



Ramsey County All-Hazard Mitigation Plan



Prepared by:
Ramsey County Emergency Management & Homeland Security
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Executive Summary

Mission Statement

To identify measures that can be taken pre-disaster to reduce the loss of life and property, and ease the economic hardship, while reducing future risk in Ramsey County.

Purpose of the Plan

Ramsey County is at the heart of Minnesota. As the most densely populated county in the state, Ramsey County recognizes the impact even a small disaster could have on the people and property, along with the economy of Minnesota as a whole. As such, Ramsey County has chosen to write a mitigation plan to help alleviate these possible effects.

The purpose of the plan is to be an all-hazard plan, encompassing natural, technological and man-made hazards. This plan will also identify risks, vulnerabilities and measures that will prevent the loss of life and damage to property while reducing future risks. As September 11th continues to linger fresh in our minds, we are ever aware of the new threats we face.

The plan will require cooperation and a willingness to continue to work together by both the County and the municipalities within. The completion of the plan itself will incur no direct cost, however with minimal cost, the chances to greatly reduce the loss of life and property increases greatly.

The final approval by the State of Minnesota Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency (FEMA) will make Ramsey County and the municipalities that adopt this plan eligible for Hazard Mitigation Grant Program (HMGP) project funds. These funds will help to offset the costs of some of the mitigation projects set forth in this plan.

All-Hazard Mitigation Overview

Definition

According to the Federal Emergency Management Agency (FEMA), mitigation is the cornerstone of emergency management. It's the ongoing effort to lessen the impact disasters have on people's lives and property through damage prevention and flood insurance. For this purpose mitigation involves:

- Structural hazard control or protection measures
- Retrofitting of facilities
- Acquisition and relocation of repetitive loss structures
- Development of mitigation standards, regulations, policies, and programs
- Review, update and assure compliance with building codes
- Public awareness and education programs
- Development or improvement of warning systems

Overarching Goal

To identify measures that can be taken pre-disaster to reduce the loss of life and property, and ease the economic hardship, while reducing future risk in Ramsey County.

Benefits

The benefits of an all-hazard mitigation plan include the following:

- Saves lives and reduces injuries
- Prevents and reduces property damage
- Reduces economic losses
- Maintaining critical facilities in functioning order
- Protect critical infrastructure from damage
- Protect mental health
- Reduce social displacement and stress

Process

The process of hazard mitigation involves many steps, including the following:

- Organizing resources
- Assessing risks
- Developing the mitigation plan
- Determining goals, objectives and strategies
- Implementing the plan and monitoring progress

Planning Process

Mission Statement

To identify measures that can be taken pre-disaster to reduce the loss of life and property, and ease the economic hardship, while reducing future risk in Ramsey County.

Mitigation Planning Process

The mitigation planning process involves many steps including:

- Organizing resources
- Assessing risks
- Developing the mitigation plan
- Determining goals, objectives and strategies
- Implementing the plan and monitoring progress

The Ramsey County Division of Emergency Management and Homeland Security (RC EMHS) took the lead on completing a countywide All-Hazard Mitigation Plan as required by the Disaster Mitigation Act of 2000. RC EMHS first began by organizing its resources and assessing its risk. RC EMHS reviewed the recently conducted Jurisdictional Assessment Report (JAR) that was completed in October of 2003 as required by the Department of Homeland Security, Office of Domestic Preparedness.

From there RC EMHS branched out to gather additional resources and assets it would need for its plan development including contacting local experts and bringing in the Ramsey County Department of Public Works, Geographic Information Systems Analysts. RC EMHS reviewed the Federal Emergency Management Agency's (FEMA) "How-to-Guides," along with reviewing the State of Minnesota's "Careful County Plan;" a mock plan developed by the state to guide municipalities and counties through the mitigation planning processes.

RC EMHS also met with the surrounding counties and the City of St. Paul, which was writing its own plan with Hazard Mitigation Grant Plan monies the City had received from the State. After that, RC EMHS began writing portions of the plan while continuing to conduct research and hold necessary meetings. A Mitigation Planning Committee was formed and public meetings were held. An overview of the plan was also conducted for the City Managers and County Manager. Resolutions were signed by each municipality supporting the All-Hazard Mitigation Plan and will look to formally adopt the plan once it has been approved by FEMA, the Minnesota Division of Homeland Security and Emergency Management, and the Ramsey County Board of Commissioners.

Attachment #1 shows an overview of the Timeline.

Mitigation Planning Committee

The RC EMHS established a Mitigation Planning Committee. Participation on this committee was voluntary, and includes participants from a variety of occupations, including government

Ramsey County All-Hazard Mitigation Plan

officials, emergency responders, like police, fire, EMS, emergency management, public works, public safety answering points (PASP) or dispatch, along with officials from area business, the Metropolitan Airports Commission (MAC), and other response organizations including the Red Cross and Salvation Army. Although some participants were unable to be present at the meetings, electronic communication was carried out to obtain their concerns, suggestions and revisions for the plan. For a list of invitees, please see Attachment #2.

Public Participation

There were 5 public meetings held throughout Ramsey County in the month of September to give the citizens of the County an opportunity to learn what mitigation is about and what the County is doing for mitigation efforts. A PowerPoint presentation was conducted which gave an overview of the history of Ramsey County in terms of disasters or hazardous events that have occurred to put the audience in the mindset of the meeting. Then an overview of emergency management was given and an overview of the components of the mitigation plan was presented. Next, goals and strategies were discussed giving the audience examples from the plan and asking them what they believed to be hazards that should be planned for and what were some steps the County could take to overcome some of the issues specific hazards pose. A question and answer period was offered and a survey was passed out to participants and they were asked to complete it to provide additional information and feedback for the furtherance of the All-Hazard Mitigation Plan.

To attract citizens to the meetings and educate the public on the Ramsey County All-Hazard Mitigation Plan, a News Release was sent out and information, including a survey, was posted on the Ramsey County Division of Emergency Management and Homeland Security website. A number of the local community papers printed the news releases and some did interviews and cover stories. These articles are not available electronically, but copies have been attached. A number of the municipalities also posted the news release on their respective websites homepages. See Attachment #3 for the news release that went out, along with a copy of the agenda for the public meetings, as well as a copy of the survey that was handed out at the public meetings and was also posted on the RC EMHS website. Attachment #4 includes copies of the published news articles, as well as the attendance forms from the public meetings.

Of the completed surveys by the public, the biggest concern is weather, specifically blizzards, heavy snowfall, windstorms, lightning and severe thunderstorms. Other hazards the public identified as being of concern were fires, especially those that affected homes, and power outages. A hazard affecting the community as a whole that the public identified was a public health emergency such as infectious disease outbreaks. These hazards were discussed at the public meetings and these discussions were incorporated throughout the All-Hazard Mitigation Plan where applicable.

Hazard Survey

Each participant on the Mitigation Planning Committee was given a survey adapted from the FEMA hazard analysis survey. This survey was also mailed to the Ramsey County Board of Commissioners, all Department Heads and Division Heads of Ramsey County Departments, all

of the Mayors and City Managers, Police and Fire Chiefs, as well as the Superintendents of all of the school districts in Ramsey County. The survey was also emailed to a number of groups, including the Red Cross, Salvation Army, all Emergency Management Directors in Ramsey County, and the East Metro Weapons of Mass Destructions Task Force. It ranked a defined list of hazards according to probability, magnitude, warning time, and how severely the hazard would affect continuity of operations. Respondents also had space to comment on special planning considerations in the community. These have been incorporated into the mitigation plan and are covered in the Hazard Analysis Section. A copy of the survey and the memo sent out is in Attachment #5.

Of the completed surveys, the major concerns of the natural hazards were blizzards, ice storms and tornadoes. For technological hazards, the biggest concerns were with computer outages, hacker or virus attacks, telephone outages, or a utility outage. In regards to a civil or political issue, bomb threats or having an actual bomb or explosion of some sort, along with a fire affecting a facility, having a terrorist attack or workplace violence were the top concerns. These concerns along with the special planning considerations that people mentioned were incorporated throughout the Ramsey County All-Hazard Mitigation Plan where applicable.

Implementation Strategy

Feedback from the public meetings, the Mitigation Planning Committee, and hazard surveys will be used to establish mitigation priorities. Implementation of those projects will depend on mitigation funds available from the Minnesota Division of Homeland Security and Emergency Management. Other funding sources will be investigated and possible partnerships will be sought with the private sector. Once the RC EMHS has been notified of the availability of mitigation funds, the Mitigation Planning Committee will be convened to reexamine and confirm priorities for projects based on cost benefit analysis at the time. Jurisdictions covered by this plan will consult this plan for possible mitigation opportunities when considering major building/infrastructure projects, and when contemplating changes to water plans, zoning ordinances, building codes, and when conducting road repairs, and new and redevelopment projects, along with decision making on land use issues.

Each jurisdiction participating in this plan will be responsible for implementing mitigation projects over each 5-year cycle of the plan. The projects will be chosen when funds become available and a cost-benefit analysis can be performed. This will allow for the most current and pressing issues to be considered at the time of analysis as well rather than committing to a project that may move to a lower priority do to present circumstances.

A recommendation for the future is to compare mitigation plans with neighboring counties to see where economies can be enhanced and overlaps eliminated. Ramsey County consulted with Washington County and Dakota County throughout the planning process, and reviewed Hennepin County's plan that has been submitted for approval. Other plans such as the Metropolitan Council *2030 Draft Regional Development Framework* have been examined for areas of mutual concern; however the Met Council was not directly involved in the Ramsey County mitigation planning process.

Special Planning Considerations

For the purpose of writing the All-Hazard Mitigation Plan, there are a few notes that must be mentioned. First, the City of St. Paul, located in Ramsey County, has received a grant to write a city mitigation plan. Therefore, some specifics in relation to the City of St. Paul will refer you to their plan. In an effort to work towards a more regional approach, we hope to incorporate the St. Paul Mitigation Plan into this plan to make it a countywide plan encompassing all municipalities within the County in future drafts.

The Cities of Blaine and Spring Lake Park have a portion of their cities within the boundaries of Ramsey County; however, they primarily reside in Anoka County. They are not politically involved in Ramsey County and will not be discussed in this Mitigation Plan, as they will be in Anoka County's Mitigation Plan.

The City of St. Anthony politically resides in Hennepin County, however, the city geographically, is half in Hennepin County and half in Ramsey County. Although the city's police department is the primary first responders for two cities within Ramsey County, and it shares a school district with another city within Ramsey County, the City of St. Anthony will not be covered by the Ramsey County All-Hazard Mitigation Plan. The Hennepin County Hazard Mitigation Plan will cover the City of St. Anthony.

The University of Minnesota – Twin Cities Campus also presents a unique situation. The University is located in both Minneapolis and St. Paul (the Twin Cities). For the St. Paul Campus, the UMPD is the primary police response, however, fire, hazmat, and EMS response come from the Falcon Heights Fire Department and/or the St. Paul Fire Department. The University also operates its own BLS specialized ambulance service, but that does not respond to 911 calls from either campus. The City of St. Paul Hazard Mitigation Plan will cover the University of Minnesota – St. Paul Campus.

Additional Plans and Strategies Currently In Place or Being Written in Ramsey County

The Ramsey County All-Hazard Mitigation Plan has been written to function as a separate plan, but it is designed to be a supporting document to other plans and planning processes throughout the County. Some of the additional plans currently being written by Ramsey County include the Emergency Operations Plan (EOP), an Animal Emergency Plan, and a Debris Management Plan. The RC EMHS is also in the process of putting together a comprehensive resource manual that will list assets located throughout the county including the resources of the municipalities. Already in place is the Ramsey County Comprehensive Plan.

The Department of Homeland Security (DHS) has also recognized Ramsey County as part of the St. Paul and Minneapolis Urban Area. This has led to the development of the Urban Area Security Initiative (UASI) Strategy. The Ramsey County All-Hazard Mitigation Plan also supports the UASI Strategy and the goals outlined within it.

Ramsey County All-Hazard Mitigation Plan

As stated earlier the RC EMHS is currently in the process of rewriting its Emergency Operations Plan (EOP). The new EOP will be a countywide plan as well, encompassing all municipalities with the exception of the City of St. Paul.

The Ramsey County EOP contains Ramsey County's process for managing major emergencies that threaten the health, safety, property and resources of the communities within the county. The plan also provides information on how the county will manage major emergencies that threaten county functions, services and operations. The plan outlines the strategic efforts that are undertaken by each of the municipalities who adopt this plan. It is intended to be a countywide document that will provide cohesive, coordinated, and cooperative interoperability among and between the municipal governments and the county.

This plan identifies departments and individuals within the county government and the individual municipalities that are directly responsible for emergency response and critical support services, and provides a management structure for coordinating and deploying essential resources.

A guiding principle of this plan is that all processes, procedures and protocols of the various municipalities and County agencies governing incident management and emergency response contained in current plans and doctrine remains in effect. Further, nothing in the plan alters or impedes the ability to carry out the existing authorities of the municipalities and County governmental agencies to perform their incident management responsibilities under the law.

RC EMHS is also currently responsible for creating an Animal Emergency Plan, which is focused on the evacuation and sheltering of companion animals (pets). This plan is being limited to Companion Animals because there are almost no agricultural activities involving Domestic Animals within Ramsey County, with the exception of the Minnesota State Fair and the University of Minnesota. There is a single, small Zoological garden located in the City of St. Paul, whose internal plans will be coordinated with the City of St. Paul and Ramsey County. The Ramsey County Animal Emergency Plan should be completed no later than March 2005. Implementation of the plan is contingent on completion of the plan and where the final responsibility is assigned.

A Debris Management Plan for the County is being written as well. The agency responsible for coordinating debris clearance in Ramsey County is the Ramsey County Department of Public Works. The Director of Public Works & Ramsey County Engineer has responsibility for implementation of this plan in coordination with the Cities and RC EMHS. Currently RC EMHS and the Director of Public Works are working with the State of Minnesota Pollution Control Agency (MPCA) to develop standards and protocols for the management of debris that is the result of an act involving Chemical, Biological, Radiological, Nuclear and/or Explosive (CBRNE) devices. This project will include the development of staging and disposal site selection methodologies, education for affected local agencies statewide and a statewide resource list for debris management. This should be completed by June of 2005, and will be incorporated in the Ramsey County EOP during the summer of 2005.

Ramsey County also has a Comprehensive Plan that was approved by the Metropolitan Council in 2001 and adopted by the Ramsey County Board of Commissioners in December 2002. It

Ramsey County All-Hazard Mitigation Plan

addresses transit and transportation, parks and recreation, solid waste, Mississippi National River and Recreation Area, and housing and economic development issues.

Formal Adoption

The County Board and the City Councils will formally adopt the Ramsey County All-Hazard Mitigation Plan after the Minnesota Division of Homeland Security and Emergency Management has approved a final draft. The approval by the State of Minnesota is separate from that of the FEMA. Documentation from each jurisdiction indicating acceptance will be kept on file with the Ramsey County Division of Emergency Management and Homeland Security and copies will be submitted to the Minnesota Division of Homeland Security and Emergency Management.

Currently, each municipality, with the exception of the City of St. Paul, has signed a Resolution supporting the mitigation planning process. These signed resolutions are included as Attachment #6. The County Board will approve the All-Hazard Mitigation Plan upon approval from the Minnesota Division of Homeland Security and Emergency Management.

Plan Maintenance

The Ramsey County Division of Emergency Management and Homeland Security (RC EMHS) will review the plan every five years. RC EMHS will do this in the context of changing zoning laws, evolving policies, and other factors that could cause reprioritization of mitigation issues. On an annual basis the RC EMHS will meet with the municipalities to discuss the mitigation projects under way in their respective areas. The RC EMHS office will maintain progress reports of all mitigation projects.

Revisions and updates will be relayed electronically to the Mitigation Planning Committee for approval. The Mitigation Planning Committee will be convened if there are major changes, or if a countywide perspective is needed. Public comment will be solicited using notices as deemed necessary. A public version of plan will be posted on the RC EMHS website for the public to review and make comment on throughout the revision process.

RC EMHS will review the plan every 5 years based off of the input from Minnesota Division of Homeland Security and Emergency Management and FEMA and the progress in which is being made on the mitigation projects. From there, it will be determined if new goals need to be written or if new hazards are being faced. It is with this information that RC EMHS will use to evaluate and revise the All-Hazard Mitigation Plan.

The plan will be reviewed and submitted to the Minnesota Division of Homeland Security and Emergency Management and the FEMA every five years for approval.

Attachments

1. Timeline
2. Roster of Invited Participants
3. News Release, Public Meeting Agenda, & Survey

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4. Memo & Survey to Public Safety Officials
5. Copies of Municipal Resolutions
6. Jurisdictional Assessment Report
7. Red Cross Emergency Shelters in Ramsey County

Community Profile

This portion of the Ramsey County All-Hazard Mitigation Plan is designed to paint a picture of Ramsey County. The Community Profile draws on data from a number of the most current studies, plans, and other documents, including:

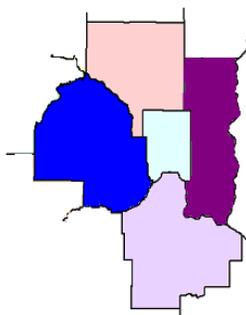
- U.S. Census data
- Ramsey County GIS
- Watershed Plans
- FEMA regulations
- Ramsey County Comprehensive Plan
- Metropolitan Council

Considered throughout the planning process were Ramsey County’s physical, social, and economic features including geography, land use, watersheds, transportation systems, and political subdivision boundaries.

Overview

Ramsey County is located at the heart of Minnesota. It is at the center of the Seven-County Metro Area. Four counties, Hennepin to the West, Dakota to the South, Washington to the East, and Anoka to the North, surround the county. Of the 87 counties in the state of Minnesota, Ramsey County is geographically the smallest, with the second largest population, yet it is the most densely populated county in the state. Ramsey County houses the State Capital, the City of St. Paul, along with 15 other municipalities and 1 township. It is also home to over 80 lakes, 20 regional and county parks, and 5 golf courses. In regards to transportation, Ramsey County is at the center of it. The county is home to an airport that is a primary reliever for the St. Paul/Minneapolis International Airport, located in Hennepin County just miles south of the border of Ramsey County. Within its borders are the Mississippi River, 3 major Railroad companies, and all but one of the major interstates. A few of the major attractions include the State Fair, the Xcel Center, the Ordway Music Theatre, and the Science Museum of Minnesota and the Children’s Museum. Aside from relaxing at the lakes and parks or visiting one of the attractions located in Ramsey County, a number of major employers have planted their roots here. A few of the major employers include the 3M Company, Medtronic, US Bank, and Wells Fargo Bank and employment in the county totals more than 330,000 people. A number of prestigious schools are also located within Ramsey County including, the University of Minnesota, the University of St. Thomas, and Hamline University. There are also a number of prominent healthcare systems and hospitals in the confines of Ramsey County. This urbanized county has attracted a diverse population totaling 511,035 people. By 2010, the population is expected to grow to 539,000 people with 370,000 employees working throughout the county.

Location

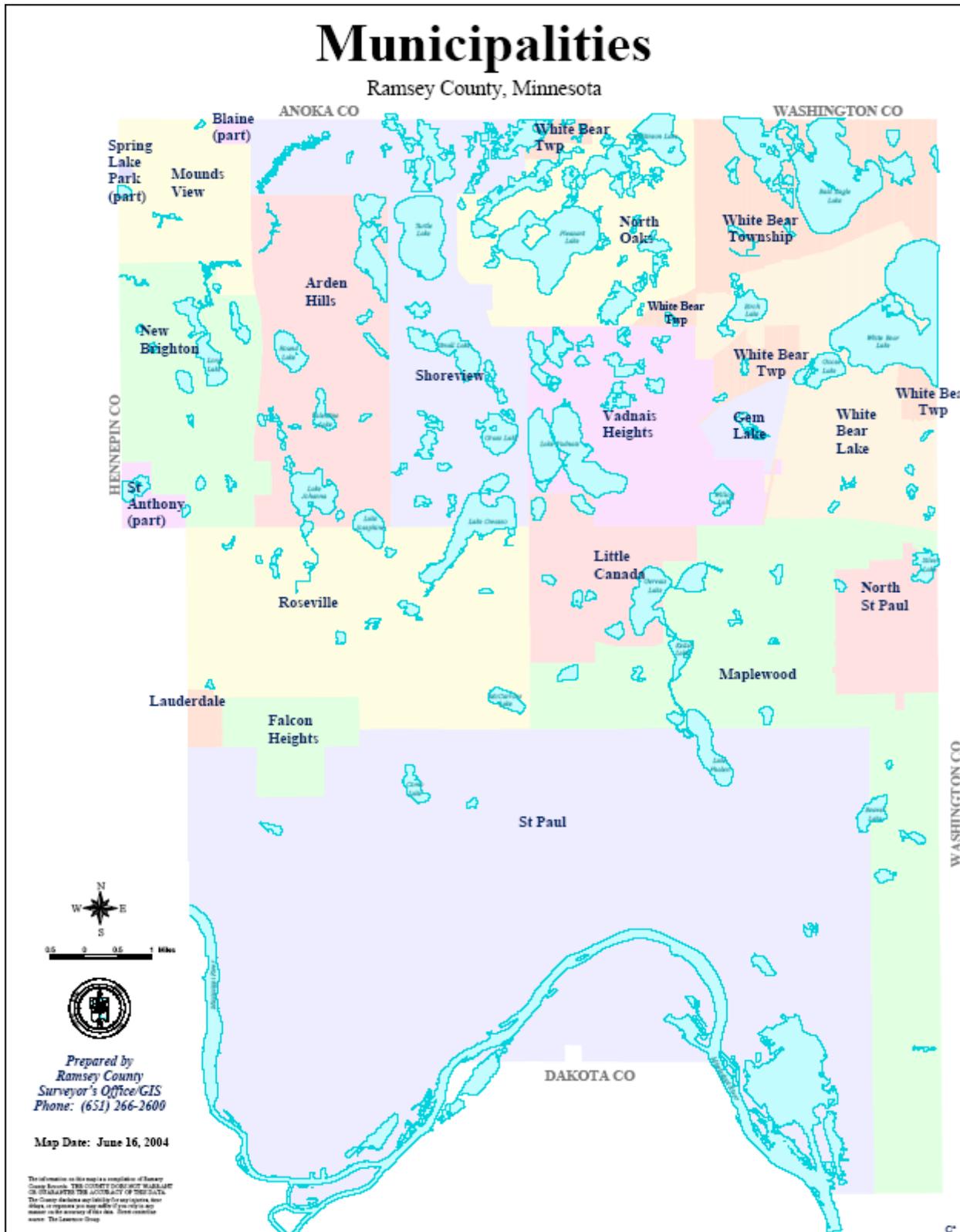


Counties Adjacent to Ramsey

- Ramsey
- Hennepin
- Dakota
- Washington
- Anoka

The following Map #1, illustrates the location of each of the municipalities in Ramsey County.

