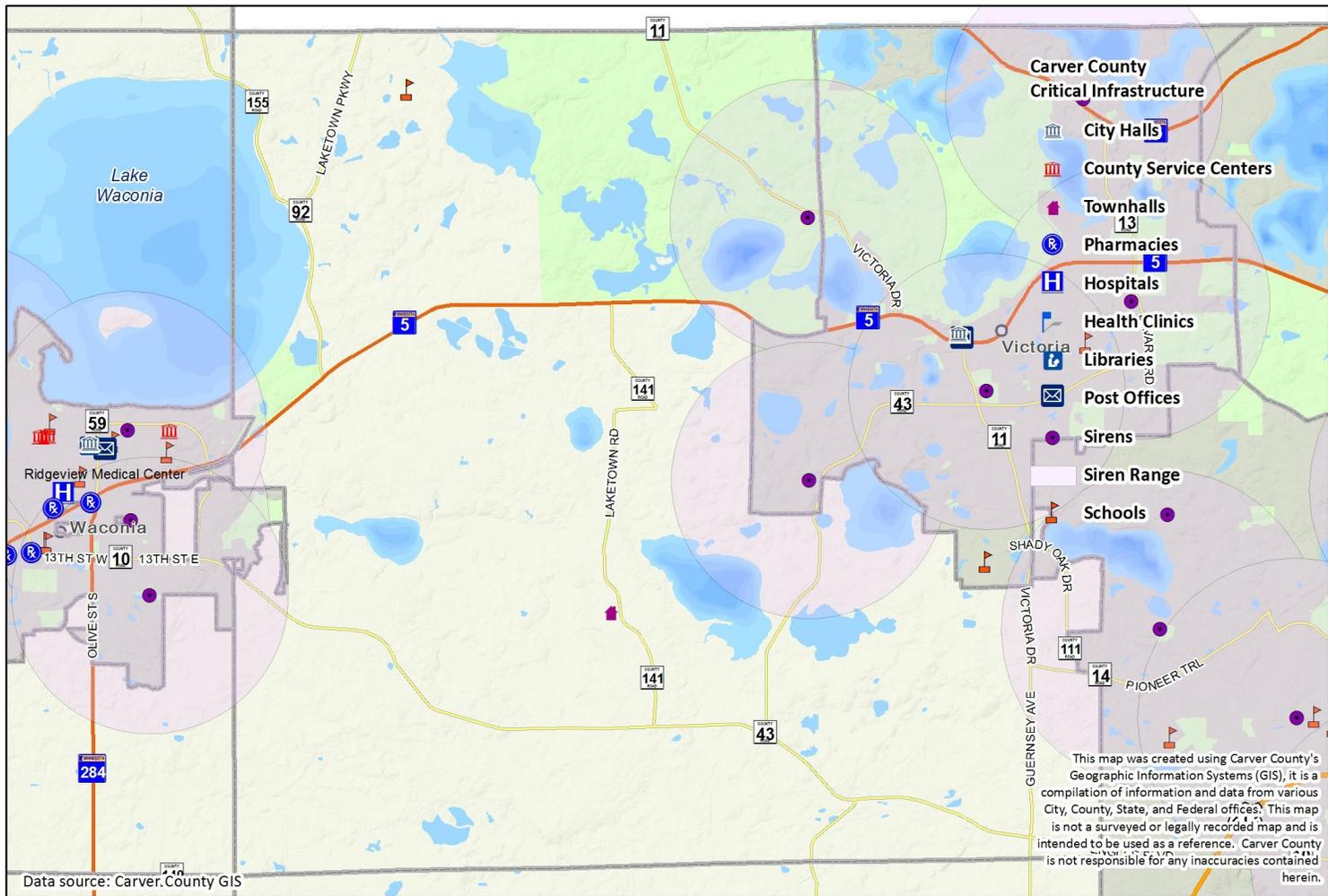
CRITICAL FACILITIES OF CARVER COUNTY - NEW GERMANY



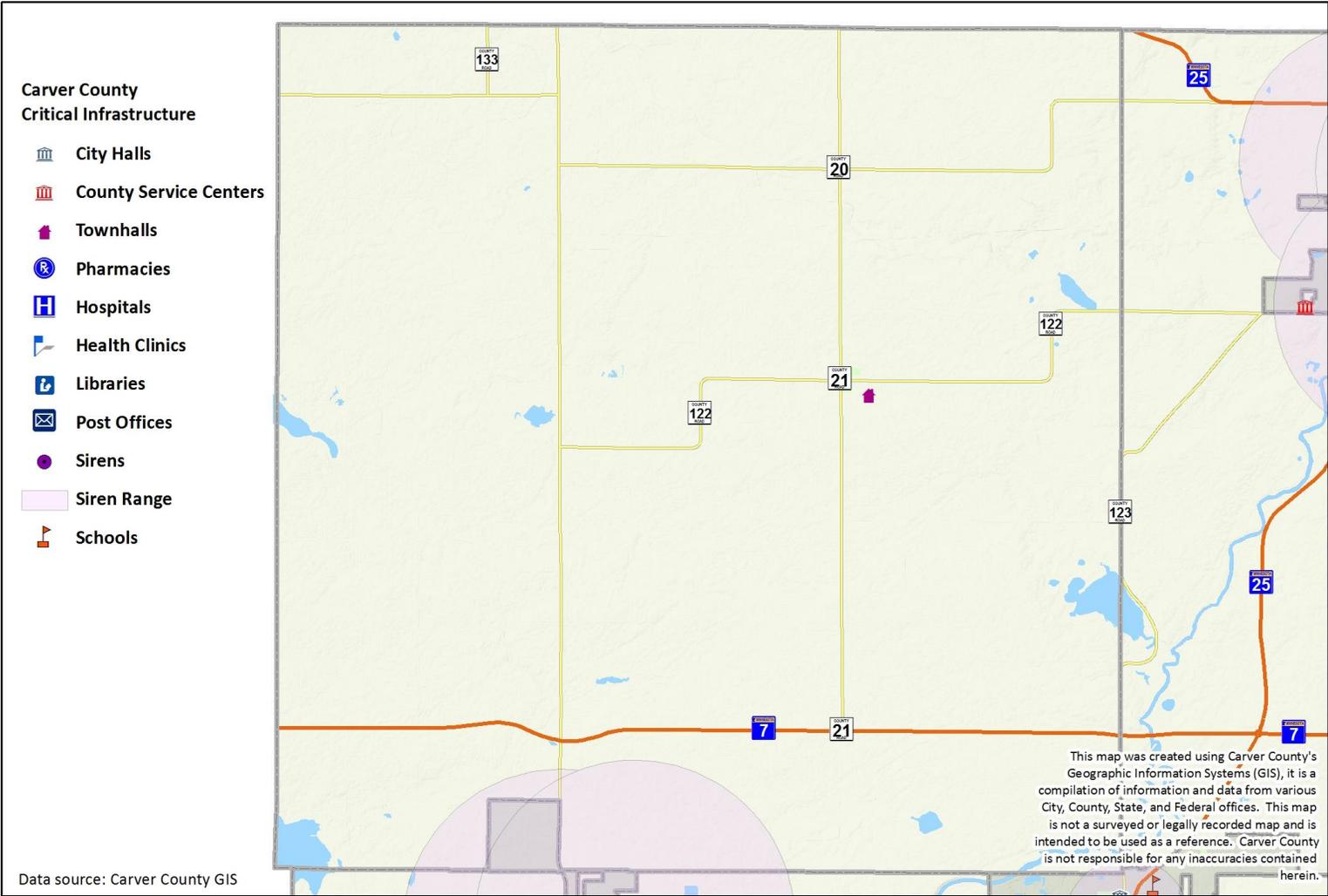