MAP #1



Ramsey County All-Hazard Mitigation Plan

Noted in Table #1 are the municipalities located within Ramsey County. There are 16 municipalities, 1 township, and a campus of the University of Minnesota.

TABLE #1

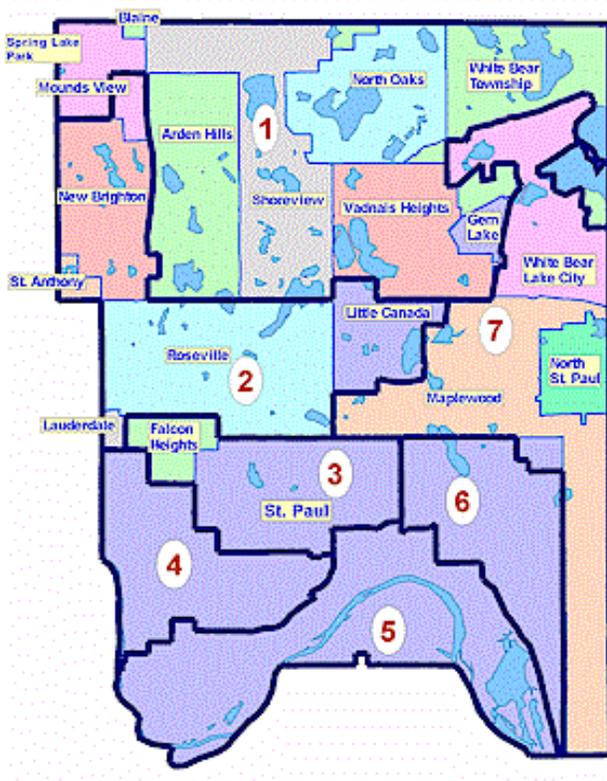
Municipalities		Township
Arden Hills	North Oaks	White Bear Township
Blaine*	North St. Paul	
Falcon Heights	Roseville	
Gem Lake	St. Anthony*	
Lauderdale	St. Paul	Other
Little Canada	Shoreview	University of Minnesota – Twin Cities Campus*
Maplewood	Spring Lake Park*	
Mounds View	Vadnais Heights	
New Brighton	White Bear Lake	

*See the Special Planning Considerations Section of the Planning Process for more information on this municipality.

Commissioner Districts

Ramsey County is divided into 7 Commissioner Districts, which are illustrated in the following Map #2.

MAP #2



District	Commissioner
District 1	Tony Bennett
District 2	Jan Parker Wiessner
District 3	Janice Rettman
District 4	Susan Haigh
District 5	Rafael Ortega
District 6	Jim McDonough
District 7	Chair, Victoria Reinhardt

A Brief History of Ramsey County

Ramsey County was established in 1849 and is named for Alexander Ramsey, Minnesota's first territorial governor. It is the smallest and most densely populated of Minnesota's 87 counties and consists of 16 municipalities and one township.



Minnesota Territory reached west to the Missouri River and took in parts of what are now North and South Dakota. The darker area was the only part of Minnesota open to white settlers in 1849.

Ramsey County is an urbanized county. The urbanization process started almost 150 years ago. Flooding into St. Paul by steamboat, many people remained right in the city, but others established farms on the vacant land in what is now northern Ramsey County. The rise of the railroads after the Civil War made Ramsey County and St. Paul the transportation center of the Upper Midwest and the gateway to the Northwest. Some eight million people passed through St. Paul's Union Depot in 1888, a peak year, with 150 trains arriving and departing daily.

By the beginning of the 20th century, St. Paul and Ramsey County had become leaders in a social service network that would sustain its people through World War I, Prohibition, the Depression, World War II and the rapid changes in civil, cultural and social life that would mark the decades of the 1950s, 1960s, 1970s and beyond.

The introduction of the automobile changed development trends as profoundly as the railroads had earlier. As automobiles became more accessible, an expanded road network became necessary. Access to water, air, rail, and road transportation continues to attract residential, commercial and industrial development and redevelopment to the County.

The farms that had once dotted the land north of the city limits have disappeared, and the communities that serve the area – the historic villages of Ramsey County – have become flourishing suburbs whose businesses and industries now occupy the open land once held by farmers.

Demographic Profile

As stated earlier, Ramsey County is the most densely populated county with a total of 511,035 people residing within its borders. Over half of the population, 287,151 people, lives in the City of St. Paul. The next two largest cities include Maplewood and Roseville with 34,947 and 33,690 residents respectively. Following, in Table #2, is the breakdown of the population by municipality. Map #3, illustrates the County’s population density.

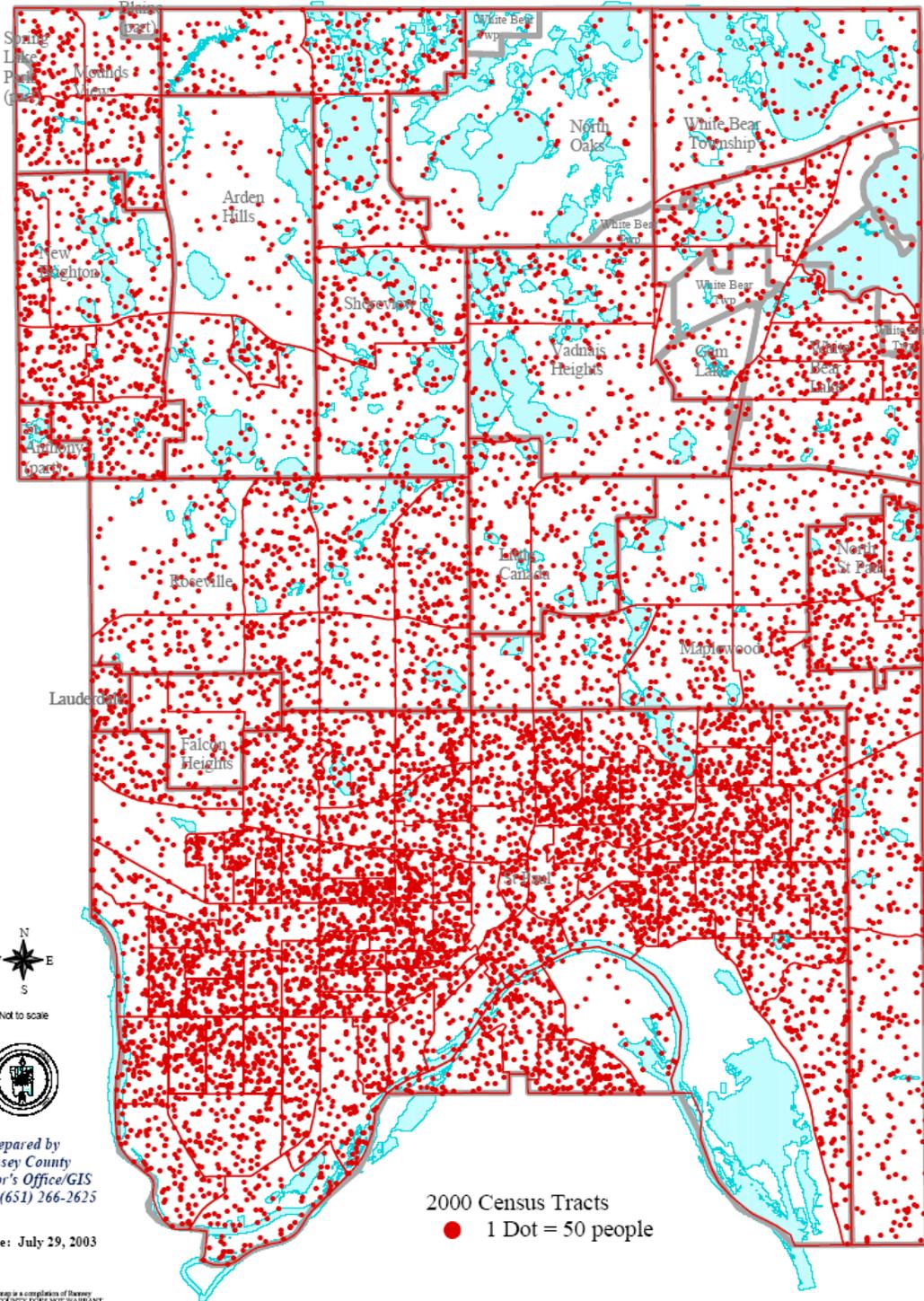
TABLE #2

Population by Municipality	
Arden Hills	9,652
Falcon Heights	5,572
Gem Lake	419
Lauderdale	2,364
Little Canada	9,771
Maplewood	34,947
Mounds View	12,738
New Brighton	22,206
North Oaks	3,883
North St. Paul	11,929
Roseville	33,690
St. Anthony (part)	2,348
St. Paul	287,151
Shoreview	25,924
Vadnais Heights	13,069
White Bear Township	11,293
White Bear Lake	23,974
Ramsey County	511,035
St. Paul	287,151
Suburban Ramsey County	223,884
Ramsey County	511,035

Map #3

Population Density by Census Tract - Year 2000

Ramsey County



Prepared by
Ramsey County
Surveyor's Office/GIS
Phone: (651) 266-2625

Map Date: July 29, 2003

The information on this map is a compilation of Ramsey County sources. THE COUNTY DOES NOT WARRANT OR GUARANTEE THE ACCURACY OF THIS DATA. The County disclaims any liability for any omissions, time delays, or expenses you may suffer if you rely in any manner on the accuracy of this data.

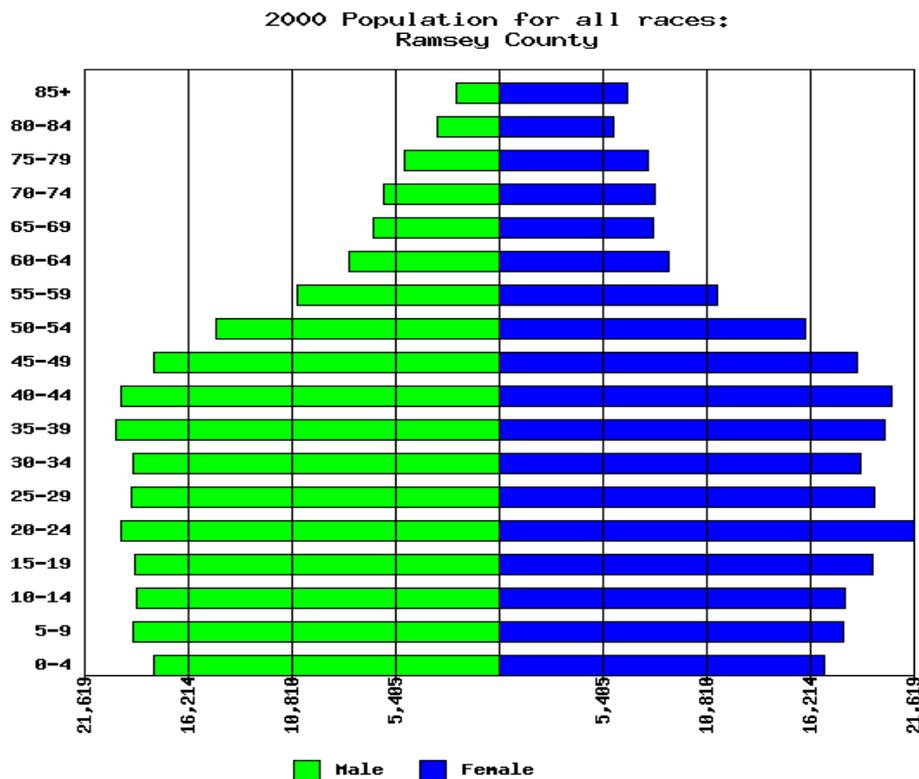
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The demographics of the population are detailed in the subsequent Table #3 and Chart #1.

TABLE #3

Age of Population	Ramsey County	Minnesota	Ramsey as % of state
Under 5	34,956	329,594	10.61%
5-19	112,437	1,105,251	10.17%
20-64	304,140	2,890,368	10.52%
65 and over	59,502	594,266	10.01%
Total	511,035	4,919,479	10.39%

CHART #1



Population Projections

The Ramsey County Comprehensive Plan lists population projections according to estimates put out by the U.S. Census Bureau. Not only is Ramsey County expected to grow in terms of residents in the coming years, but also the number of employees throughout the county is expected to grow substantially.

Following are the projected increases for population, households and employees for Ramsey County for the years of 2010 and 2020. Chart #2 and Chart #3 depict the population in the years 2010 and 2020 respectively broken down by age and gender.

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The population forecasts for Ramsey County are:

- In 2010, the population will be 537,610; and
- In 2020, the population will be 555,240.

The household forecasts for Ramsey County are:

- In 2010, the number of households will be 220,880; and
- In 2020, the number of households will be 235,490.

The employment forecasts for Ramsey County are:

- In 2010, employment will be 303,150; and
- In 2020, employment will be 304,070.

With these continuous increases in both population and employees, the county road system is sure to be taxed.

Chart #2

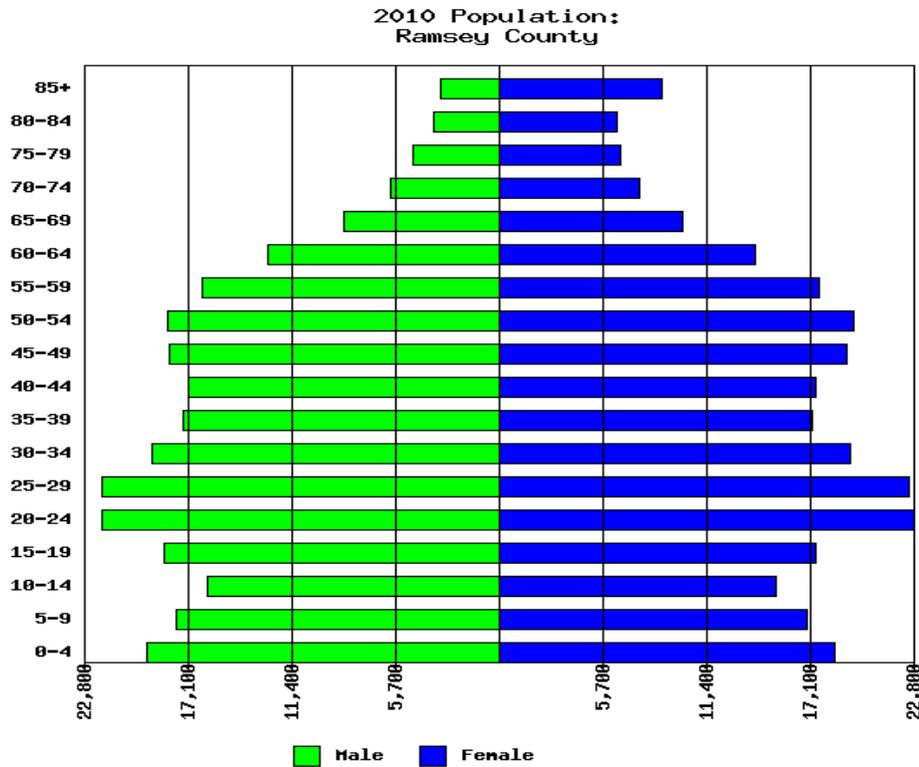
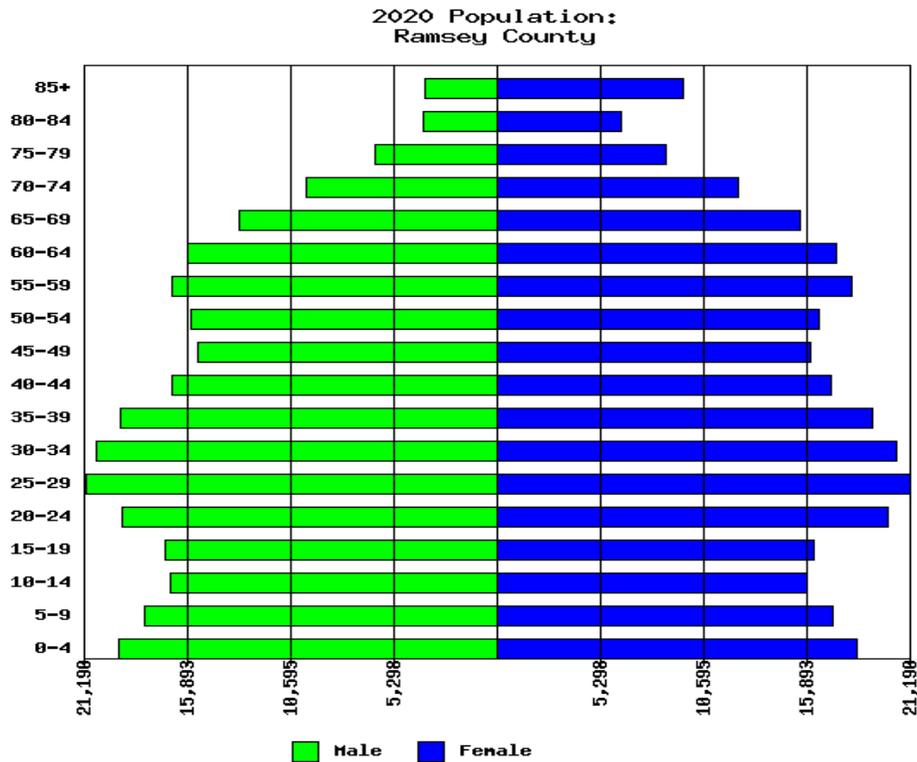


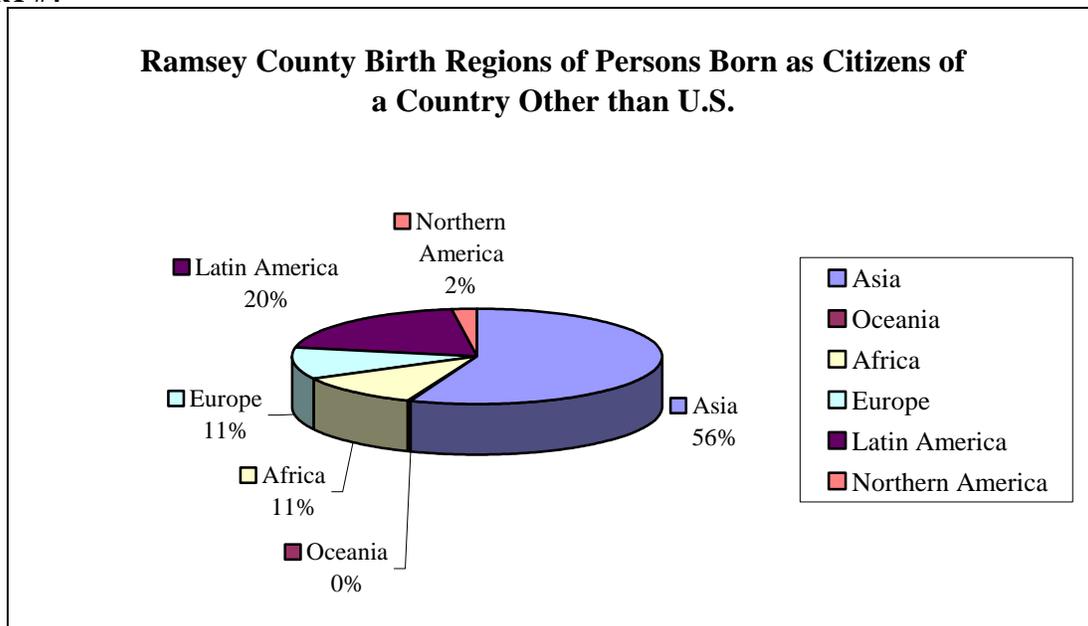
Chart #3



Ethnic Diversity

Of the total population in Ramsey County, 10.62% of the people were born as citizens of a country other than the U.S., totaling 54,263 persons. Chart #4 depicts the origins of this population.

CHART #4



Ramsey County is home to a number of refugees and immigrants from around the world. With a large population of non-English speaking people, or those who speak English as a second language, reaching out to this population to keep them informed has been difficult. The St. Paul – Ramsey County Department of Public Health has been leading the front to combat this issue.

ECHO (Emergency and Community Health Outreach) is a tool used to reach the non-English speaking population. Twice a month, on public television, a taped show will air in 6 different languages including Hmong, Khmer, Lao, Somali, Spanish and Vietnamese. The shows will cover topics such as flu prevention, winter weather survival and Emergency Preparedness efforts. <http://www.echominnesota.org/>

Property Profile

Housing and Community Development

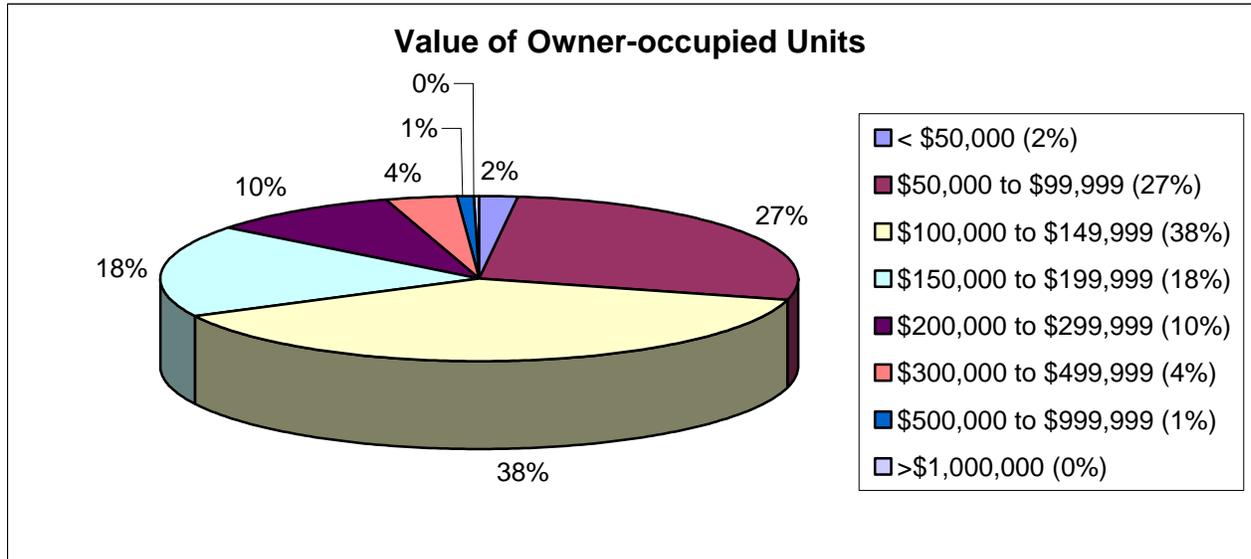
Housing in Ramsey County is as diverse as the population. Table #4 shows the breakdown of the type of housing in Ramsey County. Of the total population, an overwhelming 55%, reside in single-family homes with a detached garage. The next largest population, 18%, lives in apartment buildings with 20 or more units in them. The value of the owner-occupied units is described in Chart #5. The highest percentage is within the \$100,000 to \$149,000 range.

Ramsey County is home to 17 Manufactured Home Parks. Map #4 shows where these are located. The St. Paul – Ramsey County Department of Public Health licenses and inspects all of the manufactured home parks annually. All of these parks have storm shelters in accordance with the standards put forth by the Minnesota Department of Administration on May 16, 1988.

TABLE #4

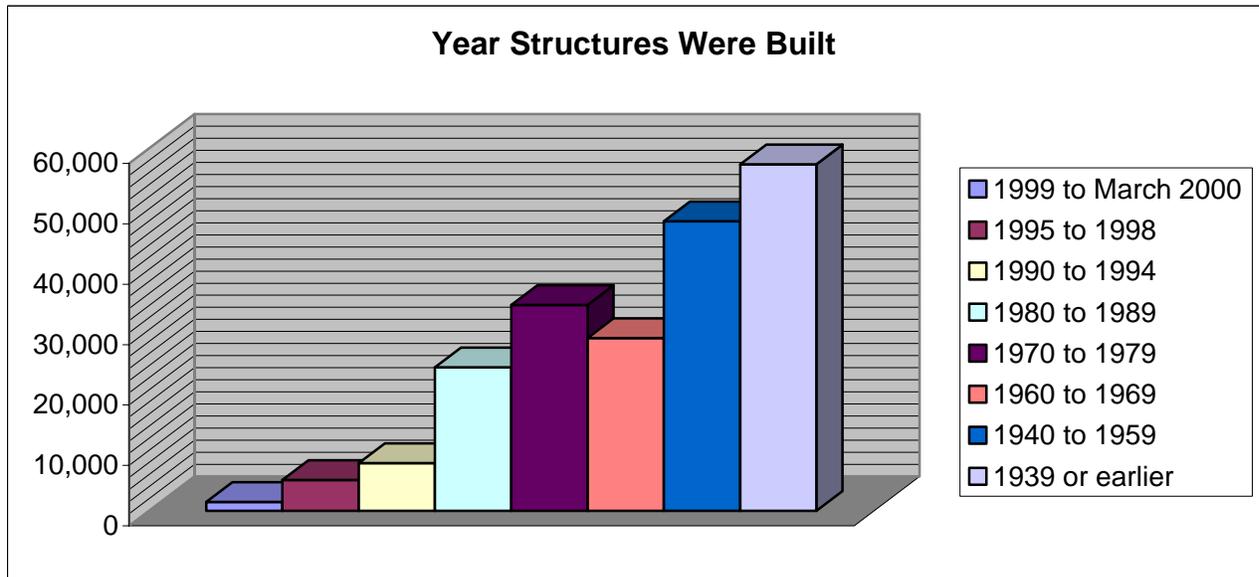
UNITS IN STRUCTURE	Number	Percent
1, detached	112,765	55
1, attached	13,208	6
2	10,605	5
3 or 4	6,686	3
5 to 9	7,341	4
10 to 19	15,265	7
20 or more	37,304	18
Mobile home	3,209	2
Boat, RV, van, etc.	65	0.0
Total Housing Units	468,824	100%

CHART #5



A majority of the structures built in Ramsey County were built in 1939 or earlier. Since the county is almost fully developed, few structures have been built in the recent years. The following Chart #6 shows the number of structures built since 1939. Of the 206,448 structures in Ramsey County, 81% of them were built prior to 1980, and 65% of them were built prior to 1970.

CHART #6



To heat their homes, Ramsey County residents have a variety of options. A majority of residents use utility gas, while some use electricity. Other alternatives include bottled, tank, or LP gas, fuel oil, kerosene, or other fuel sources, while there are a few residents who use no fuel to heat their homes. Table #5 illustrates the number of residents and percentage of each fuel type used to heat their homes.

TABLE #5

HOUSE HEATING FUEL	Number	Percent
Utility gas	163,141	81
Bottled, tank, or LP gas	1,618	1
Electricity	29,378	15
Fuel oil, kerosene, etc.	2,815	1
Coal or coke	71	0.0
Wood	201	0.0
Solar energy	41	0.0
Other fuel	2,726	1
No fuel used	1,245	1

Employment and Transportation Profile

Employment/Occupations

Ramsey County is home to a variety of employers. From international businesses, to health care, to education, Ramsey County has a lot to offer its residents.

Following in Table #6, is a list of the major employers within Ramsey County. Major employers, defined by the FEMA, are considered to be any organization employing more than 1,000 people.

TABLE #6

Major Employers in Ramsey County		
Name of Employer	Type of Business	Total Employees
State of Minnesota	State Government	13,300
3M Company	Manufacturer	12,000
Healtheast Care System	Health Care	6,000
St. Paul School District	Education	4,900
County of Ramsey	County Government	4,000
US Bank	Banking	3,635
Regions Hospital	Health Care	3,425
Wells Fargo Bank	Banking	3,380
Blue Cross & Blue Shield of MN	Health Care Ins.	3,170
Deluxe Corporation	Banking/Printing	3,100
City of St. Paul	City Government	3,000
Guidant	Health Care	2,500
Marsden Building Maintenance	Maintenance	2,500
United Hospitals	Health Care	2,400
St. Paul Companies	Insurance	2,300
Minnesota Life	Insurance	2,100
Ford Motor Company	Manufacturer	2,000
Guidant Corporation	Manufacturer	2,000
Lawson Software	Software/Manufacturer	1,800

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Conseco Finance Corporation	Banking	1,800
St. Joe's Hospital	Health Care	1,800
Minnesota DOT	Transportation	1,500
University of MN – Twin Cities	Education	1,500
University of St. Thomas	Education	1,500
St. John's Hospital	Health Care	1,400
Qwest	Communications	1,100
Ryder Student Transportation	Transportation	1,100
Ecolab	Manufacturer	1,000
Century College	Education	1,000
Hamline University	Education	1,000

Chart #7 illustrates the breakdown of occupations in Ramsey County and the percentage of people working within that occupation. Chart #8 shows the distribution of income.

CHART #7

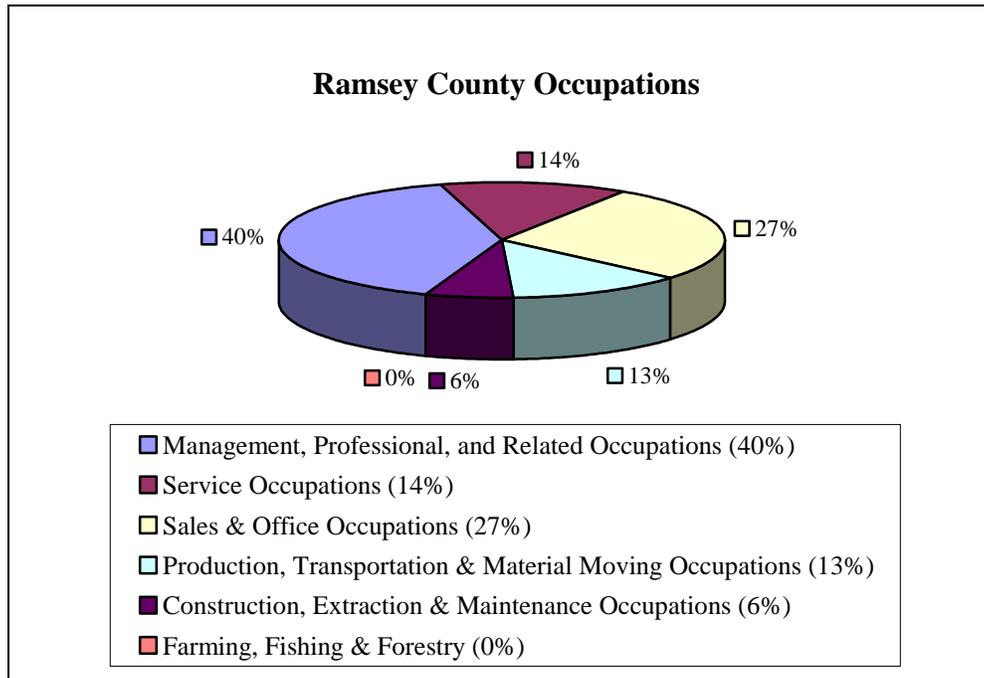
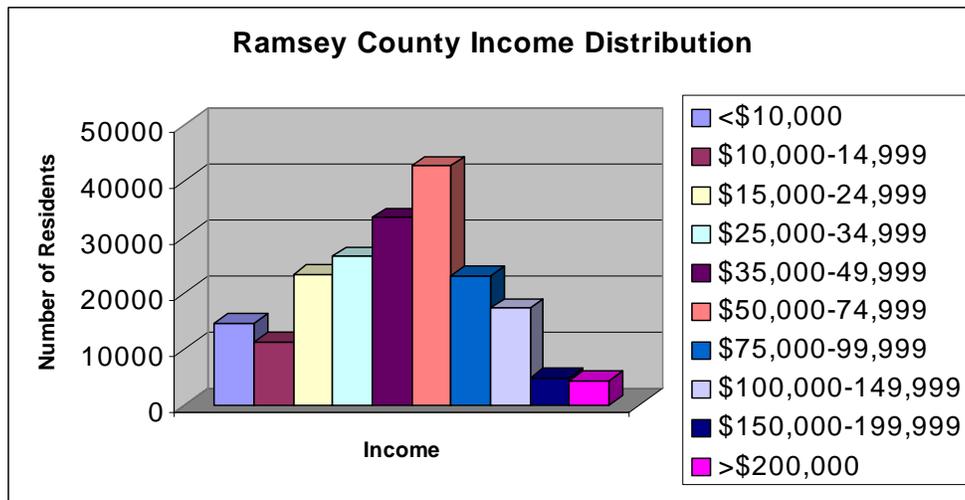


CHART #8



For Ramsey County residents of working age (16 years and older), there are a variety of ways of getting to and from work. They include driving, carpooling, taking public transportation including buses and taxicabs, or walking or biking. The following Tables #7 and #8 itemize how residents get to work and the average amount of time they spend in transition.

TABLE #7

Means of Transportation to work for Ramsey County Residents Age 16 and over		
	Number	Percent
Drive Alone	195,317	75
Carpool	28,735	11
Public Transportation (including taxicab)	15,718	6
Other Means (including walking)	12,480	5
Worked at Home	8,037	3

TABLE #8

Transition time to work		
	Number	Percent
Total	260,287	100
Do not work at home	252,250	96.91
Work at home	8,037	3.09
< 5 minutes	6,879	2.64
5-9 minutes	25,711	9.88
10-14 minutes	41,359	15.89
15-19 minutes	48,539	18.65
20-24 minutes	49,662	19.08
25-29 minutes	18,535	7.12
30-34 minutes	32,125	12.34
35-39 minutes	5,501	2.11

40-44 minutes	6,351	2.44
45-59 minutes	10,162	3.90
60-89 minutes	4,529	1.74
90 + minutes	2,897	1.11
Average travel time		21.2 minutes

Geography and Land Use

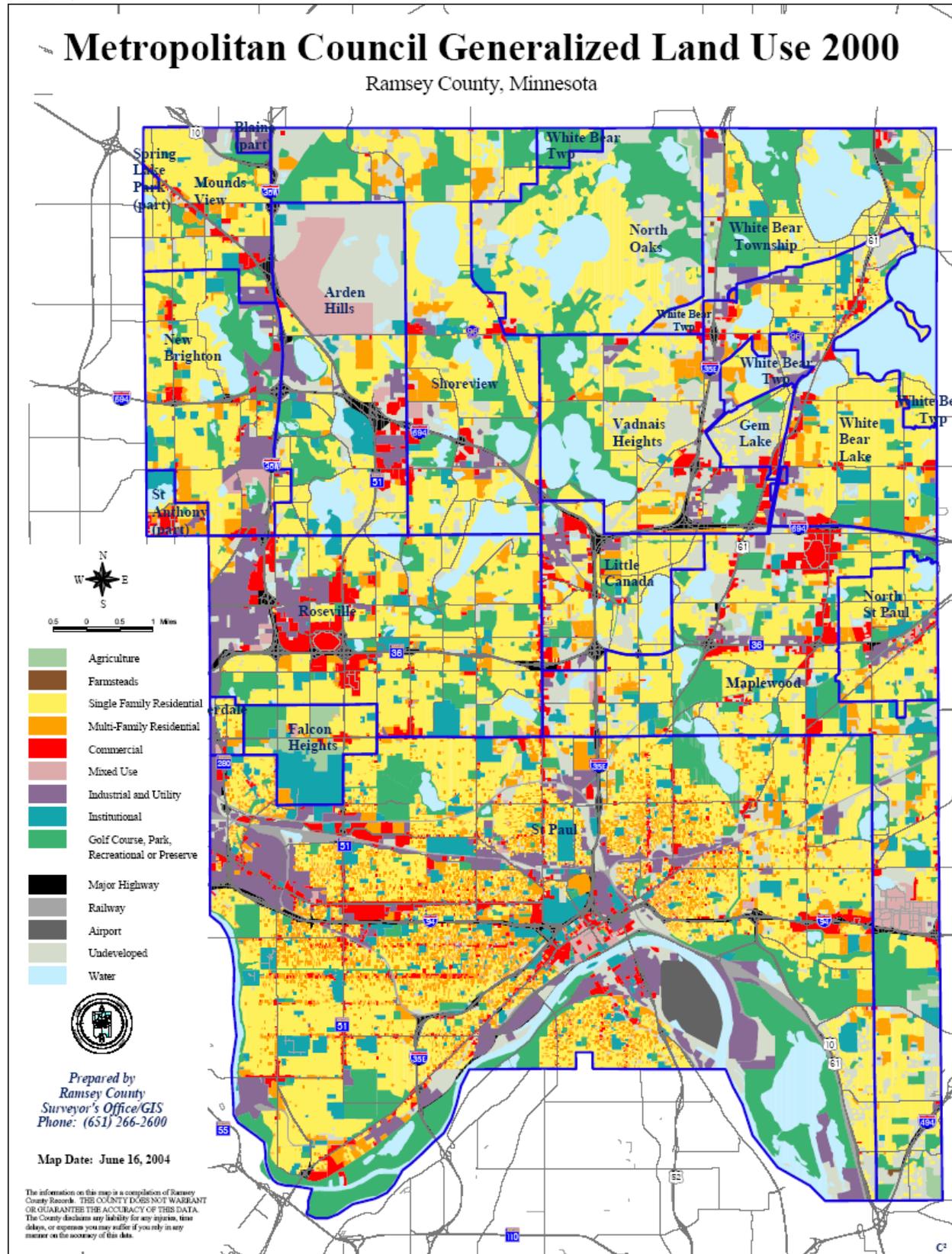
Land use in Ramsey County has been discussed at length and planned for in the Ramsey County Comprehensive Plan of December 2002. Ramsey County plans to work closely with municipal, state, and federal agencies to explore and recommend waste management methods that result in a clean and safe environment for future generations, and to minimize the need for landfill disposal. The Comprehensive Plan goes on further to state that as responsible stewards of the land, we (Ramsey County) want to develop, redevelop and utilize Ramsey County resources by encouraging sensitive integration of social, recreational, and business activities, developed facilities and the natural environment. Careful, thoughtful planning should reflect Ramsey County’s historical traditions and core values. New development and technology should embrace beauty, pride, function, and add long-term value to the community. Although Ramsey County does not have jurisdiction over land use, it is especially important for the County to work with municipalities within the County, sharing information and reviewing new development and redevelopment projects.

This section displays a number of maps illustrating Ramsey County’s current land use, projected land use, its topography, bedrock geology, steep slopes and bodies of water.

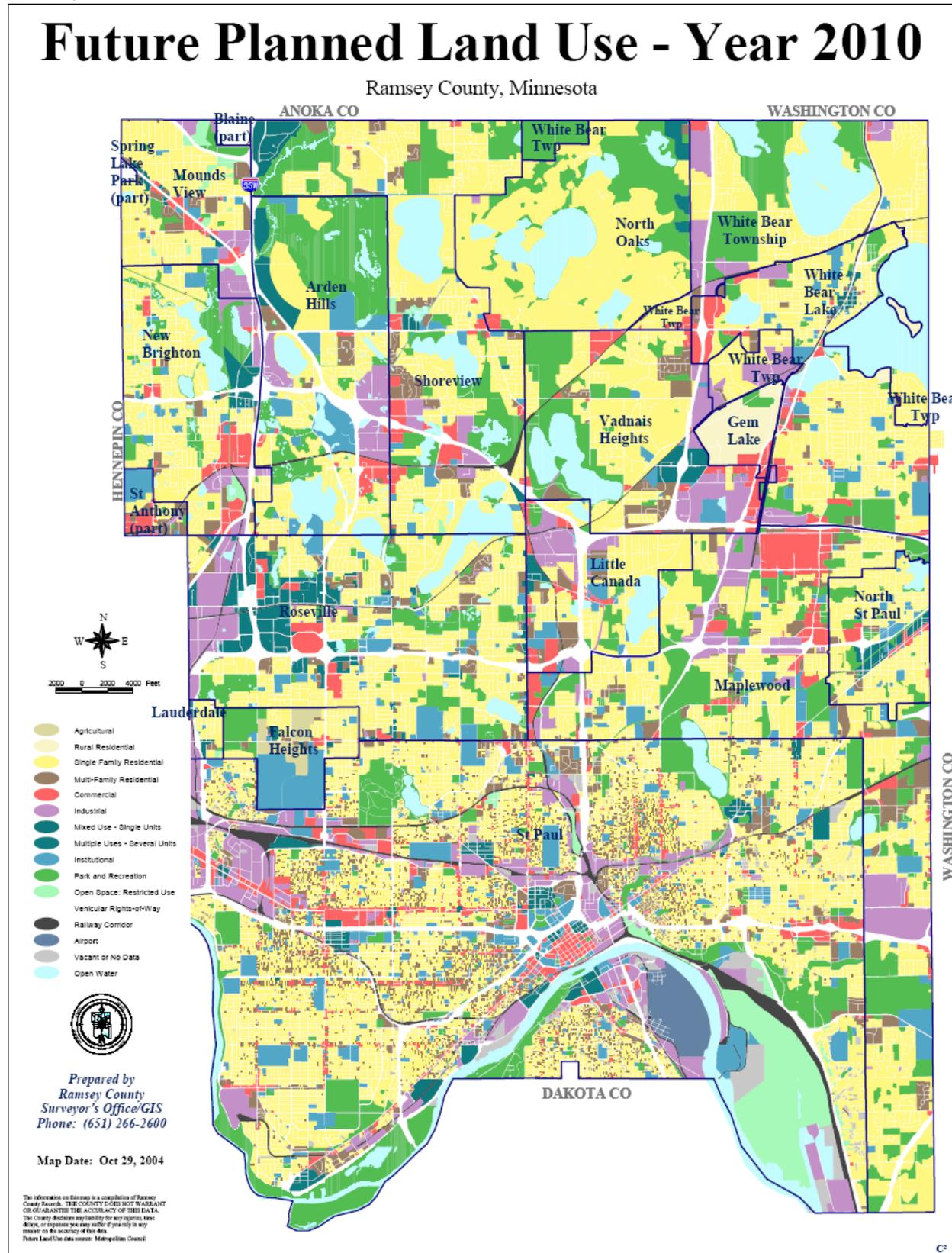
Ramsey County is geographically located at the 45.03 Latitude and –93.08 Longitude according to the Department of Natural Resources (DNR) tomography website. It encompasses 155 square miles. The land was formerly farmland and is now part of the urban metro area. Its southern border is mostly comprised of the Mississippi River and the county itself contains over 80 lake basins.

Map #5 illustrates the generalized land use for Ramsey County according to the Metropolitan Council Data of 2000. As you can see, most of the land in Ramsey County is used for housing and very little land is undeveloped. Map #6 illustrates the planned land use in the year 2010.