CRITICAL FACILITIES OF CARVER COUNTY - MAYER



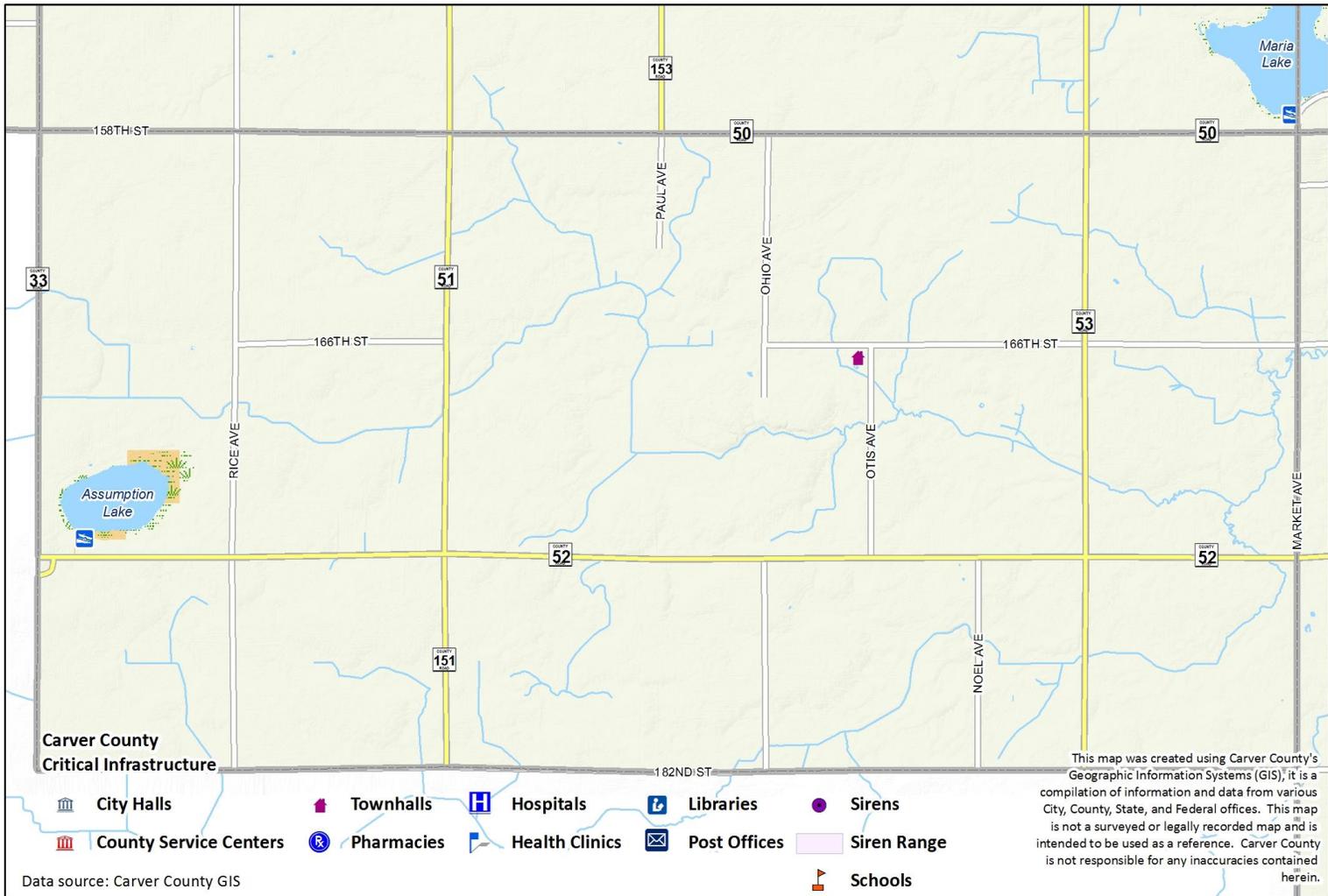
CRITICAL FACILITIES OF CARVER COUNTY - LAKETOWN TOWNSHIP



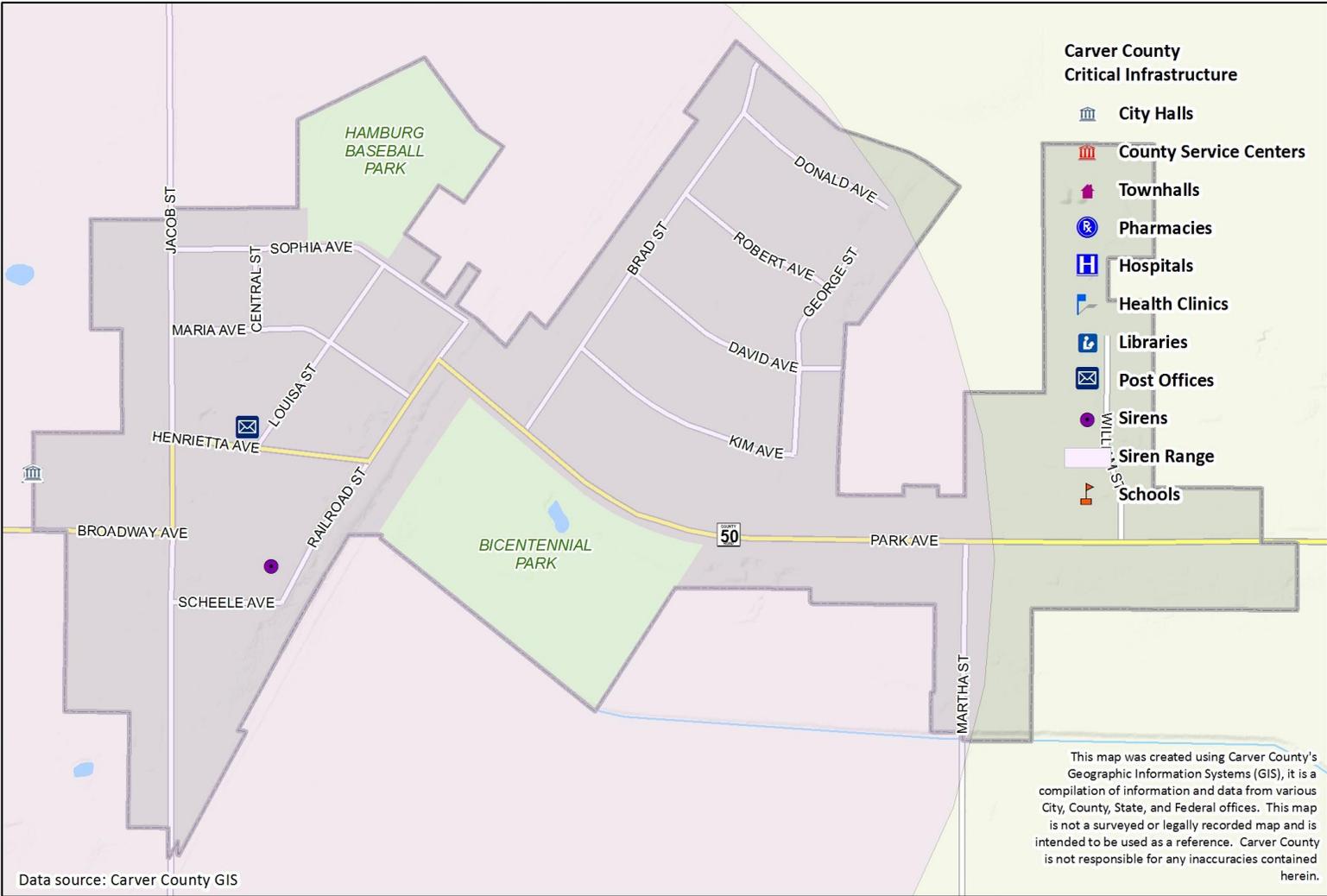
CRITICAL FACILITIES OF CARVER COUNTY - HOLLYWOOD TOWNSHIP