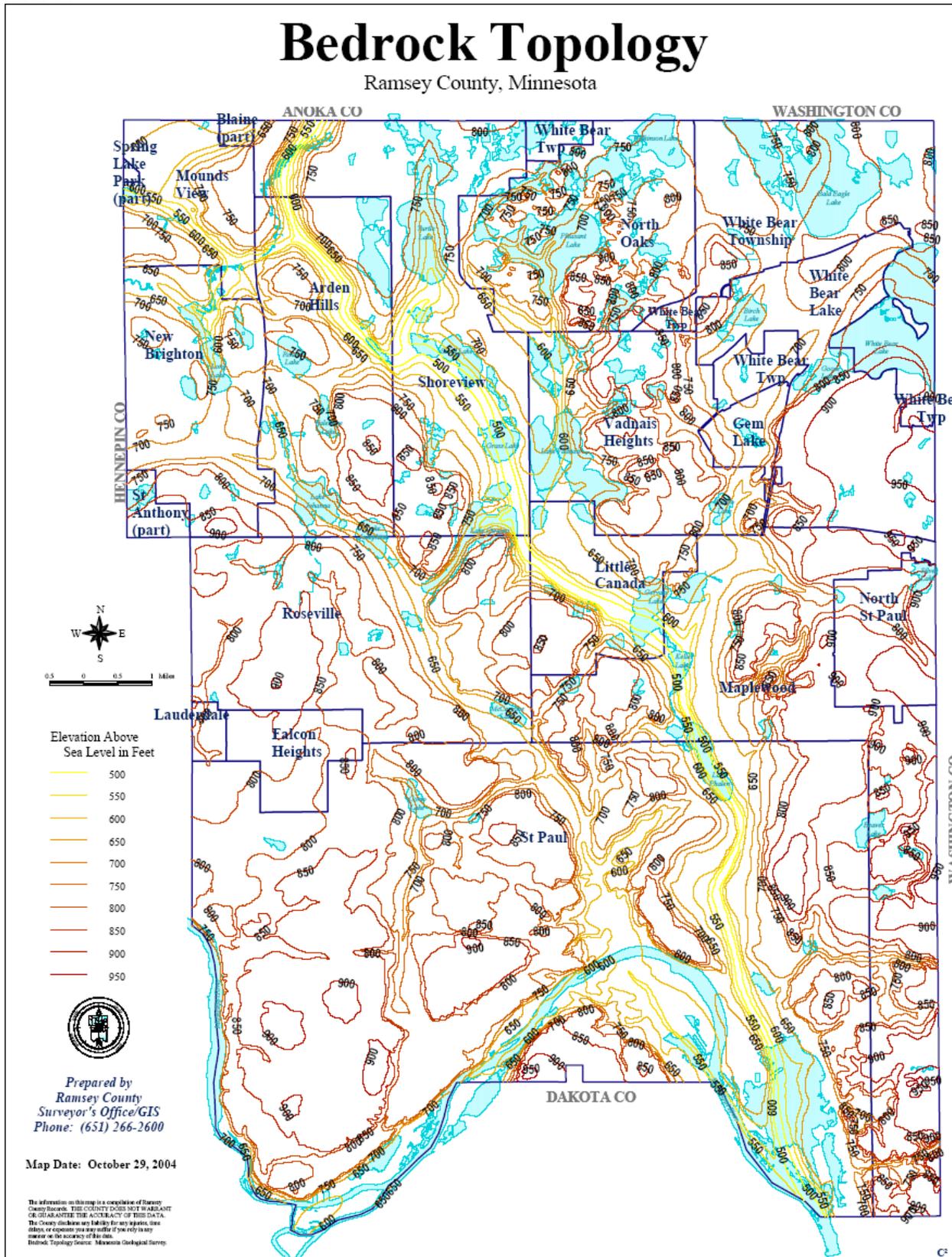
MAP #5



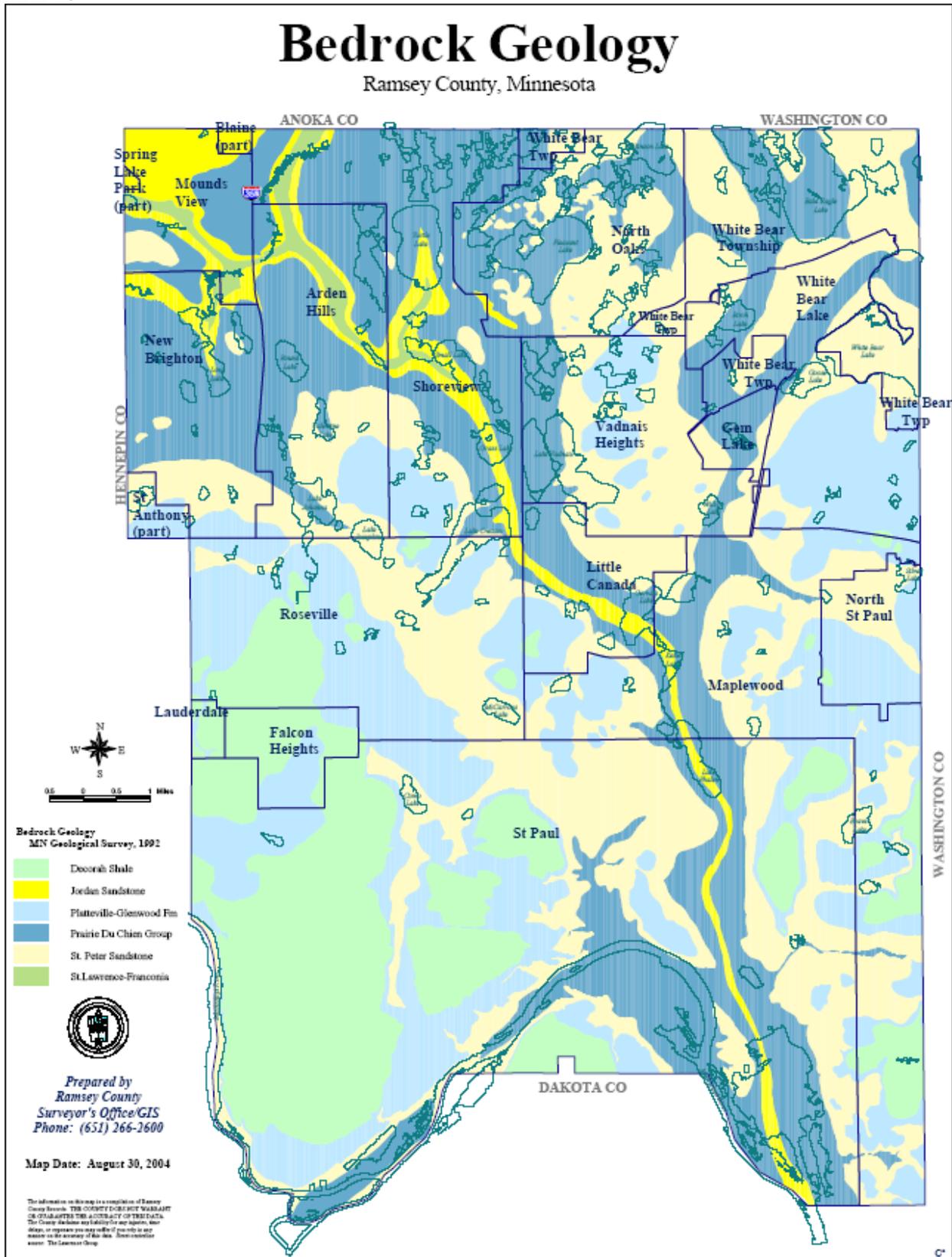
MAP #6



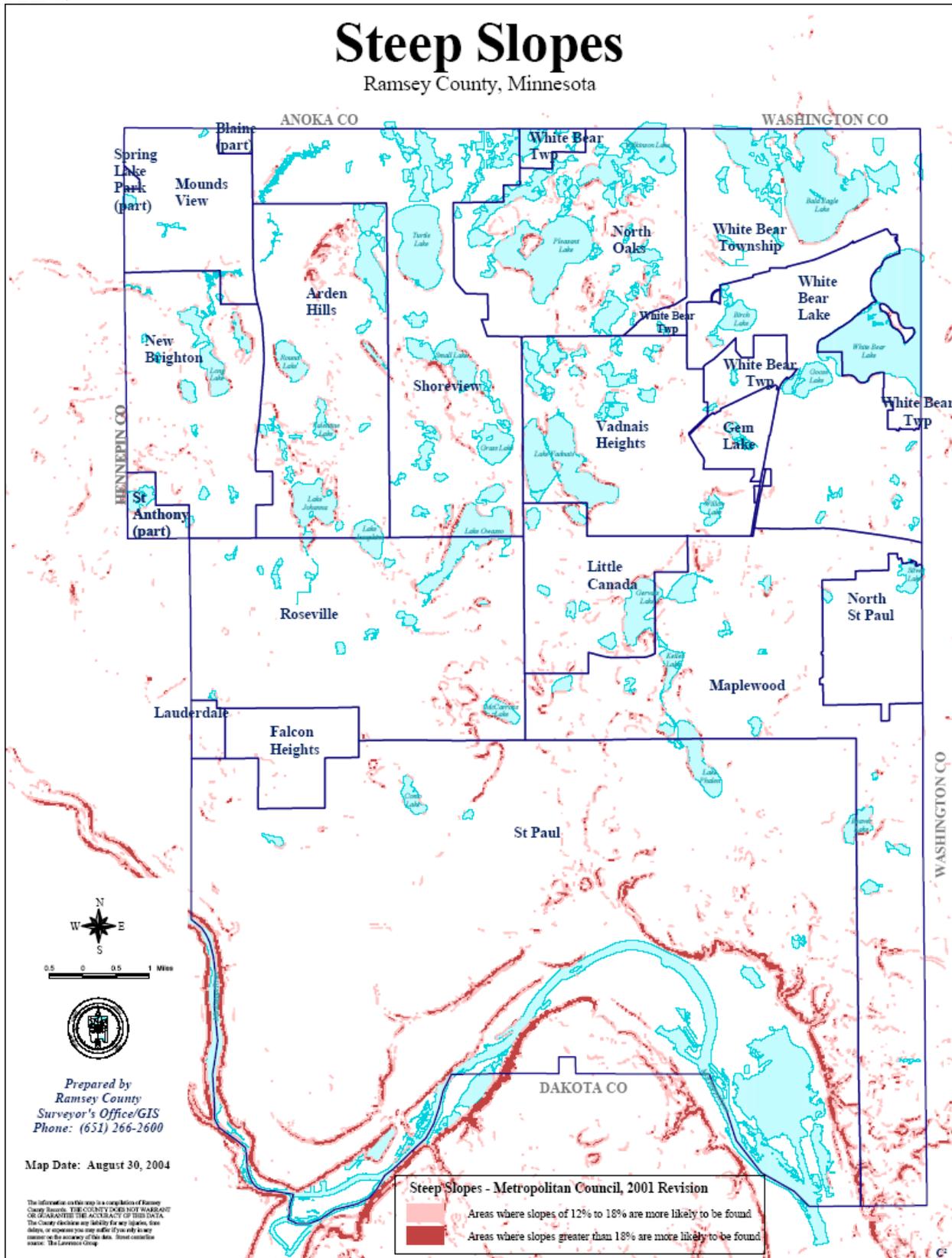
MAP #7



MAP #8



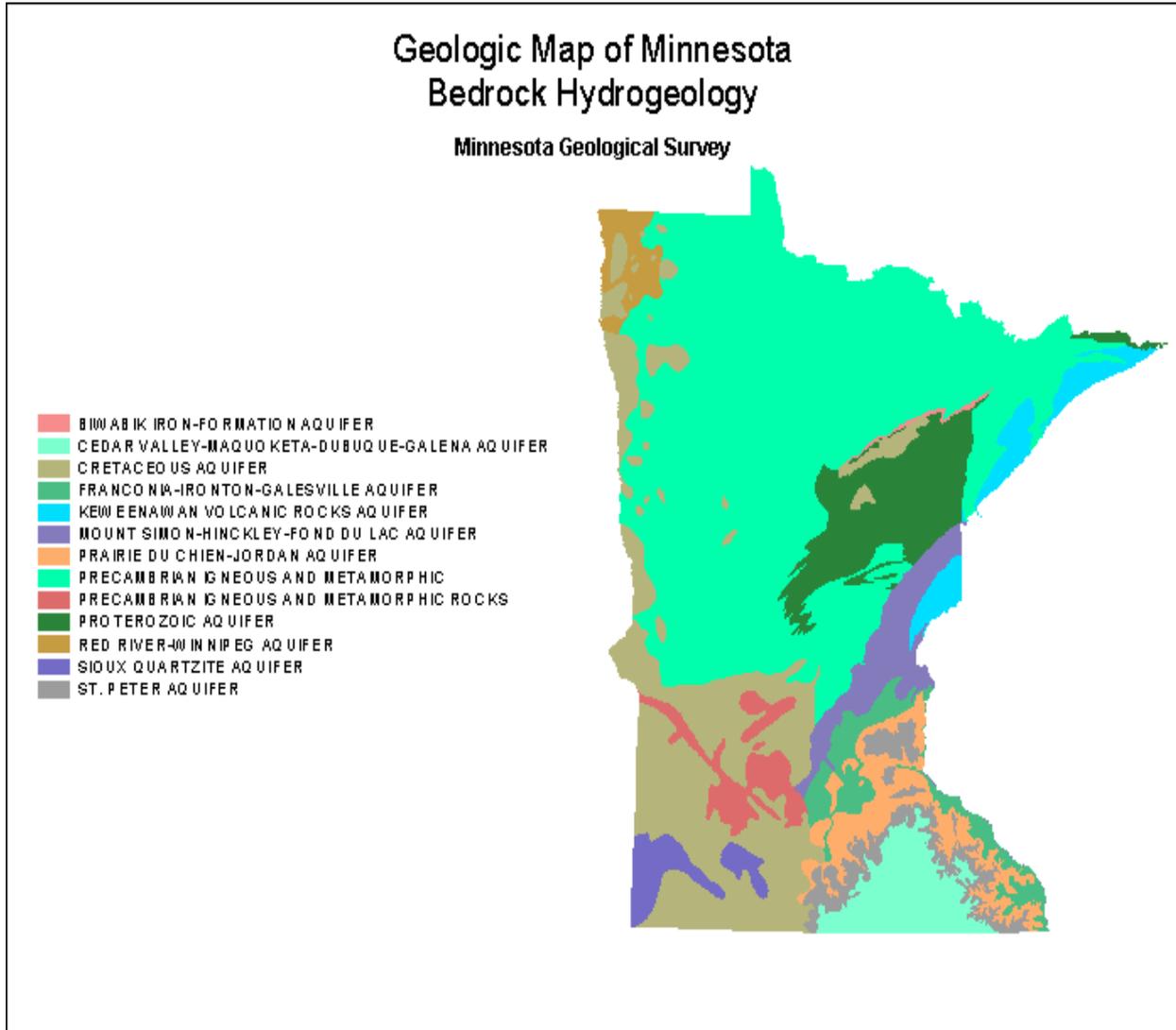
MAP #9



Groundwater hydrology

Source water is taken from the Mississippi River and brought into the chain of lakes. When the lakes are at optimum elevations, the available water supply is approximately 3.6 billion gallons of water.

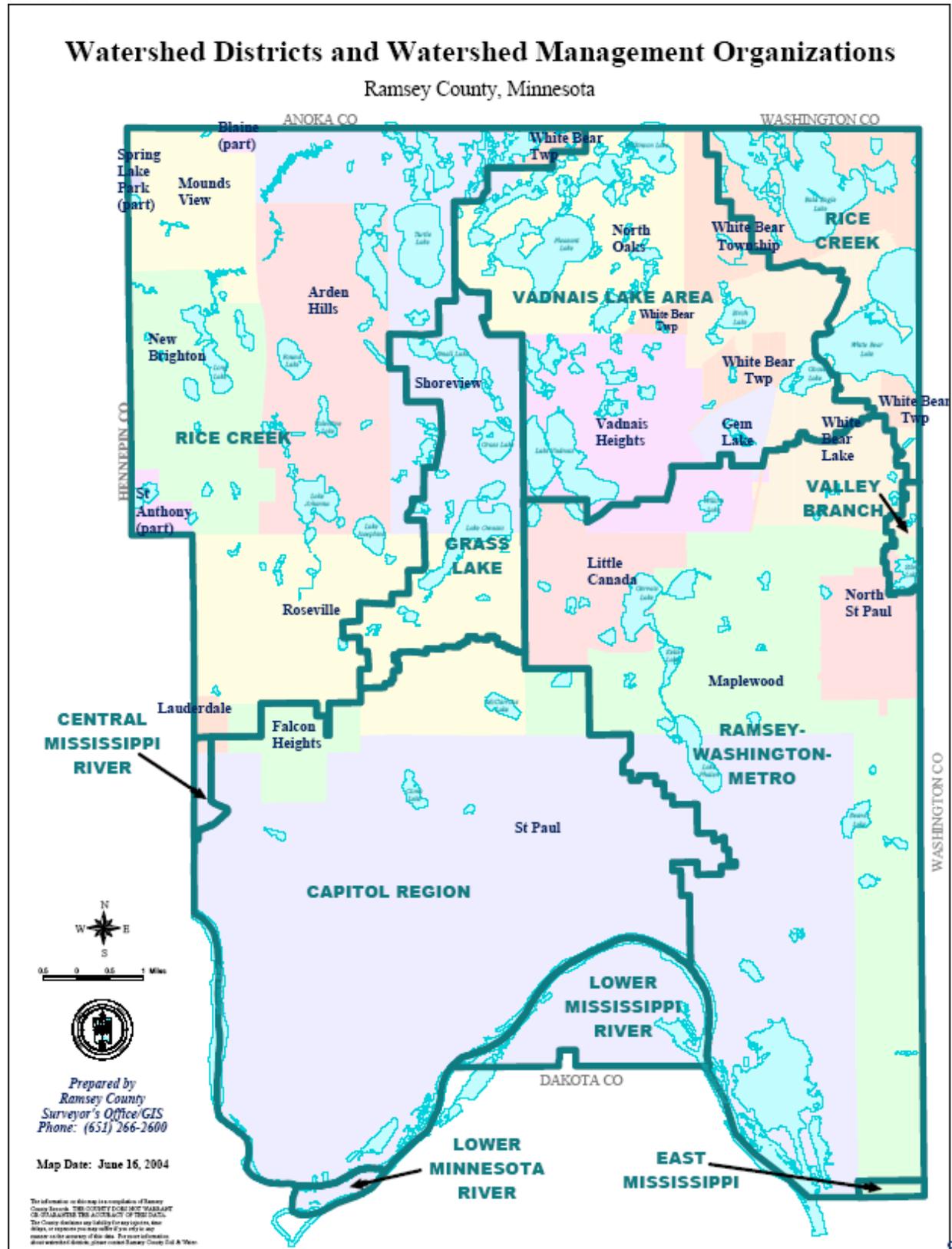
MAP #11



Watersheds

According to the Ramsey County Comprehensive Plan, there are 4 Watersheds in Ramsey County. These watersheds include: Capital Region Watershed, Valley Branch Watershed, Ramsey-Washington Metro Watershed and Rice Creek Watershed. These watersheds all have Water Management Organization (WMO) Plans on file with the Ramsey County Board of Commissioners. Map #12 shows all of the Watershed Districts and Water Management Organizations in the County.

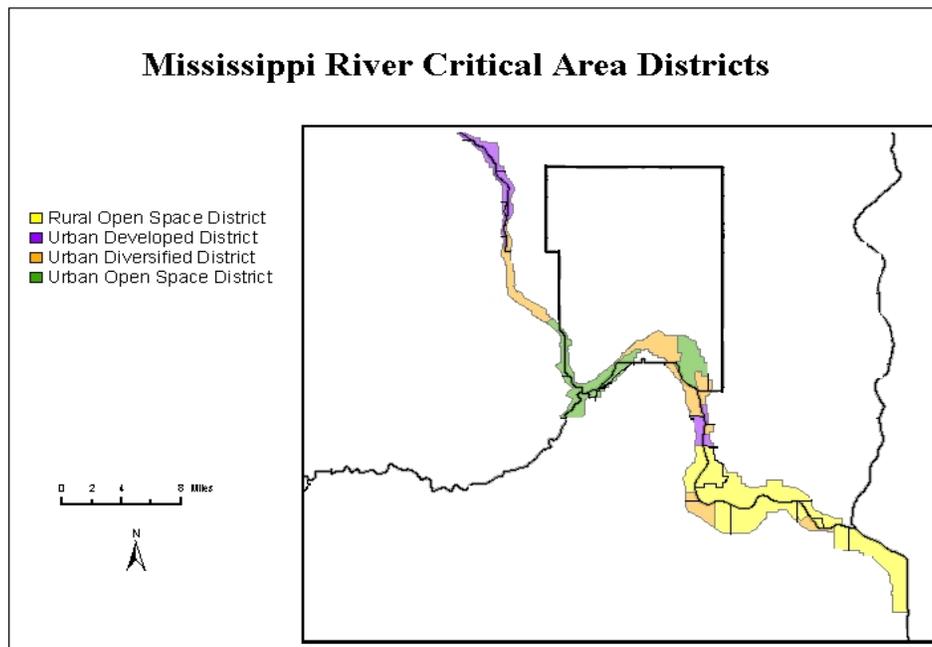
MAP #12



Mississippi River Critical Area

According to the Ramsey County Comprehensive Plan's section on the Mississippi River Critical Area – Minnesota National River and Recreation Area Plan, the Mississippi River plays a significant role in Ramsey County's history, its current life and its future. The river in downtown St. Paul has been, and will continue to be, a major transportation resource and the focus of extensive commercial and industrial activity. Ramsey County's Mississippi Critical Area – Minnesota National River and Recreation Area Plan addresses the County's policies, plans and activities related to the portions of the Minnesota's Mississippi River Critical Area Corridor and the U.S. Department of the Interior's Mississippi National River and Recreation Area (MNRRA) that are located in the County.

This plan focuses on topic areas where Ramsey County has responsibilities and is active. Since Ramsey County is exempt from the Land Use planning requirements, it does not have a role in regulating land use by other jurisdictions or entities. In general, Ramsey County's role in the Critical Area – MNRRA Corridor stems for its ownership of property and its provision of transportation, parks, recreation and open space services. Although it has a strong interest in activities within the corridor, Ramsey County does not do land use planning and does not have the ordinances, regulations or other authorities associated with land use planning. All of this information is available in the Ramsey County Comprehensive plan that was adopted by the Ramsey County Board of Commissioners in December 2002.



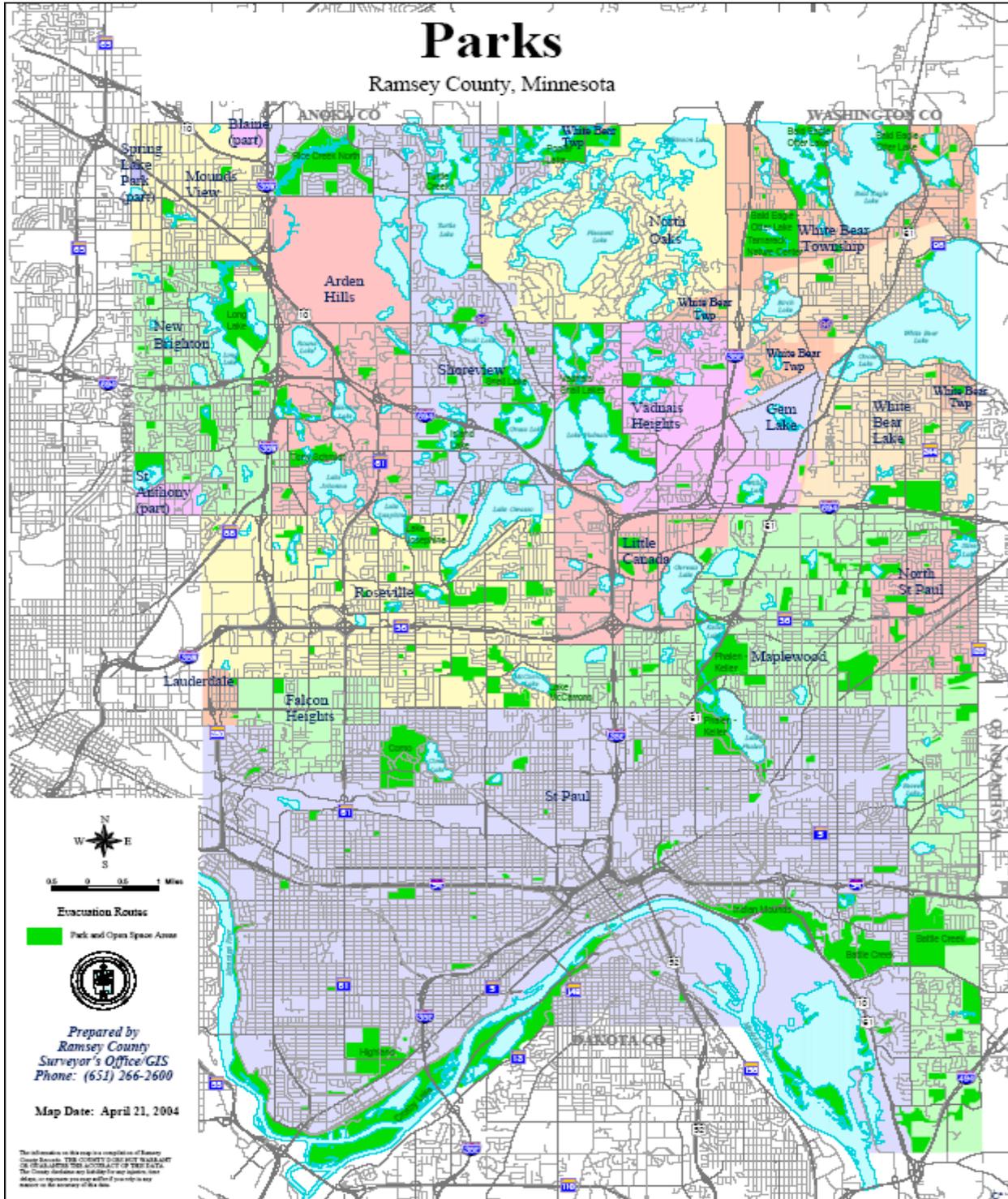
Parks

There are 5,692 acres of parks, trails, open space and special use facilities (arenas) in Ramsey County. There are five regional parks and five regional trail corridors providing safe and enjoyable recreational opportunities for all ages. Eleven county parks offer boat launches, picnic

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areas, play areas and swimming beaches. There are five golf courses are open to the public and eleven indoor ice arenas providing 12,000 hours of indoor ice time annually. In addition, there are nine protection open space sites that provide valuable wildlife habitat, preserve wetlands, and natural waterways and also offer outdoor recreational and educational opportunities.