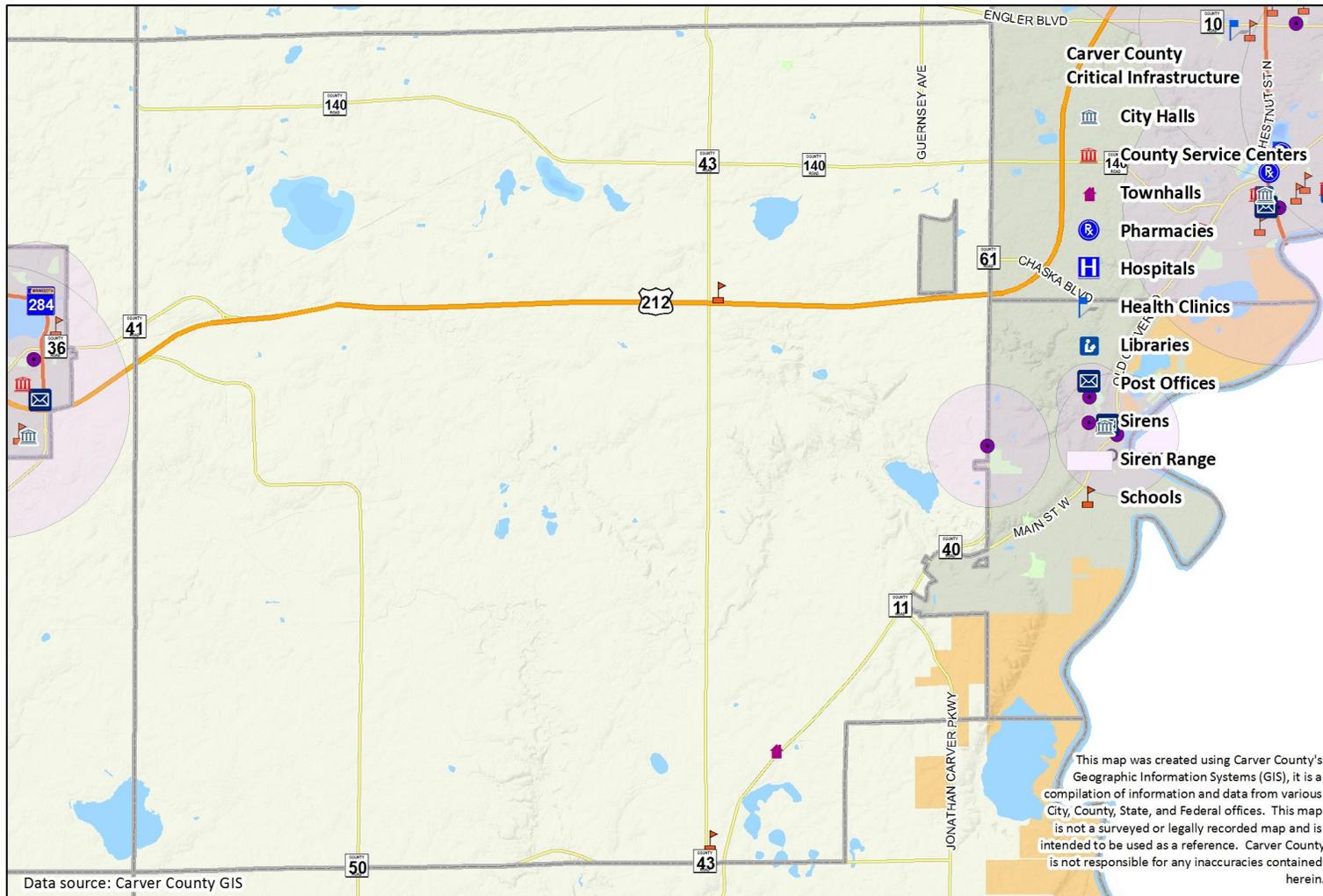
CRITICAL FACILITIES OF CARVER COUNTY - HANCOCK TOWNSHIP



CRITICAL FACILITIES OF CARVER COUNTY - HAMBURG



CRITICAL FACILITIES OF CARVER COUNTY - DAHLGREN TOWNSHIP



CRITICAL FACILITIES OF CARVER COUNTY - COLOGNE