MAP #13



Transportation Systems/Public Transit

According to the Ramsey County Comprehensive Plan’s section on Transportation, Transit and Surface Water Management, the County will consider a combination of transit modes including: buses, light rail, commuter rail and bus rapid transit, and will support a long-term transit funding source. The County will also be a leader in reducing traffic congestion by encouraging telecommuting and supporting parking policies that discourage the use of single-occupant vehicles.

By linking transportation to land use planning will ensure development that is favorable to transit and the current road system. The County will encourage compact development that provides a mix of housing, jobs and services. The County will also encourage development that accommodates walking, biking and transit use. The Comprehensive Plan further states that thoroughfares, highways, and streets will be coordinated to provide safe and efficient movement of motor vehicles, bicyclists and pedestrians. Transportation decisions will minimize the impact on the County’s wetlands and lakes.

With having access to all major interstates, with the exception of I90, Ramsey County has and will continue to attract residents, commercial and industrial development. According to the Metropolitan Council, almost 650,000 new residents, almost 350,000 new households, and about 400,000 new jobs are projected in the region by 2020. Because little roadway expansion is planned, this growth will have a significant impact on the transportation system. This constraint in the movement of goods and people could result in lost economic productivity, higher overall cost of doing business, and decreased competitiveness in the world economy. As the major interstates and highways continue to become congested, county highways and city streets will become more congested as well. The following tables #9, #10, and #11 depict the future capacity deficiencies.

Future Capacity Deficiencies

TABLE #9

State Trunk Highway System		
Location	From	To
I-35E	I-94	Highway 96
I-35W	TH 280	County Rd J
I-694	I-35W	TH 120
I-94	TH 280	TH 120
TH 120	I-694	County Rd E
TH 280	I-94	TH 36
TH 36	I-35W	TH 120

TABLE #10

County Road System			
Location	CSAH #	From	To
7 th Street W	5	Shepard Rd	I-35E
County Rd B2	78	Fairview Ave	TH 51

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County Rd D	19	Old Highway 8	Cleveland Ave
County Rd J	1	TH 10	Lexington Ave
Fairview Ave	48	County Rd B	County Rd C
Highway 61	61	White Bear Ave	Hwy 96 N. Jct
Highway 96	96	Centerville Rd	White Bear Parkway
Highway 96	96	Old Highway 8	TH 10
Maryland Ave	31	I-35E	Johnson Parkway
Rice Street	49	Roselawn	County Rd C
Rice Street	34	I-694	County Rd J
White Bear Ave	65	I-94	Larpenteur Ave

TABLE #11

Interchanges/Intersections		
Location	CSAH #	At
County Rd B	25	TH 51
County Rd C	23	TH 51
County Rd D	19	I-35W
County Rd J	1	I-35W
Fairview Ave	48	TH 36
Highway 61		I-694
Highway 96	96	TH 10
Highway 96	96	I-35W
Highway 96 S. Jct	96	Highway 61
Hodgson Rd	49	County Rd J
McKnight Rd	68	TH 36
Rice Street	49	TH 36
Rice Street	49	I-694
Silver Lake Rd	44	I-694
TH 120		TH 36
TH 120		I-694
White Bear Ave	65	I-694
White Bear Ave	65	TH 36

Airports

There are two airports within Ramsey County: the St. Paul Downtown Airport (Holman Field) and Benson Airport. The St. Paul Downtown Airport is classified as an intermediate, primary reliever airport providing service by commuter, air-taxi and corporate aircraft primarily for business flying. Its main service area is within thirty minutes ground travel time of the airport and includes downtown Minneapolis. Benson Airport is publicly owned by White Bear Township and therefore not part of the metropolitan airport system. Benson Airport is limited to the public use of small, single-engine propeller aircraft.

The Anoka County-Blaine Airport borders Ramsey County along County Road J. This airport is classified as a minor, secondary reliever, and provides service by medium-size, twin-engine

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aircraft, which are used primarily for training, pleasure and business flying. Its service area includes most of northern Ramsey County and part of St. Paul. The FAA designates both the St. Paul Downtown and the Anoka County-Blaine Airports as relievers for the Minneapolis-St. Paul International (MSP) Airport.

Hazards Facing Ramsey County

Hazards Not Addressed

Earthquakes

Karst

Solar Storms

Natural

Extreme Temperatures (cold, heat)

Infectious Disease

Precipitation (flood, drought)

Summer Storms (hailstorm, lightning, thunderstorm, tornado, windstorm)

Winter Storms (blizzard, ice, heavy snow, sleet)

Technological/Human Induced

Dam Failure

Domestic Preparedness: Terrorism

Fire (urban, wildfire)

Hazardous Material (Fixed facilities and Transport)

Water Supply Contamination

Ramsey County is susceptible to a number of hazards, ranging from natural hazards, to accidents, to deliberate acts of violence. Of the multitude of hazards that could occur, fourteen hazards were identified as possible concerns in Ramsey County. After conducting a further analysis of the possible hazards and their probability, three hazards were determined to be of insignificant concern and will not be addressed in detail in this plan.

This section of the All-Hazard Mitigation Plan presents the results of the hazard analysis. It includes a description of each hazard, the history of occurrences, and impacts to the county. It also includes the current plans and programs in place to mitigate these hazards, as well as noted gaps and deficiencies. Finally, recommendations are suggested for further or continued action to mitigate these hazards.

Ramsey County recognizes that it is the most densely populated county in the state and geographically the smallest county as well. Although a specific hazard or storm may not directly impact another municipality it is realized that resources will be reprioritized and all jurisdictions will feel the impact of any hazard no matter how small or insignificant it may seem. With that in mind, Ramsey County has chosen to plan countywide and not break the section into individual municipalities. Where certain criticalities lie that pertain to specific jurisdictions is in relation to the Risk and Vulnerabilities, which is covered in the Jurisdictional Assessment Report.

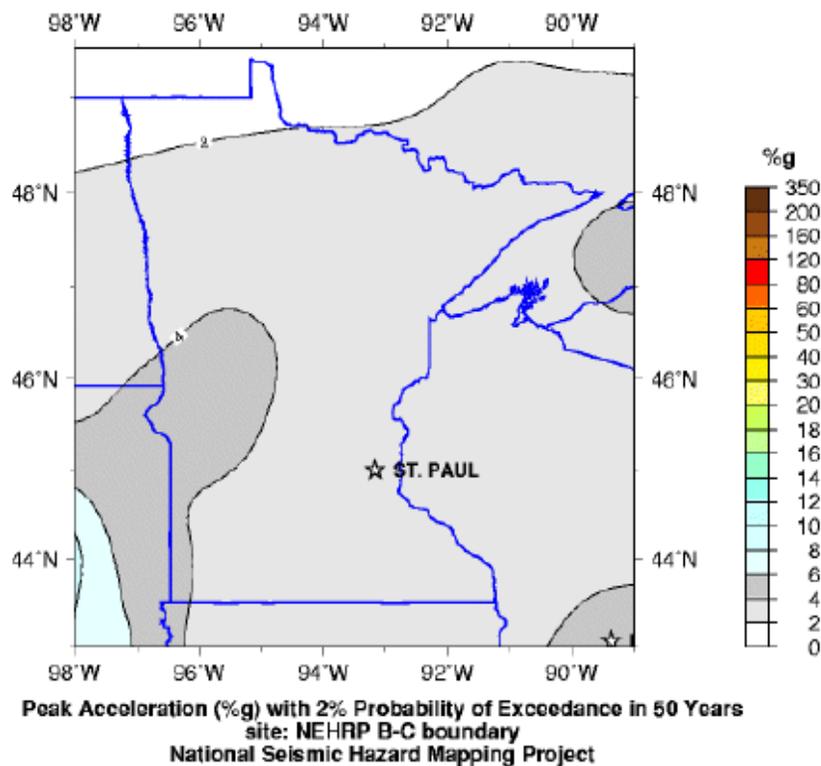
HAZARDS NOT ADDRESSED IN RAMSEY COUNTY'S PLAN

There are three hazards that are addressed in the State of Minnesota's Hazard Mitigation Plan that are not addressed in this plan. These hazards are Earthquakes, Karst and Solar Storms.

These hazards do not warrant further analysis in this plan because risks from these hazards are extremely low and mitigation efforts are either unnecessary or cannot be addressed at the county level.

Hazard: Earthquakes

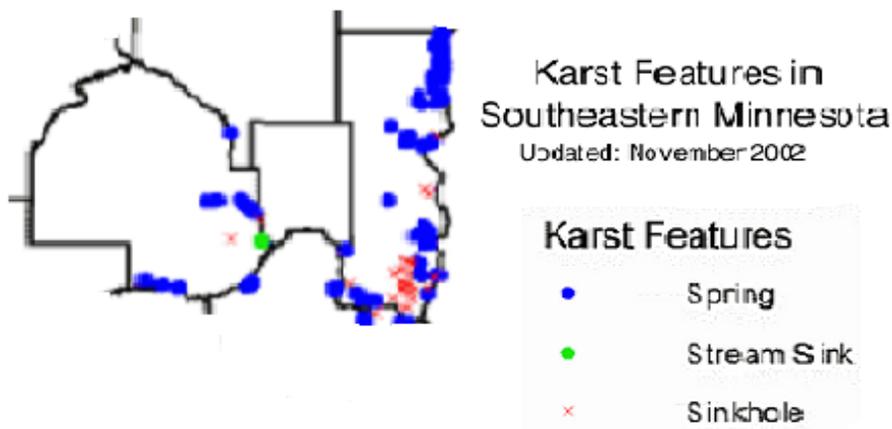
Earthquakes can be defined as a shaking or trembling of the crust of the earth caused by underground volcanic forces or by breaking and shifting of rock beneath the surface. Earthquakes do occur in Minnesota, but not on a regular basis. The largest earthquake registered in Minnesota occurred in 1975 in western Minnesota. The earthquake, which registered with a magnitude of 5.0, caused minor damage to walls and foundations of basements in Stevens County around Morris. It was also felt in Iowa, North Dakota and South Dakota. According to the Minnesota Geological Survey (MGS), Minnesota has one of the lowest occurrence levels of earthquakes in the United States; also, MGS indicates that a severe earthquake is very unlikely in Minnesota. No earthquake damage has been reported in Ramsey County's history.



An earthquake could damage water, sewer, gas pipelines and electrical lines throughout the County; however, most earthquake occurrences in Minnesota are minor tremors. The potential for effects on the County's resources, including people, housing and commercial and industrial structures, is minimal. The likelihood of earthquakes throughout Ramsey County is minimal, and will not be given further consideration at this time.

Hazard: Karst

Karst is an efficiently drained landscape that forms on soluble rock, typified by caves, sinkholes and a lack of surface drainage. In Minnesota, it is mainly formed on limestone, especially in the southeast. Limestone is slowly dissolved by infiltrating rainwater, sometimes forming hidden, rapid pathways from pollution release points to drinking water wells or surface water. These pathways can be widened, interconnected fractures or caves in the subsurface resulting in a hydro-geologic setting sensitive to land use. According to the University of Minnesota, “Caves at a Glance” article, “caves are only one part of a group of landscape features known as karst. Karst landscapes are broad and regional in nature. In addition to caves, karst landscapes include, but are not limited to, underground streams, sinkholes, blind valleys, and springs. Southeastern Minnesota has the most active karst features, and Ramsey County is on the northern border of the karst formations. Counties known for karst features include parts of Dakota, Rice, Dodge and Mower, and most of Goodhue, Olmstead, Winona, Wabasha, Houston, and Fillmore. Fillmore County has more caves, sinkholes, and disappearing streams than all other Minnesota counties combined.” Karst topography exists in the very southern portions of Ramsey County along the Mississippi River in the form of caves.



History

Ramsey County has no recorded disasters related to Karst. There have however, been a few sinkholes that have appeared after heavy rains in the City of Falcon Heights. Also, the City of St. Paul, along the Mississippi River, has numerous caves in which people enjoy exploring, despite the dangerous conditions this poses. Most recently, in the summer of 2004 three individuals lost their lives due to a lack of oxygen while exploring the caves. The City of St. Paul has taken action to permanently seal all entrances to the caves. This will be further covered in the City of St. Paul Hazard Mitigation Plan.

Hazard: Solar Storms

The sun is actually a comparatively young star in the solar system. While in reality the sun is just an average-sized star, it has been producing its radiant and thermal energy for 5 billion years and has enough hydrogen to continue for another 100 billion years. The sun is a prodigious

energy machine, manufacturing enough in one second to meet the U.S. energy demand, at its current usage rate, for the next 9 million years.

Solar flares are intense, temporary releases of energy, each equivalent to approximately 40 billion Hiroshima-size atomic bombs. One to four days after such a flare, this energy arrives and blasts into the Earth where our magnetic shield, in effect, forms a protective barrier. Some of this energy, however, is transferred into the upper atmosphere resulting in climatic changes and geomagnetic storms that can temporarily alter the Earth's magnetic field.

It has been realized and appreciated only in the past few decades that solar flares, geomagnetic storms, and related events affect people and their activities, especially as we become increasingly dependent upon sensitive and vulnerable technological systems.

NOAA has three scales to measure the severity of a solar storm:

- Geomagnetic storms – have effect on power grids, satellites, and radio communications
- Solar radiation – hazardous for spacewalkers and those in high altitude aircraft flying at high latitudes. Radiation dose can be equivalent to a chest x-ray. Communications are affected in polar regions and with high frequency communications.
- Radio blackouts – blackouts of high frequency radio communications used for transmitting long distances. Increased navigation errors and low frequency outages also occur.

History

In March 1989, a solar storm tripped protective switches in the Canadian Hydro-Quebec power company, cutting power to six million people in Quebec for nine hours. This same storm caused widespread power outages in the northeastern United States and in Sweden as well.

In 1997, an AT&T Telestar 401 satellite used to broadcast television shows from networks to local affiliates was knocked out during a solar storm.

A more serious breakdown of communications occurred in May 1998 when a space storm disabled PanAmSat's Galaxy IV. Among the Galaxy IV casualties: automated teller machines; gas station credit card handling services; 80 percent of all pagers in the United States; news wire service feeds; CNN's airport network; and some airline weather tracking services.

In 2000, several satellites were put out of service temporarily and others had navigation problems. There was a G3 (strong) geomagnetic storm in October of 2003 that produced spectacular Aurora Borealis displays.

Risk Assessment

The frequency of flares coincides with the Sun's eleven-year cycle. When the solar cycle is at a minimum, active regions are small and rare and few solar flares are detected. These increase in number as the Sun approaches the maximum part of its cycle. The Sun will reach its next

maximum in the year 2011 or 2012. All areas of Ramsey County are at risk for suffering the effects of a solar storm.

Impact on People and Housing

There does not appear to be a direct vulnerability to life or property from solar storms. However, cell phone service can have more than the usual amount of dropped calls.

Impact on Commercial and Industrial Structures

Solar storms have little direct impact on property; however the effects caused by solar storms can have an indirect effect.

Impact on Critical Infrastructure

Many communications systems utilize the ionosphere to reflect radio signals over long distances. Magnetic storms can disrupt these signals. Although television and commercial radio stations are little affected, ground-to-air, ship-to-shore, Voice of America, and amateur radio transmissions are frequently disrupted.

Geomagnetic storms can also induce electric currents into pipelines. Flow meters can transmit bad information and the corrosion rate can be dramatically increased. Pipeline engineers also need alerts and warnings about solar storms in order to monitor and protect their systems.

Navigation systems are adversely affected when solar activity disrupts their radio wavelengths. As a result, a navigator's plotting of airplanes or ships can be inaccurate by several miles. Backup and redundant systems are needed.

Relationship with Other Hazards – Cascading Effects **Power Outages.**

Plans and Programs Currently in Place

- There are currently no plans or programs in place to mitigate this hazard.

Gaps and Deficiencies

- Lack of plans and information to deal with the effects of a solar storm.

Recommendations

- The local government has no specific protective mitigation strategies. Because of the lead-time in warning, proper precautions can be taken to lessen or eliminate the effects of solar storms.

NATURAL HAZARDS

According to FEMA, there have been nine major disaster declarations in Ramsey County. The following Table #1 identifies when the disasters took place and the type of disaster that occurred.

TABLE #1

Major Disaster Declarations			
Year	Date	Disaster Types	Disaster Number
2001	05/16	Flooding	1370
2000	06/27	Flooding, Severe Storm, Tornado	1333
1998	06/23	High Winds, Severe Storm, Tornado	1225
1997	08/25	Flooding	1187
1997	04/08	Flooding, Severe Storm	1175
1997	01/16	Winter Storm, Severe Storm	1158
1997	01/07	Winter Storm, Severe Strom	1151
1996	06/01	Flooding	1116
1996	01/05	Ice Storm	1078
Emergency Declarations			
No Emergency Declarations Declared in Minnesota.			

http://www.fema.gov/regions/v/disasters_region5.fema

Hazard: Extreme Temperatures

Minnesota is home to a variety of weather conditions. The saying goes, “If you don’t like the weather today, wait until tomorrow because it will change!” Ramsey County, being located in the upper Midwest region of the Country can go from record highs to record lows in a matter of days. Record temperatures range from as hot as 105 degrees in 1988, to freezing cold weather of –32 degrees in 1996.

According to the National Weather Service (NWS), extreme temperatures in Minnesota are characterized by the issuance of Wind Chill Warnings or Advisories in the winter months, and by the issuance of Excessive Heat Warnings or Heat Advisories in the summer months.

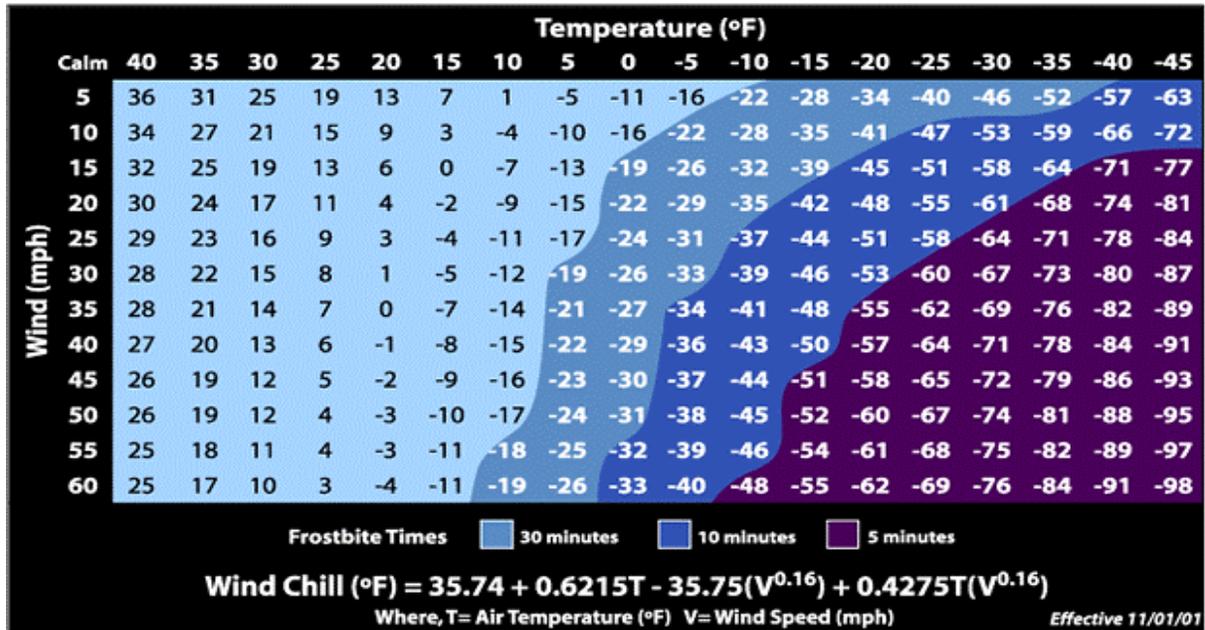
Extreme Cold

The National Weather Service issues a Wind Chill Advisory for Ramsey County when wind chills of 35 degrees below zero with winds of at least 10 miles per hour are expected.

A Wind Chill Warning is issued when wind chills of 50 degrees below zero and winds greater than 10miles per hour are expected.



Wind Chill Chart



Extreme Heat

The NWS issues a Heat Advisory for Minnesota when, during a 24-hour period, the Heat Index ranges from 105 to 114 degrees during the day, and remains at or above 80 degrees at night.

An Excessive Heat Warning is issued when, during a 24-hours period, the Heat Index reaches 115 degrees or more during the day, and remains at or above 80 degrees at night.

Heat Index Chart (Temperature & Dewpoint)																
Dewpoint (° F)	Temperature (° F)															
	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
65	94	95	96	97	98	100	101	102	103	104	106	107	108	109	110	112
66	94	95	97	98	99	100	101	103	104	105	106	108	109	110	111	112
67	95	96	97	98	100	101	102	103	105	106	107	108	110	111	112	113
68	95	97	98	99	100	102	103	104	105	107	108	109	110	112	113	114
69	96	97	99	100	101	103	104	105	106	108	109	110	111	113	114	115
70	97	98	99	101	102	103	105	106	107	109	110	111	112	114	115	116
71	98	99	100	102	103	104	106	107	108	109	111	112	113	115	116	117
72	98	100	101	103	104	105	107	108	109	111	112	113	114	116	117	118
73	99	101	102	103	105	106	108	109	110	112	113	114	116	117	118	119

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74	100	102	103	104	106	107	109	110	111	113	114	115	117	118	119	121
75	101	103	104	106	107	108	110	111	113	114	115	117	118	119	121	122
76	102	104	105	107	108	110	111	112	114	115	117	118	119	121	122	123
77	103	105	106	108	109	111	112	114	115	117	118	119	121	122	124	125
78	105	106	108	109	111	112	114	115	117	118	119	121	122	124	125	126
79	106	107	109	111	112	114	115	117	118	120	121	122	124	125	127	128
80	107	109	110	112	114	115	117	118	120	121	123	124	126	127	128	130
81	109	110	112	114	115	117	118	120	121	123	124	126	127	129	130	132
82	110	112	114	115	117	118	120	122	123	125	126	128	129	131	132	133

Note: Exposure to full sunshine can increase HI values by up to 15° F

History

The following Table #2 illustrates the Average Monthly Temperature along with the extreme high and low temperatures for Ramsey County.

TABLE #2

Average Monthly Temperature And Extreme High and Low Temperatures				
Month	Avg. High	Avg. Low	Record High	Record Low
Jan	23°F	6°F	57°F (1981)	-29°F (1994)
Feb	30°F	13°F	59°F (1981)	-32°F (1996)
Mar	42°F	24°F	83°F (1986)	-25°F (1962)
Apr	58°F	36°F	93°F (1980)	3°F (1995)
May	71°F	48°F	93°F (1969)	21°F (1967)
Jun	79°F	58°F	100°F (1985)	36°F (1993)
Jul	83°F	63°F	105°F (1988)	45°F (1972)
Aug	81°F	61°F	103°F (1988)	42°F (1986)
Sep	72°F	52°F	95°F (1976)	26°F (1965)
Oct	59°F	40°F	88°F (1997)	15°F (1996)
Nov	41°F	26°F	75°F (1978)	-14°F (1964)
Dec	27°F	12°F	66°F (1998)	-29°F (1983)

From January 1, 1980 through April 30, 2004, the National Weather Service has recorded twelve temperature extremes for Ramsey County. The following Table #3 illustrates these events.

TABLE #3

Temperature Extremes reported in Ramsey County, MN between 01/01/1980 and 04/30/2004							
Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	01/15/1994	1:00am	Extreme Cold	1	0	0	0
Ramsey County	07/10/1995	1:00pm	Heat Wave	2	0	2.00M	0
Ramsey County	01/18/1996	6:00pm	Extreme Windchill	0	0	0	0
Ramsey County	01/31/1996	4:00pm	Extreme Cold	0	0	0	0
Ramsey County	02/01/1996	12:00am	Extreme Cold	0	0	0	0
Ramsey County	12/24/1997	6:00pm	Extreme Windchill	0	0	0	0
Ramsey County	01/15/1997	5:00pm	Extreme Windchill	0	0	0	0
Ramsey County	07/23/1999	10:00am	Excessive Heat	1	0	0	0
Ramsey County	07/29/1999	3:00am	Excessive Heat	0	0	0	0
Ramsey County	07/30/2001	9:00am	Excessive Heat	0	0	0	0
Ramsey County	08/01/2001	12:00am	Excessive Heat	1	0	0	0
Ramsey County	08/04/2001	12:00pm	Excessive Heat	5	0	0	0
Totals:				10	0	2.00M	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms							

Risk Assessment

Damages from extreme temperatures can range from human deaths to significant energy costs and infrastructure problems. All areas of Ramsey County are vulnerable to extreme temperatures of cold or heat.

Overall Vulnerability	
Frequency	Moderate
Intensity	High
Location	Countywide
Extent	Risk to health of population is greatest
Duration	Days to weeks
Seasonal Pattern	Mid winter and Mid/late summer

Speed of Onset	Gradual
Warning Time	12 – 36 hours
Probability of Future Occurrences	High

Impact on People and Housing

Extreme heat poses the greatest danger to outdoor laborers, the elderly, children, people in poor health, and people residing in homes without air-conditioning. Nine deaths have been attributed to excessive heat. People can suffer from hyperthermia resulting in heat stroke or heat exhaustion on extremely warm days if precautions are not taken.

In comparison, Ramsey County residents seem well prepared for extreme cold weather. Only one death has been recognized as being a result from excessive cold weather. Though residents may be prepared, excessive cold can still cause problems for residents if proper precautions are not taken. Excessive cold can cause hypothermia and frostbite. And again, vulnerable populations, such as children and elderly, are more susceptible to these concerns, as well as those who are already ill.

In relation to housing, Ramsey County homes are at risk primarily in the case of excessive cold. People have a tendency to use space heaters or fireplaces to heat their homes, which can be a fire hazard if not used and monitored properly. Also, pipes can freeze and burst in excessive cold temperatures. Power outages may also occur with excessive energy use to help heat or cool the home.

Extreme temperatures can also cause vehicles to stall out. This could cause hazardous road conditions. Typically emergency vehicles are kept in a controlled temperature area, though this could pose a risk to those vehicles as well.

Impact on Commercial and Industrial Structures

Excessive cold or heat will affect commercial and industrial structures in the form of possible power outages due to an increase in energy uses related to using heaters or air-conditioners excessively due to the temperatures. Power outages could induce phone outages as well. This in turn will affect business productivity. Also, the probability of a structure fire increases with the possible use of space heaters to heat work areas. Excessive cold could also lead to burst pipes causing damage.

Impact on Critical Infrastructure

Similar to the effects of excessive cold or heat to commercial and industrial structures, critical infrastructure will be affected by power outages, possible phone outages and structure fires due to the use of space heaters. Most critical infrastructure facilities should have emergency generators in place to help avoid power outages during increase energy use due to extreme temperatures.

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In relation to emergency response, along with an increase in structure fires, there will be a likelihood of an increased call for medical response due to injuries resulting from the temperature extremes. This increase could potentially overburden emergency response personnel causing some calls to go unanswered and priorities being redirected.

Relationship with Other Hazards – Cascading Effects

Power outages. Due to the increased use of heaters or air-conditioners.

Fires. Due to the use of space heaters or fireplaces not properly used or monitored.

Plans and Programs Currently in Place

Public Awareness.

- The MN Division of Homeland Security and Emergency Management (HSEM) publishes seasonal information on Winter Hazard Awareness Week and Severe Weather Awareness Week. Ramsey County Emergency Management and Homeland Security (RC EMHS) also links to this information on their website.
- The American Red Cross also publishes information on family emergency plans and kits. RC EMHS also links to this information on their website.
- Provide need-to-know emergency preparedness information about this hazard to all residents by various means, such as the broadcast and print and news media, the internet, and by providing notices in utility bills.

Gaps and Deficiencies

Emergency Generators.

- Not all critical facilities have emergency generators for use in a power outage.

Continuity of Operations Plans (COOP).

- Not all businesses or organizations have COOP.

Public Awareness.

- Public Awareness messages are not in alternative languages.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Assure all critical facilities have emergency generators.
- Assure all businesses and organizations, starting with critical infrastructure groups, have COOP.
- Format emergency messages in alternative languages; use ECHO.
- Conduct a public education campaign on extreme temperature precautions.
- Conduct a public education campaign on general safety procedures on the use of fireplaces and space heaters.
- Encourage the public to purchase emergency generators.

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- Ensure that emergency shelters have sufficient heating and cooling equipment, along with emergency generators.
- Ensure annual training for utility emergency crews and establish priority restoration requirements.

Hazard: Infectious Diseases

An infectious disease is defined as an illness that is caused by bacteria, virus or other microorganisms that invade the body. A communicable disease is one that can be passed on or spread to others. These diseases have the potential to affect any form of life at any time based on local conditions, living standards, basic hygiene, water treatment and immunization status of the population. Despite medical breakthroughs and technology, infectious and communicable diseases continue to pose a significant public health threat. Today the issue of newly emerging and re-emerging infectious disease is at the forefront of public health concern. Changes in demographics, lifestyles, technology, land use practices, food production and distribution methods, childcare practices as well as increasing world poverty have a role in emerging infections.

Many infectious/communicable diseases are preventable and controllable. Prevention and control of infectious diseases involve collection of accurate assessment data (such as surveillance data for specific conditions), outbreak detection and investigation, and development of appropriate control strategies (both short and long term) based on specific epidemiological data. These activities require close collaboration between clinical providers, clinical laboratories, state and local health departments, and federal agencies. Furthermore, a need exists for continued education of industry (particularly food producers and food service industries), health care students and providers, along with research to improve immunization, diagnostic capabilities and therapeutic modalities. Thus, prevention of infectious/communicable diseases requires multidisciplinary interventions involving public health professionals, medical practitioners, researchers, community based organizations, volunteer and private groups, industry and educational systems.

History

The primary diseases of concern, and currently present, in Ramsey County include: Tuberculosis, STDs, HIV, AIDS, Hepatitis B, food and waterborne diseases, E Coli, vaccine preventable diseases, and Influenza.

In addition, diseases that may emerge either naturally or terrorist induced include: Smallpox, Anthrax, Cholera, Plague, Tularemia, Marburg/Ebola, Avian Flu, SARS, and other unknown emerging infectious diseases. Toxic exposure to Ricin, Botulinum toxin and other biologic, but not infectious agents, is also a concern.

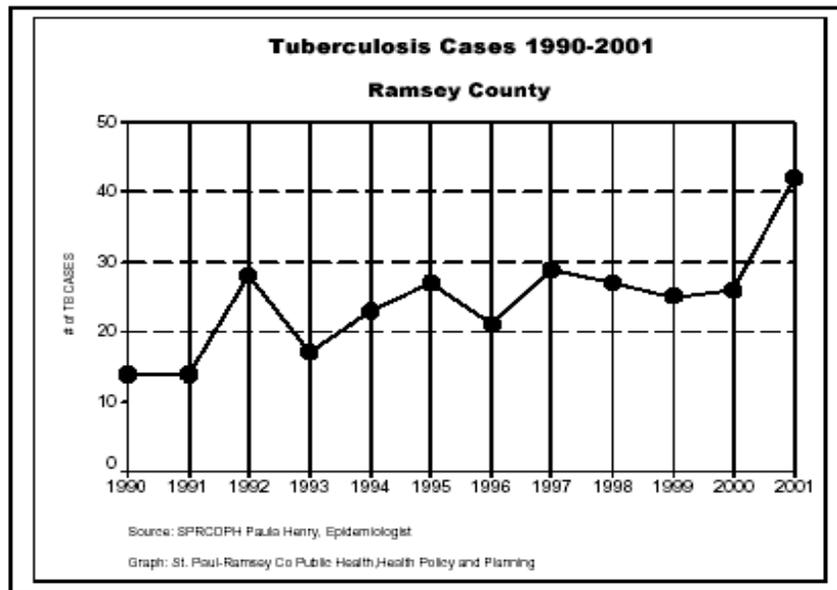
Tuberculosis

TB, or tuberculosis, is a disease caused by bacteria called *Mycobacterium tuberculosis*. The bacteria can attack any part of your body, but they usually attack the lungs. TB is spread through the air from one person to another. TB disease was once the leading cause of death in the United States. In the 1940s, scientists discovered the first of several drugs now used to treat TB. As a

Ramsey County All-Hazard Mitigation Plan

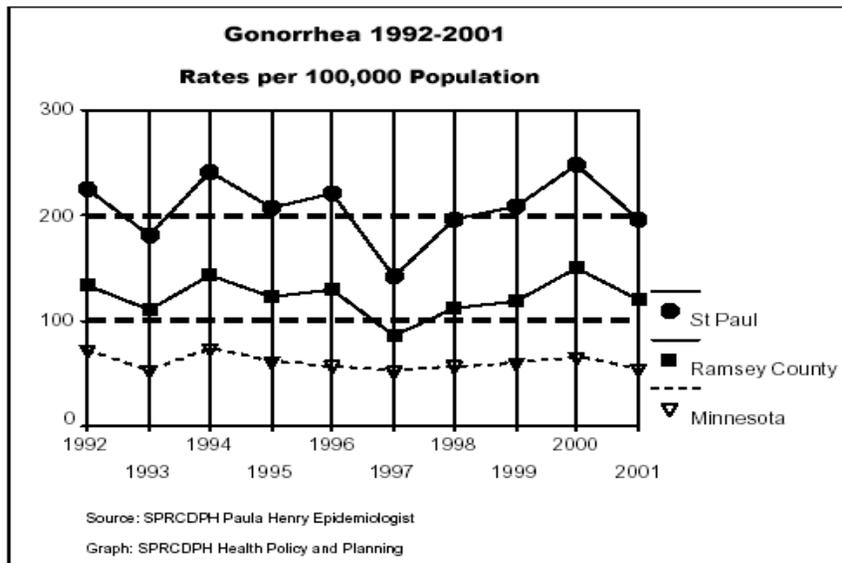
result, TB slowly began to disappear in the United States. But TB has come back. Between 1985 and 1992, the number of TB cases increased. More than 16,000 cases were reported in 2000 in the United States. (Source: <http://www.cdc.gov/nchstp/tb/faqs/qa.htm#Intro1>).

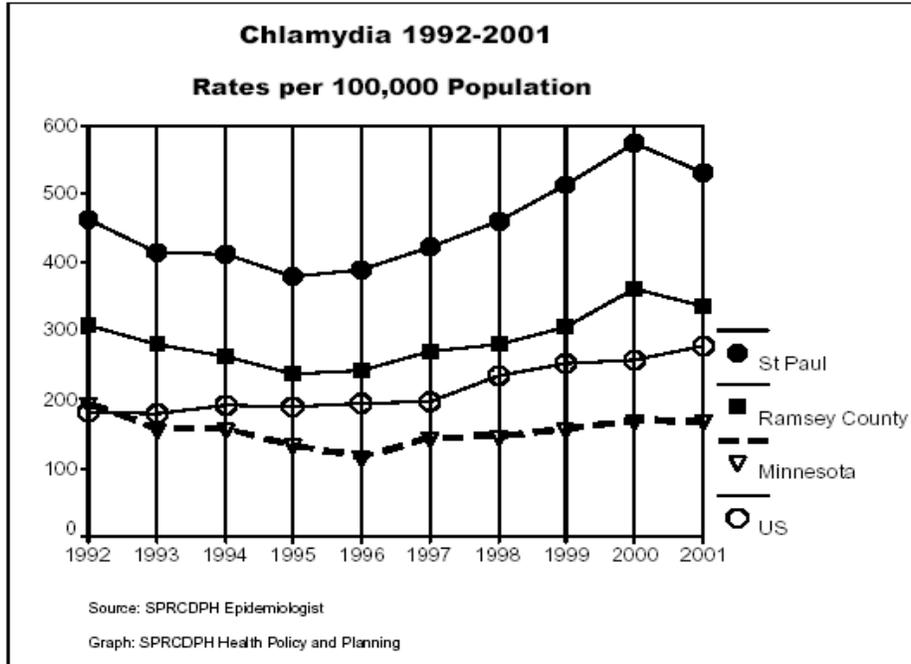
The tuberculosis cases in Ramsey County continue to increase. In 2001 there were 42 cases with a rate of 8.2 per 100,000 population. This is the highest rate of tuberculosis in Ramsey County since 1981. The number of Tuberculosis cases continues at a high level based on the first 6 months of 2002.



Sexually Transmitted Diseases

STDs include Gonorrhea, Chlamydia, and Syphilis. Ramsey County has rates for all of these infectious that are far above the rate for the rest of the state.





RAMSEY COUNTY PRIMARY & SECONDARY SYPHILIS
RATES/100,000 POP. BY YEAR

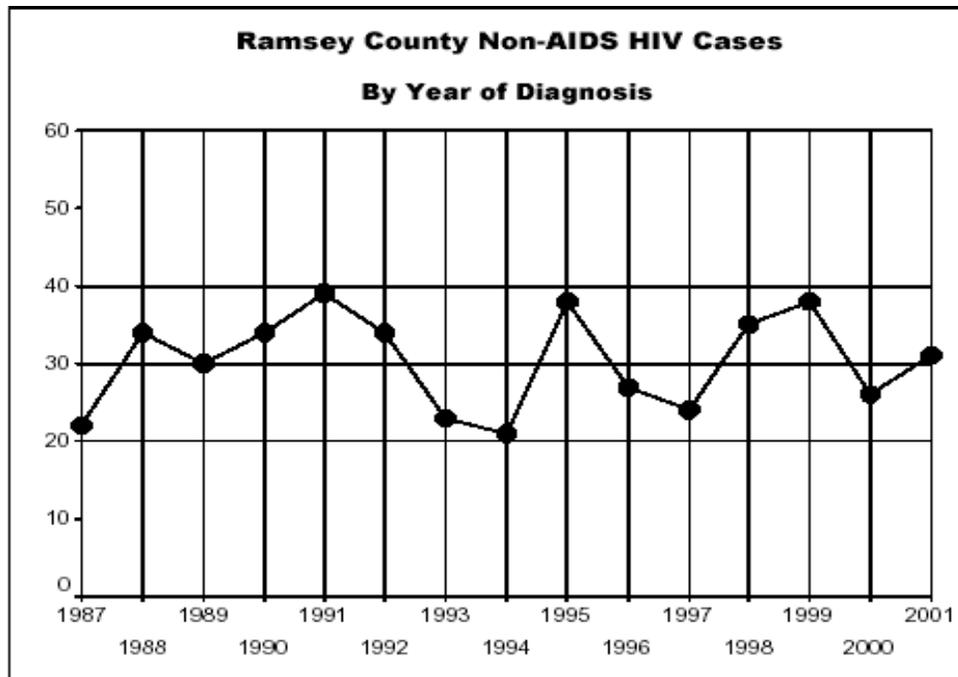
1992	2.6
1993	2.6
1994	1.6
1995	2.0
1996	.4
1997	.0
1998	.6
1999	.4
2000	.4
2001	1.2

Source: SPRCDPH Paula Henry Epidemiologist
Graph: SPRCDPH Health Policy and Planning

Minnesota's rate for Syphilis in 2001 was 0.7 compared to Ramsey County of 1.2.

HIV/AIDS

Ramsey County has a steady rate of HIV cases. This disease is present in males, females, and white and non-white race groups.



Hepatitis B

Perinatal transmission of hepatitis B virus (HBV), transmission from mother to infant during delivery, is one of the most efficient modes of hepatitis transmission. *Without proper prophylaxis at birth, up to 90% of infants born to hepatitis B positive women become chronically infected with hepatitis B.* Of those infected at birth, approximately 25% have a risk of dying from liver cancer or cirrhosis later in life. Even if the infant doesn't acquire HBV at birth, he/she has a 30-60% chance of becoming infected through person-to person contact with the mother or other family members within the first five years of life. *Ramsey County has now the largest population of infant births to Hepatitis B positive Mothers of the 87 counties in Minnesota.* (Source: MDH Perinatal Hepatitis B Prevention Coordinator)

Food Borne & Waterborne Diseases

Education, inspections and regulation can prevent much food borne and waterborne disease. These diseases are caused by a variety of bacteria, viruses, parasites, and toxins. Once consumed by a human, these organisms can cause cramps, diarrhea, vomiting, and other symptoms. In the United States, the Centers for Disease Control and Prevention (CDC) estimates that each year 76 million people get sick, more than 300,000 are hospitalized, and 5,000 Americans die as a result of food borne illnesses. Hit hardest are primarily the very young, the elderly, and people with compromised immune systems. Recent changes in our demographics; changes in food production and distribution systems; and lack of support for public health services have contributed to the ongoing problem of food borne and waterborne illness. (Morbidity and mortality Weekly Report, 1/26/01). Using the CDC's estimate that 26% of the population experiences a food borne illness every year creates an annual average of about 132,000 Ramsey County residents who succumb to food borne or waterborne illness each year. Many are not reported. Disease outbreaks are investigated through the cooperation of local and state public health departments.

E-Coli

E. coli 0157:H7 is one of hundreds of strains of the bacterium Escherichia coli. Although most strains are harmless and live in the intestines of healthy humans and animals, this strain produces a powerful toxin and can cause severe illness. In some persons, particularly children under 5 years of age and the elderly, the infection can also cause a complication called hemolytic uremic syndrome, in which the red blood cells are destroyed and the kidneys fail. About 2%-7% of infections lead to this complication. (<http://www.cdc.gov/ncidod/diseases>).

During the previous 5 year period, 1997 through 2001, there were a total of 77 infections due to E. coli 0157:H7 reported in Ramsey County residents. The median number of cases per year was 16, a rate of 3.1 cases per 100,000 residents. The highest number of cases during this period was 18 cases per year and the lowest number of cases, 11 per year. During this 5 year period there were five cases of Hemolytic Uremic Syndrome (HUS) reported in Ramsey County. These cases occurred in children under age 4 and in adults over age 50.

Vaccine Preventable Diseases

Diseases such as measles, mumps, vericella, polio, rubella and pertussis have significantly decreased in occurrence since the advent of routine childhood vaccinations. However these diseases will only continue to decrease if we get all children vaccinated at the appropriate age. Currently, Ramsey County’s immunization levels are less that the State of Minnesota for school age children. This puts at a much greater risk of an outbreak of these diseases.

Risk Assessment

Ramsey County is a highly urbanized County with dense population centers. Population density is correlated to the spread of communicable diseases, thus placing the entire population of Ramsey County at high risk. Also, we are the first home for many newly arriving immigrants from Africa and Southeast Asia. These new residents to our community often have not had access to health care services. This also increases our risk seeing the diseases found in their home countries.

Ramsey County is the seat of state government and could be seen as a high-risk site for a terrorist act such as the release of a deadly biologic agent in an attempt to disrupt the highest level of government in the state.

However, good prevention programs and quality health care temper this risk. Both the State and local Public Health Department are actively involved in the prevention and control of communicable diseases.

Overall Vulnerability	
Frequency	Moderate
Intensity	Moderate to High
Location	Countywide; dependent on disease and how quickly it spreads.
Extent	Sickness in humans and/or animals, quarantine and possible death. May result in lost time for employees.
Duration	Unknown. Several days to several months

Seasonal Pattern	No apparent pattern
Speed of Onset	Slow to rapid
Warning Time	Variable
Probability of Future Occurrences	High

Impact on People and Housing

The effects of a communicable disease outbreak on people would be large. Increasing information and media attention to even a small number of cases would trigger a rising public anxiety. Furthermore, if a disease outbreak were to emerge among health care workers, emergency response personnel, public safety personnel, utility workers or others vital to public infrastructure the impact would be significant.

A communicable disease outbreak could stress the housing situation in Ramsey County. Due to already short housing options, a disease which required home isolation or quarantine could be difficult to control with large numbers of people living in shelters and congregate housing.

Impact on Commercial and Industrial Structures

A negative impact on the economy would occur if a widespread outbreak occurred and businesses were forced to shut down for an extended period of time.

Impact on Critical Infrastructure

There would be no direct effect on physical infrastructure. However, an infectious disease outbreak may cause wide spread absenteeism throughout the public sector, indirectly affecting infrastructure. An infectious disease outbreak might affect systems in health care, police, fire, public works, emergency response, utility, transportation and schools.

Relationship with Other Hazards-Cascading Effects

Infectious disease outbreaks may occur as an isolated or single event or may be secondary to a previous disaster such as a terrorist attack, biological accident or natural hazard. Infectious diseases have the potential to be local, regional, statewide or national in scope and magnitude. State and local officials must carefully consider which services and personnel are essential and identify where absenteeism would pose a serious threat to public safety or would significantly interfere with the ongoing response to an outbreak.

Public perception of a communicable disease in the community could cause panic and general disruption within the community and needlessly overwhelm the health care system. If an epidemic event were to occur, fear and misinformation could trigger large-scale riots, panic and lawlessness.

Plans and Programs Currently in Place

Public Health Emergency Operation Plan: St. Paul-Ramsey County Public Health has a current emergency operation plan known as the “SP-RCDPH Incident Management Plan”. This plan describes the response of SPRCDPH (St. Paul-Ramsey County Department of Public Health) to a public health incident. It provides a set of suggested guidelines for a response to an incident in which there is a threat to the public’s health. The guidelines are adaptable to

Ramsey County All-Hazard Mitigation Plan

emergencies where the Department is the lead agency in the response (such as disease outbreaks) and where public health plays a supportive role (such as floods or tornadoes). This plan is coordinated with the overall Ramsey County Emergency Operation Plan.

Subsets of the Plan include procedures for mass dispensing of antibiotics or immunizations as well as procedures for implementing isolation and quarantine measures.

These emergency plans are exercised and trained for on a regular basis.

Interagency Cooperation: St. Paul-Ramsey County Public Health enjoys a close working relationship with both the Minnesota Department of Health and with other metro area local public health departments. Through long-term relationships and mutual projects, staff at all levels have the ability to quickly come together to coordinate a health response that is regional in nature.

Epidemiological Surveillance: Ramsey County employs two full time epidemiologists who regularly engage in both active and passive disease surveillance. These individuals work with the Minnesota Department of Health to monitor disease reports and investigate potential cases.

Media Outreach: Ramsey County Public Health has a full time Public Information Officer who works with local media. This individual is specialist in risk communication and can advise and guide the public information in the event of an outbreak.

Immunization Program: County Public Health has a highly developed immunization program. In addition to directly providing immunizations to individuals, public health staff works closely with area clinics to increase numbers of children and adults with up to date immunizations.

Environmental Health Regulations and Policies: The county health department has in place ordinances and policies that relate to inspection of food, beverage and lodging facilities. They also, regulate both business and household hazardous waste in an effort to protect the citizens of the county.

Health Alert Network (HAN).

The public health department maintains a “Health Alert Network” which can send out a FAX or Email to health care providers, hospitals, schools, pharmacists, veterinarians, long-term care facilities and others. This alert can provide urgent information on communicable diseases present in the area.

Emergency and Community Health Outreach (ECHO). ECHO is a tool used to reach the non-English speaking population. Twice a month, on public television, a taped show will air in 6 different languages including Hmong, Khmer, Lao, Somali, Spanish and Vietnamese. The shows will cover topics such as flu prevention, winter weather survival and Emergency Preparedness efforts. <http://www.echominnesota.org/>

Program Gaps and Deficiencies

Although Ramsey County has many strengths and resources in relation to prevention and control of communicable diseases, there remain program gaps;

- Public Health has been under funded for many years. Consequently there is not enough staff to fulfill this responsibility. Additional personnel will be necessary to increase the level of protection and reduce the significant risk we face.
- Role clarification is needed between the Minnesota Department of Health and Local Health Departments. There exists some confusion over response roles that will need to be resolved.
- Public health staff is experiencing a massive culture change with the additional responsibilities of public health emergency preparedness. Although small outbreaks can be handled, the potential for large events has changed the focus for public health at a national, state and local level. This change needs to occur in many individuals and with many systems.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Hazard: Precipitation

Ramsey County on average receives 29.41 in. of precipitation a year. On July 23, 1987, Ramsey County received 9.15 in. of precipitation, which is 31% of the annual amount. The following Table #4 depicts the average monthly precipitation levels, along with record highs and lows and 1-day maximum levels.

TABLE #4

Average Monthly Precipitation Levels And Extreme High and Low Levels				
Month	Avg. Precip.	Record High	Record Low	1-Day Max.
Jan	1.04 in.	3.63 in. (1967)	0.05 in. (1892)	1.21 (1/24/1967)
Feb	0.79 in.	3.25 in. (1922)	0.03 in. (1894)	1.90 in. (2/24/1930)
Mar	1.86 in.	4.75 in. (1965)	0.09 in. (1910)	1.62 in. (3/1/1965)
Apr	2.31 in.	7.00 in. (2001)	0.16 in. (1987)	2.22 in. (4/27/1975)
May	3.24 in.	10.33 in. (1906)	0.21 in. (1934)	3.16 in. (5/21/1906)
Jun	4.34 in.	9.82 in. (1990)	0.22 in. (1988)	2.91 in. (6/7/1984)
Jul	4.04 in.	17.90 in. (1987)	0.11 in. (1936)	9.15 in. (7/23/1987)
Aug	4.05 in.	9.31 in. (1977)	0.20 in. (1925)	7.28 in. (8/30/1977)
Sep	2.69 in.	7.77 in. (1903)	0.41 in. (1940)	4.96 in. (9/12/1903)
Oct	2.11 in.	6.42 in. (1911)	0.01 in. (1952)	2.75 in. (10/19/1934)
Nov	1.94 in.	5.29 in. (1991)	0.02 in. (1939)	2.52 in. (11/11/1940)
Dec	1.00 in.	4.27 in. (1982)	0.00 in. (1943)	1.50 in. (12/14/1891)

Floods

Floods are defined as the overflowing of rivers, streams, and lakes due to excessive rainfall or rapid snowmelt. There are several forms of flooding including flash floods (quickly rising streams after heavy rain or rapid snowmelt); ice jam (ice that accumulates at a natural or human-made obstruction and slows the flow of water); riverine (periodic overflow of rivers and streams); and urban (overflow of storm sewers systems following heavy rain or rapid snowmelt exceeding the system capacity). For floodplain management purposes, the Federal Emergency Management Agency (FEMA) uses the following definition of “100-year flood.”

The term "100-year flood" is misleading. It is not a flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1 percent chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. A structure located within a special flood hazard area shown on a map has a 26 percent chance of suffering flood damage during the term of a 30-year mortgage. The Ramsey County Department of Geographic Information System (GIS) uses the FEMA flood maps to determine 100-year floodplains and 500-year floodplains. These maps however, are old and FEMA is lacking proper data sets for the Cities of Falcon Heights, Lauderdale, North Oaks, Roseville and St. Paul. FEMA is in the process of updating these maps. See Map #1.

Floods generally occur from natural causes, usually weather-related, such as a sudden snowmelt, often in conjunction with a wet or rainy spring or with sudden and very heavy rainfalls. Floods can, however, result from human causes, such as a dam impoundment bursting.

Another type of flooding is urban flooding. Urban flooding occurs when there is a torrential rainstorm that is beyond the capability of the existing infrastructure. Increasing development and aging storm sewer and drainage systems are two frequent contributors to urban flooding. This kind of flooding does not necessarily occur in the floodplain.

History

The major 20th century floods in Minnesota took place in 1950, 1965, 1969, 1972, 1987, 1993, and 1997. These floods are considered among the most severe in Minnesota's history in terms of stream flow magnitude, extent of lands inundated, loss of life, and property damage. Spring and summer rains caused 1993 flooding. The floods of 1950, 1965, 1969, 1972, and 1997 coincided with spring snowmelts, thereby, increasing both the stage and discharge of the snowmelt events. The peak discharges of 1993 only affected a few of the major watersheds. For the southern half of Minnesota, 1965 and 1969 were the years of record peak discharges. Wide spread flooding occurred again in 2000. Starting in mid-May and continuing intermittently through July, heavy rain fell over much of Minnesota.

There have been seven major floods in the history of Ramsey County, according to data from the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service

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(NWS). The most devastating flood occurred on April 1, 2001. The flood claimed the lives of 3 people and caused over \$200 million in property damage. The following Table #5 delineates the history of floods in Ramsey County.

TABLE #5

Floods reported in Ramsey County, MN between 01/01/1980 and 04/30/2004							
Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	04/04/1997	6:00am	Flood	0	0	0	0
St. Paul	07/01/1997	6:30pm	Flash Flood	0	1	0	0
Roseville	09/02/2000	10:30pm	Flash Flood	0	0	0	0
Ramsey County	04/01/2001	12:00pm	Flood	3	1	200.00M	0
Ramsey County	05/01/2001	12:00am	Flood	0	0	0	0
Vadnais Heights	07/28/2002	6:00pm	Flash Flood	0	0	0	0
St. Paul	06/25/2003	12:00am	Flash Flood	0	0	0	0
Totals:				3	2	200.00M	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms							

Risk Assessment

Ramsey County is primarily prone to flash flooding. River flooding can occur in the City of St. Paul, due to the Mississippi River. The county's southern border is almost completely comprised of the Mississippi River. Flooding of any type impacts a number of assets including people, housing, commercial and industrial structures, critical infrastructure and can lead to other hazards such as water contamination. All of the municipalities in Ramsey County participate in the NFIP (National Flood Insurance Program).

Overall Vulnerability	
Frequency	Often
Intensity	High
Location	Countywide; but generally along the Mississippi River in the floodplain
Extent	Damage to property, infrastructure
Duration	Several weeks
Seasonal Pattern	Spring and summer
Speed of Onset	Gradual

Warning Time	Several days, possibly weeks
Probability of Future Occurrences	High

Impact on People and Housing

Most of the county’s population is safe from flooding, although some housing units are within the 100-year floodplain. Only 3 people have lost their lives due to floods. Flashing flooding poses the greatest risk to human lives because it generally comes on quick with little to no warning time and people do not always heed the advice of avoiding flooded street ways and end up getting caught in the swift current of the flood waters.

Because the majority of flooding in Ramsey County is urban, damage is confined to basements, lower levels of structures, and inundated roads. It is difficult to estimate the total annual direct cost because few of these events require a detailed damage assessment. The taxpayers are burdened with a significant portion of the cost of responding to unwise floodplain development. These indirect costs may, in fact, equal or exceed the direct costs. Aside from floodwater damage, structures are prone to fires due to damaged electrical systems.

Repetitive loss structures.

Repetitive loss structures are those structures which have sustained damages on two separate occasions within a ten-year time span for which the cost of repairs at the time of the flood meets or exceeds 25 percent of the market value of the structure before the damage occurred. Ramsey County has only 2 repetitive loss structures, both of which are located within the City of St. Paul. The Department of Natural Resources (DNR), Water Division, maintains the information on repetitive loss structures, and the City of St. Paul’s Hazard Mitigation Plan will cover specific mitigation efforts for these structures.

Impact on Commercial and Industrial Structures

Flooding damage can be minimal or vast and have severe consequences on commercial and industrial structures. Employees may not be able to get into work or shipments may not be able to go out if streets are flooded. The business itself could flood causing widespread damage to products or availability of services. This in turn will reduce productivity and harm business profitability. The damage could be caused by floodwaters directly, or indirectly via power outages, block streets or unavailability of outside services needed for business. Fires could also occur due to faulty electrical equipment. If the river is unsuitable for ships to deliver cargo, higher prices for truck and/or rail delivery may ensue. Also, this could cause a delay in productivity or services.

There are a number of commercial and industrial structures located in the floodplain in the City of St. Paul, including a reliever airport, and these structures will be covered in the City of St. Paul’s Hazard Mitigation Plan.

Impact on Critical Infrastructure

Like commercial and industrial structures, flooding damage can be minimal or vast and have severe consequences on the critical infrastructure. Damage could be caused directly by floodwaters or power outages. Fires could also occur.

Street flooding will be cause for concern for emergency responders. If streets are flooded, emergency vehicles will have a difficult time responding to emergencies. Also, flash flooding can catch people off guard, causing them to become victims needing rescuing. If employees are not able to get into work, there will be a shortage of responders.

Public health may also be affected by public water becoming contaminated due to floodwaters.

Relationship to Other Hazards – Cascading Effects

Fire. Fire can break out as a result of dysfunctional electrical goods.

Hazardous Materials Contamination. Hazardous materials can get into floodways, causing health concerns and polluted water supplies.

Power Outages. Power outages can be caused by floodwaters or by power being cut to allow for repairs.

Water Supply Contamination. Due to pollutants entering floodwaters.

Public Health Concern. Due to pollutants entering the water supply and possibly contaminating it.

Plans and Programs Currently In Place

All flood planning that is done in Ramsey County is done by the City of St. Paul and can be found in their EOP and their Hazard Mitigation Plan. Flood preparation for the County involves assisting the City of St. Paul and protecting the County buildings that are in the floodplain.

The County Engineer (the Director of the Ramsey County Department of Public Works) works with the City of St. Paul Department of Public Works, Ramsey County Property Management, and the Ramsey County Division of Emergency Management and Homeland Security on devising the best method for flood fighting.

National Weather Service. The National Weather Service, Advanced Hydrologic Prediction Service monitors water levels for the major rivers throughout Minnesota. The National Weather Service also does flood forecasting. <http://www.crh.noaa.gov/cgi-bin/ahps.cgi?mpx&stpm5>

DNR, Water Division. The Minnesota DNR, Water Division has an enhanced flood forecast/warning system.

http://www.dnr.state.mn.us/waters/surfacewater_section/stream_hydro/floodwarning.html

U.S. Army Corps of Engineers. The Corps of Engineers also monitors flood gauges at their lock and dam facilities and employ their policies and procedures as deemed necessary.

NFIP (National Flood Insurance Program). In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for

flood victims and the increasing amount of damage caused by floods. The Mitigation Division a component of the Federal Emergency Management Agency (FEMA) manages the NFIP, and oversees the floodplain management and mapping components of the Program.

<http://www.fema.gov/nfip/whonfip.shtm>

Public Awareness.

- HSEM publishes seasonal information on Severe Weather Awareness Week, which has a day dedicated to flooding concerns. RC EMHS also links to this information on their website.

Gaps and Deficiencies

Floodplain Management.

- At-risk uses and structures remain in identified 100-year floodplains, including nonconforming structures and uses currently “grandfathered in.” These are located within the City of St. Paul.

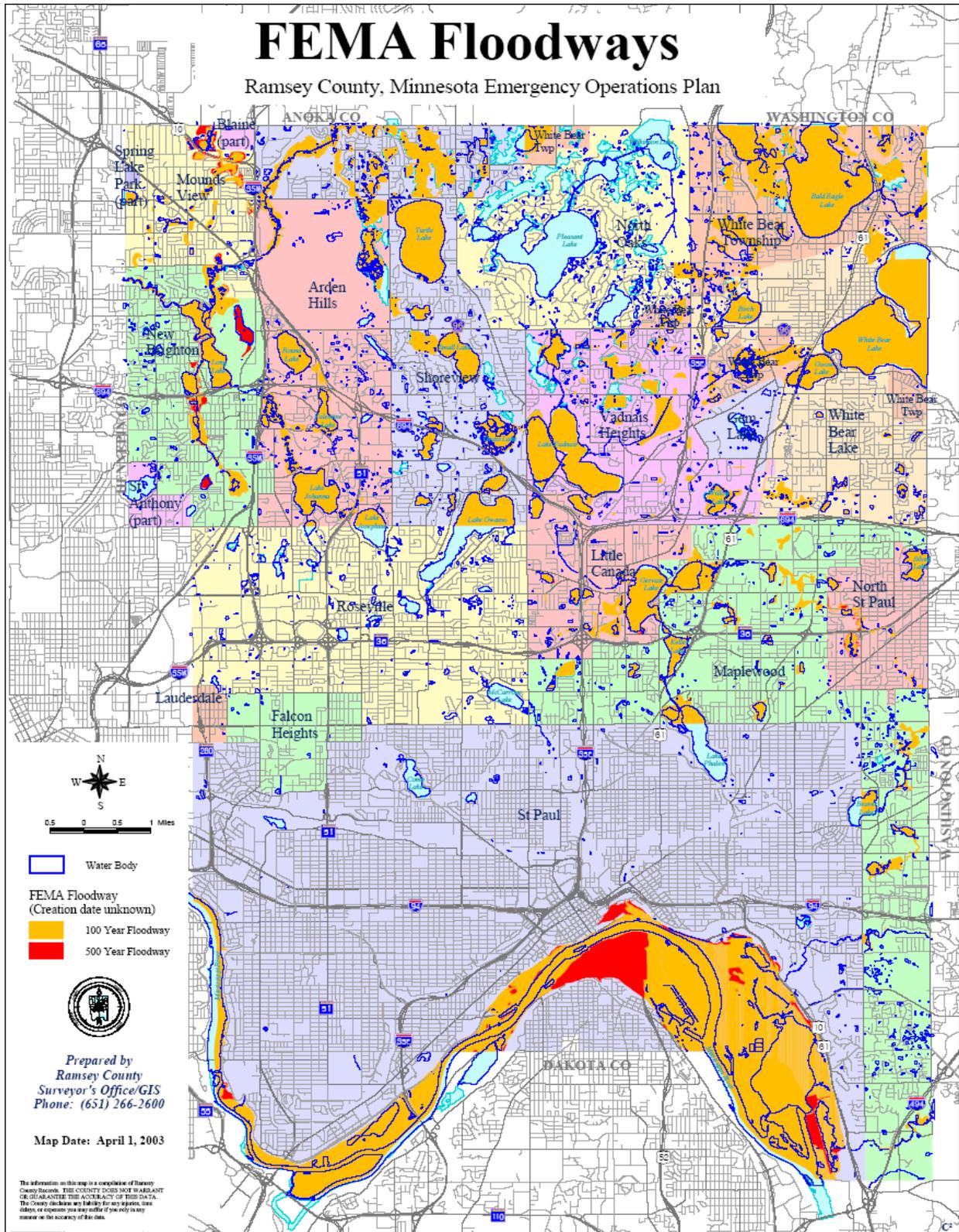
Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Assure coordination with the City of St. Paul in regards to mitigation efforts, to lessen the possibilities of cascading effects from the mitigation projects they choose to undertake.
- Ensure building ordinances, codes and permits follow floodplain management standards.
- Conduct a public education campaign on flooding hazards, emphasizing flash floods and precautions and protective measures that can be taken.
- Continue participation in the National Flood Insurance Program (NFIP) program.
- Maintain an adequate and up-to-date inventory of flood response equipment.
- Improve old and inadequate urban and rural storm sewer/drainage systems, which often cause flood damages to the community they serve.
- Continue to consider buyout, elevation and relocation projects for protecting structures from flood damage.
- Increase public awareness about the National Flood Insurance Program (NFIP).
- Work with the DNR, Division of Waters on floodplain management.

MAP #1



Drought

Drought is quite different from a dry environment, which is seasonally dry. It is a condition of abnormally dry weather within a geographic region where rain is usually expected. Drought is thought to be one of the most complex, and least understood, of all natural hazards, differing from them in important ways. Unlike earthquakes, hurricanes and tornadoes, drought unfolds at an almost imperceptible pace with beginning and ending times that are difficult to determine, and with effects that often are spread over vast regions. The term drought is applied to a period in which an unusual scarcity of rain causes a serious hydrological imbalance (Water-supply reservoirs empty, wells dry up, and crop damage ensues). Droughts can affect a large area and range in size from a couple of counties to several states.

Dry conditions produce:

- Low stream flows and lake levels, with abundant algae blooms
- Increased fire danger especially in forested areas
- Extensive watering of landscapes and gardens to keep them alive

The severity of the drought is gauged by the degree of moisture deficiency, its duration, and the size of the area affected. Droughts can kill crops, grazing land, edible plants and even in severe cases, trees. If the drought is brief, it is known as a dry spell, or partial drought. A partial drought is usually defined as more than 14 days without appreciable precipitation, whereas a drought may last for years.

Meteorological	A measure of departure of precipitation from normal. Due to climatic differences what is considered a drought in one location may not be a drought in another location.
Agricultural	Refers to a situation when the amount of moisture in the soil no longer meets the needs of a particular crop.
Hydrological	Occurs when surface and subsurface water supplies are below normal.
Socioeconomic	Refers to the situation that occurs when physical water shortage begins to affect people.

History

TABLE #6

Droughts reported in Ramsey County, MN between 01/01/1980 and 04/30/2004		
Year	Location	Remarks
1987 – 1989	Statewide	Established new “average low precipitation” and “average high temperature” records. Farmers lost most, if not all, of the year’s crop. Drought also affected power production, the forest products industry, public water supplies and fish and wildlife dependent on adequate surface water. Mississippi River flow levels threatened to drop below the St. Paul Water intake pipes.
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms		

Risk Assessment

Because drought is such a slow moving, insidious disaster, the public will not be aware of it until it is happening. Public awareness would take place after the fact, with messages crafted to deal with the event that is already here. Normal emergency communications channels would most likely not be used unless there was a water emergency. Drought would impact the entire county.

Overall Vulnerability	
Frequency	Rarely
Intensity	Moderate to High
Location	Countywide
Extent	Damage to property
Duration	Several weeks to months
Seasonal Pattern	Mid to late summer
Speed of Onset	Gradual
Warning Time	Minimal
Probability of Future Occurrences	Very Low

Impact on People and Housing

Because of the slow onset and development of drought, it is not viewed as a primary risk for life, though water supplies may be affected depending on the severity of the drought and water may need to be shipped in.

Droughts do not pose any direct threats to housing, though landscaping may die due to the lack of precipitation and possible constrictions and water usage.

Impact on Commercial and Industrial Structures

Prices for food, energy, and other products may increase as supplies are reduced. In some cases, local shortages of certain goods result in importing these goods from outside the stricken region. Reduced water supply impairs the navigability of rivers and results in increased transportation costs because products must be transported by rail or truck. Hydropower production may also be significantly curtailed.

Impact on Critical Infrastructure

All cities tap area aquifers for their water supply so the depletion of surface water during dry spells is usually not an issue. However, some concern has been expressed that with a severe drought or an extended period of dry years declining water levels in the aquifer could pose some risk for the municipal water supply and for those businesses that tap the aquifer for their own water supply.

Low water resources will be an issue for fire response to regular fire calls; the dry conditions may cause additional fires to break out. This will cause a strain on what little water is available. Water may need to be brought in from other areas to assist in firefighting.

Relationship with Other Hazards – Cascading Effects

Fires. The incidence of fires increases substantially during extended droughts, which in turn places both humans and wildlife populations at higher levels of risk. Fighting these fires may be difficult also due to low water levels. Drought stressing woods, brush land and non-cultivated fields significantly increases the risks of wildfire.

Plans and Programs Currently in Place

National Weather Service. The National Weather Service, Advanced Hydrologic Prediction Service monitors water levels for the major rivers throughout Minnesota. The National Weather Service also does flood forecasting and can monitor and predict drought conditions.

DNR, Water Division. The Minnesota DNR, Water Division would be notified if a drought condition were to occur to ensure that water restrictions were to be enforced.

U.S. Army Corps of Engineers. The Corps of Engineers also monitors water level gauges at their lock and dam facilities and employ their policies and procedures as deemed necessary and can release water down stream per protocol if drought conditions required it.

Gaps and Deficiencies

- Water conservation provisions and use restrictions in times of drought are not included in county or city ordinances.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Work with state and local water planners on conservation efforts in dry periods.
- Publicize information on drought-resistant landscaping and plantings for residential areas.
- Keep up-to-date on drought status by accessing the University of Minnesota climatology website (<http://climate.umn.edu>) or the National Drought Mitigation Center (<http://enso.unl.edu.ndmc>).
- Work closely with the DNR, Division of Waters on water issues.
- Work with watershed planners on water issues.
- Expand mutual aid agreements to include water haulers during prolonged drought conditions.
- Keep the public well informed during a drought, about the current status of water supplies, whether conditions are approaching "trigger points" that will lead to requests for voluntary use restrictions, and how victims of drought can access assistance.
- Work with industries that are heavy water users so that impact on the business is lessened.

Hazard: Summer Storms

Ramsey County is subjected to a variety of violent storms. During the summer months, and late spring and early fall for that matter, hailstorms, lightning, thunderstorms, tornadoes and windstorms leave their mark on the county.

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

Most hail in Minnesota ranges in size from pea-size to golf-ball size. Larger hailstones have been reported but occur much less frequently. While, almost all areas of southern Minnesota can expect some hail during the summer months most hail is not large enough to cause significant crop or property damage.

Estimated Size	Average Diameter	Estimated Size	Average Diameter
Pea	¼ inch	Golf Ball	1 ¾ inch
Marble/mothball	½ inch	Tennis Ball	2 ½ inch
Dime/Penny	¾ inch	Baseball	2 ¾ inch
Nickel	7/8 inch	Tea Cup	3 inch
Quarter	1 inch	Grapefruit	4 inch
Ping-Pong	1 ½ inch	Softball	4 ½ inch

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

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

Thunderstorms. Thunderstorms are the most common summer storm in Ramsey County, occurring primarily during the months of May through August with the most severe storms most likely to occur from mid-May through mid-July. Thunderstorms are usually localized, produced

by cumulonimbus clouds, always accompanied by lightning, and often having strong wind gusts, heavy rain and sometimes hail or tornadoes.

Tornadoes. Tornadoes are the most violent of all storms. The tornado is essentially a rapidly rotating column of air that is spawned by a cumulonimbus cloud. When it drops to the ground it can create significant damage and loss of life. Tornadoes always occur in association with thunderstorms. While somewhat more common in southern Minnesota they have occurred in all counties in the state.

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

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

The Fujita Tornado Scale measures tornado-damage severity. The Fujita Scale assigns a numerical value based on wind speeds and categorizes tornadoes from F0 to F5. Scale values above F5 are not used because wind speeds above 318 mph are unlikely. The table below shows the Fujita Scale values, wind speeds, and damage descriptions.

F-Scale	Winds	Type of Damage	Frequency
F0	40-72mph	MINIMAL DAMAGE: Some damage to chimneys, TV antennas, roof shingles, trees, and windows.	29%
F1	73-112mph	MODERATE DAMAGE: Automobiles overturned, carports destroyed, trees uprooted.	40%
F2	113-157 mph	MAJOR DAMAGE: Roofs blown off homes, sheds and outbuildings demolished, mobile homes overturned.	24%
F3	158-206 mph	SEVERE DAMAGE: Exterior walls and roofs blown off homes. Metal buildings collapsed or are severely damaged. Forests and farmland flattened.	6%
F4	207-260 mph	DEVASTATING DAMAGE: Few walls, if any, standing in well-built homes. Large steel and concrete missiles thrown far distances. Trees uprooted and carried away.	2%
F5	261-318 mph	INCREDIBLE DAMAGE: Homes leveled with all debris removed. Schools, motels, and other larger structures have considerable damage with exterior walls and roofs gone. Top stories demolished. Trees debarked.	Less than 1%

Ramsey County All-Hazard Mitigation Plan

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

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

Wind Speed	Effects
25 – 31mph	Large branches in motion, whistling in telephone wires
32 – 38mph	Whole trees in motion
39 – 54mph	Twigs break off of trees, wind impedes walking
55 – 72mph	Damage to chimneys and TV antennas, pushes over shallow rooted trees
73 – 112mph	Peels surface off roofs, windows broken, trailer houses overturned
113+mph	Roofs torn off houses, weak buildings and trailer houses destroyed, large trees uprooted

History

TABLE #7

Hail storms reported in Ramsey County, MN between 01/01/1980 and 04/30/2004								
Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	06/25/1980	10:35pm	Hail	1.00 in.	0	0	0	0
Ramsey County	09/19/1980	4:05pm	Hail	1.50 in.	0	0	0	0
Ramsey County	06/23/1981	10:35pm	Hail	1.75 in.	0	0	0	0
Ramsey County	07/23/1981	9:33pm	Hail	1.75 in.	0	0	0	0
Ramsey County	05/09/1985	6:15pm	Hail	1.25 in.	0	0	0	0
Ramsey County	05/09/1985	6:30pm	Hail	1.75 in.	0	0	0	0
Ramsey County	05/09/1985	6:53pm	Hail	1.75 in.	0	0	0	0
Ramsey County	03/31/1986	4:35pm	Hail	1.00 in.	0	0	0	0
Ramsey County	05/12/1986	4:35pm	Hail	1.50 in.	0	0	0	0
Ramsey County	06/23/1986	3:17pm	Hail	1.00 in.	0	0	0	0
Ramsey County	08/05/1986	3:20pm	Hail	1.75 in.	0	0	0	0
Ramsey County	08/16/1986	7:15pm	Hail	1.75 in.	0	0	0	0
Ramsey County	06/28/1987	4:33pm	Hail	1.00 in.	0	0	0	0
Ramsey County	07/20/1987	7:22pm	Hail	1.75 in.	0	0	0	0
Ramsey County	05/07/1988	5:35pm	Hail	1.75 in.	0	0	0	0

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Ramsey County	05/07/1988	5:50pm	Hail	2.50 in.	0	0	0	0
Ramsey County	08/31/1989	2:14pm	Hail	1.75 in.	0	0	0	0
Ramsey County	05/28/1991	10:10pm	Hail	1.00 in.	0	0	0	0
Shoreview	05/30/1994	3:15pm	Hail	1.75 in.	0	0	0	0
New Brighton	07/14/1995	6:15pm	Hail	1.50 in.	0	0	0	0
St. Paul	06/15/1997	1:34pm	Hail	0.75 in.	0	0	0	0
Mounds View	06/28/1997	8:25am	Hail	0.88 in.	0	0	0	0
St. Paul	06/28/1997	8:56am	Hail	0.75 in.	0	0	0	0
St. Paul	05/15/1998	3:35pm	Hail	1.00 in.	0	0	0	0
St. Paul	06/16/1998	3:32pm	Hail	1.00 in.	0	0	0	0
St. Paul	06/16/1998	4:48pm	Hail	0.75 in.	0	0	0	0
St. Paul	08/09/1998	6:50pm	Hail	0.75 in.	0	0	0	0
St. Paul	08/08/1998	6:56pm	Hail	0.88 in.	0	0	0	0
St. Paul	08/09/1998	6:56pm	Hail	1.25 in.	0	0	0	0
White Bear Lake	06/05/1999	3:30pm	Hail	0.75 in.	0	0	0	0
White Bear Lake	09/07/1999	7:05pm	Hail	0.75 in.	0	0	0	0
White Bear Lake	07/07/2000	10:00am	Hail	0.75 in.	0	0	0	0
Maplewood	07/07/2000	10:07am	Hail	1.75 in.	0	0	0	0
North St. Paul	07/07/2000	10:08am	Hail	2.00 in.	0	0	0	0
Vadnais Heights	07/07/2000	10:10am	Hail	1.50 in.	0	0	0	0
St. Paul	05/01/2001	4:42pm	Hail	1.00 in.	0	0	0	0
St. Paul	05/01/2001	4:50pm	Hail	1.00 in.	0	0	0	0
Vadnais Heights	05/01/2001	4:53	Hail	0.88 in.	0	0	0	0
St. Paul	05/01/2001	5:00pm	Hail	1.25 in.	0	0	2.00M	0
Maplewood	06/11/2001	5:19pm	Hail	0.75 in.	0	0	0	0
White Bear Lake	06/16/2001	2:25pm	Hail	0.75 in.	0	0	0	0
St. Paul	04/18/2002	2:30am	Hail	1.00 in.	0	0	0	0
North St. Paul	04/18/2002	3:05am	Hail	0.75 in.	0	0	0	0
Maplewood	04/18/2002	3:30am	Hail	0.75 in.	0	0	0	0
New Brighton	05/05/2002	5:12pm	Hail	0.88 in.	0	0	0	0
New Brighton	05/05/2002	6:00pm	Hail	0.88 in.	0	0	0	0
Vadnais Heights	05/05/2002	6:14pm	Hail	1.00 in.	0	0	0	0
North St. Paul	05/05/2002	6:19pm	Hail	0.75 in.	0	0	0	0
St. Paul	05/05/2002	6:45pm	Hail	0.75 in.	0	0	0	0
New Brighton	08/12/2002	1:15am	Hail	0.88 in.	0	0	0	0
Totals:					0	0	2.00M	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms								

TABLE #8

Lightning event reported in Ramsey County, MN between 01/01/1980 and 04/30/2004							
Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
White Bear Lake	08/09/1998	6:00pm	Lightning	1	0	0	0
Totals:				1	0	0	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms							

TABLE #9

Thunderstorms and High Wind reported in Ramsey County, MN between 01/01/1980 and 04/30/2004								
Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	08/07/1980	1:45am	T-storm Wind	78 knots	0	0	0	0
Ramsey County	04/29/1981	2:37pm	T-storm Wind	66 knots	0	0	0	0
Ramsey County	09/05/1982	6:30am	T-storm Wind	0 knots	0	0	0	0
Ramsey County	07/19/1983	3:30pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	04/26/1984	8:37pm	T-storm Wind	0 knots	0	6	0	0
Ramsey County	06/07/1984	3:27pm	T-storm Wind	52 knots	0	0	0	0
Ramsey County	06/22/1984	2:27pm	T-storm Wind	52 knots	0	0	0	0
Ramsey County	06/16/1985	5:45pm	T-storm Wind	56 knots	0	0	0	0
Ramsey County	03/31/1986	4:00pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	07/12/1986	7:25pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	07/12/1986	7:40pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	06/28/1987	4:25pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	08/07/1988	5:50pm	T-storm Wind	0 knots	0	1	0	0
Ramsey County	08/11/1988	3:42pm	T-storm Wind	52 knots	0	0	0	0
Ramsey County	05/29/1989	1:25pm	T-storm Wind	56 knots	0	0	0	0

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Ramsey County	05/29/1989	1:42pm	T-storm Wind	58 knots	0	0	0	0
Ramsey County	07/08/1990	4:15am	T-storm Wind	54 knots	0	0	0	0
Ramsey County	07/17/1990	3:35am	T-storm Wind	0 knots	0	0	0	0
Ramsey County	05/28/1991	10:00pm	T-storm Wind	0 knots	0	1	0	0
Ramsey County	06/30/1991	11:40pm	T-storm Wind	0 knots	0	0	0	0
Ramsey County	04/15/1994	9:00am	High Wind	0 knots	0	0	0	0
Maplewood	04/26/1994	10:35am	T-storm Wind	0 knots	0	0	0	0
St. Paul	06/10/1994	12:15pm	T-storm Wind	0 knots	0	0	0	0
Gem Lake	07/15/1995	1:45pm	T-storm Wind	0 knots	0	0	0	0
St. Paul	05/19/1996	12:31am	T-storm Wind	54 knots	0	0	0	0
St. Paul	08/06/1996	10:00pm	T-storm Wind	60 knots	0	0	0	0
Maplewood	08/06/1996	10:05pm	T-storm Wind	70 knots	0	0	0	0
Ramsey County	10/29/1996	9:00pm	T-storm Wind	64 knots	0	0	0	0
Maplewood	06/28/1997	3:00pm	T-storm Wind	50 knots	0	0	0	0
St. Paul	05/15/1998	3:38pm	T-storm Wind	61 knots	0	0	0	0
St. Paul	05/15/1998	3:39pm	T-storm Wind	61 knots	0	0	0	0
St. Paul	05/30/1998	9:55pm	T-storm Wind	67 knots	0	0	0	0
St. Paul	06/25/1998	12:22am	T-storm Wind	60 knots	0	0	0	0
Vadnais Heights	06/25/1998	12:30am	T-storm Wind	65 knots	0	0	0	0
St. Paul	06/26/1998	8:05pm	T-storm Wind	65 knots	0	0	0	0
St. Paul	06/26/1998	9:25pm	T-storm Wind	50 knots	0	0	0	0
St. Paul	06/26/1998	11:03pm	T-storm Wind	55 knots	0	0	0	0
Vadnais Heights	07/14/1998	9:25pm	T-storm Wind	55 knots	0	0	0	0

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Ramsey County	03/17/1999	11:00am	T-storm Wind	55 knots	0	0	0	0
St. Paul	06/06/1999	4:58pm	T-storm Wind	60 knots	0	0	0	0
Little Canada	07/23/1999	12:40am	T-storm Wind	50 knots	0	0	0	0
Ramsey County	04/05/2000	9:00pm	T-storm Wind	64 knots	0	0	0	0
New Brighton	07/07/2000	9:57am	T-storm Wind	65 knots	0	0	0	0
Little Canada	07/07/2000	10:05am	T-storm Wind	55 knots	0	0	0	0
White Bear Lake	07/07/2000	10:05am	T-storm Wind	65 knots	0	0	0	0
Maplewood	07/07/2000	10:10am	T-storm Wind	60 knots	0	0	0	0
Vadnais Heights	07/07/2000	10:10am	T-storm Wind	70 knots	0	0	0	0
North St. Paul	07/07/2000	10:15am	T-storm Wind	55 knots	0	0	0	0
Mounds View	08/03/2002	5:30pm	T-storm Wind	50 knots	0	0	0	0
White Bear Lake	09/05/2002	3:40pm	T-storm Wind	50 knots	0	0	0	0
St. Paul	06/23/2002	3:00am	T-storm Wind	50 knots	0	0	0	0
Maplewood	06/24/2003	1:50am	T-storm Wind	50 knots	0	0	0	0
St. Paul	06/24/2003	11:00pm	T-storm Wind	52 knots	0	0	0	0
Ramsey County	04/18/2004	1:00pm	T-storm Wind	52 knots	0	0	0	0
Vadnais Heights	04/18/2004	5:20pm	T-storm Wind	50 knots	0	0	0	0
Maplewood	04/18/2004	5:30pm	T-storm Wind	50 knots	0	0	0	0
Totals:					0	8	0	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms								

TABLE #10

Tornadoes reported in Ramsey County, MN between 01/01/1980 and 04/30/2004								
Location or County	Date	Time	Type	Magnitude	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	06/14/1981	3:00pm	Tornado	F3	1	60	25.00M	0

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Ramsey County	04/26/1984	8:35pm	Tornadc	F3	0	0	25.00M	0
Roseville	05/15/1998	3:40pm	Tornadc	F1	0	0	150.00M	0
Totals:					1	60	200.00M	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms								

Risk Assessment

Tornadoes are often viewed as the most damaging summer storm. However, the severe thunderstorm that produces the tornado frequently contains other severe weather elements such as torrential rains, hail, lightning and straight-line winds. Unlike floods, none of these elements is confined to any particular local geographic area within the county. No community is without risk; any place in the county is considered to have an equal chance of experiencing a tornado or any other of these severe weather elements.

The path of Minnesota tornadoes is typically quite narrow, most less than a quarter of a mile and not very long. Consequently, the total area affected by a tornado is not large. However, should a tornado of moderate strength strike a city, damage could be extensive and risk to human life and property high.

Other violent summer storms are also not confined to any particular geographic area in the county and may occur and inflict damage anywhere they occur. The greatest risk for most people and property is usually confined to urban areas due to the higher density of people and buildings there. However, some storm events, such as hail and straight line winds can cause significant damage to buildings located anywhere.

Violent storms of all types can cause property damage, loss of life and personal injury, disrupt transportation, communication and emergency services, threaten public health and safety, and be significant threats to essential public infrastructure and services such as power, water supply systems and sanitary systems.

Overall Vulnerability	
Frequency	Moderate
Intensity	High
Location	Countywide
Extent	Damage to property, infrastructure and a risk to life
Duration	Quick event/long clean-up
Seasonal Pattern	Spring and summer
Speed of Onset	Rapid
Warning Time	A few minutes to hours: dependent on National Weather Service
Probability of Future Occurrences	High

Impact on People and Housing

Effects from severe summer storms, like a tornado, could impact people in the county. Every year, tornadoes kill people. Flying debris from homes and other structures kills many people. Larger impacts on people would be in the largest municipalities because of higher population densities. With Ramsey County being so densely populated, the entire county is at risk if a major tornado or other severe summer storm were to pass through its borders. Of the tornadoes on record since 1980, only one person has died, though injuries have been plentiful injuring 60 people. Lightning has also claimed one death.

Since tornadoes and other summer storms are not confined to any particular area of Ramsey County, assessing risk and damages is more difficult. Property damage is abundant with any severe summer storm. In tornadoes alone, property damaged totaled more than \$225 million. Hail damage totaled \$2 million. Mobile or manufactured homes are at the highest risk to receive damage from tornadoes and windstorms. These homes are not structured to withstand the high speeds as well as site built structures.

Impact on Commercial and Industrial Structures

Electric and phone lines could be directly impacted throughout the entire county by tornadoes or any other summer storm. Specifically, power lines could be knocked down, resulting in loss of electricity for entire areas of the county. Electricity is very important to the community. It operates businesses, homes and other industrial buildings throughout the county.

Impacts on businesses and other commercial structures would have significant impact on the community. Costs to rebuild can be high and some may shut down as a result.

Impact on Critical Infrastructure

In regards to power outages or phone outages, this would have a drastic impact on critical facilities including hospitals, nursing homes, and public safety facilities. Major infrastructure facilities such as the waste treatment plant, water plant, roads and bridges could also be damaged by summer storms. Tornadoes and windstorms can often scatter knocked down trees and other debris over main roads, limiting travel of emergency vehicles. Hailstorms can be dangerous as well depending on the size of it. Large hailstones can breakout windows to facilities and vehicles.

Relationship with Other Hazards – Cascading Effects

Power outages. Power outages that result from downed utility lines create safety concerns for residents where electricity is not available for an extended period of time. This could lead to phone outages as well.

Flooding. Heavy thunderstorms in a short period of time can cause flooding.

Fires. Due to down electrical wires from severe storms and/or water damage in electrical systems.

Plans and Programs Currently in Place

The severe storm spotters' network (SKYWARN).

- This program, sponsored by the National Weather Service (NWS), enlists the help of trained volunteers to spot severe storm conditions and report this information to the NWS. No tornado warning is given unless the storm has been spotted by someone or is confirmed by NWS radar reports. Ramsey County has a 30 people on their volunteer organization that are trained SKYWARN spotters who report directly to the NWS when severe weather is observed.

Public Awareness.

- HSEM publishes seasonal information on Severe Weather Awareness Week, which has a day dedicated to tornado drills. RC EMHS also links to this information on their website, along with participating in both the 1:05pm and 6:50pm tornado drills to allow second shift workers to go through their tornado plan as well as allow families to practice their home plan at night.

Severe Weather Shelters.

- The county recommends requiring shelters for mobile home park residents.

Severe Weather Warning System.

- The county's cities have emergency sirens to warn residents in the event of severe summer weather.

Gaps and Deficiencies

Utilities.

- A majority of the power lines in the county are above ground and subject to damage from wind and falling tree limbs.
- There are few community requirements that discourage the planting of large trees near power lines.

Emergency Generators.

- Not all critical facilities have emergency generators for use in a power outage.

Continuity of Operations Plans (COOP).

- Not all businesses or organizations have COOP.

Public Awareness.

- Public Awareness messages are not in alternative languages.
- Local TV and radio stations do provide warnings but are effective only if tuned to.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Conduct Public Education on the EAS and skywarn.
- Provide warnings and public education in alternative languages and formats (ECHO).
- Encourage burying power lines.
- Discourage the planting of large trees near power lines and implement an aggressive trim back program.
- Businesses, schools, and homes should have emergency plans and practice them.
- All emergency shelters should be designated by recognizable signage.
- Encourage businesses and other organizations to complete COOP.

Hazard: Winter storms

Ramsey County is subjected to a variety of winter storms. From Blizzards, to ice storms, to heavy snow and snowstorms. The following table illustrates the average snowfall for Ramsey County, along with record high snowfalls and 1-day maximums.

TABLE #11

Snowfall Amounts			
Month	Average	Record High	1-Day Max
Jan	13.7 in.	46.4 in. (1982)	17.2 in. (1/22/1982)
Feb	8.2 in.	26.5 in. (1962)	8.5 in. (2/15/1967)
Mar	10.5 in.	46.1 in. (1965)	14.7 in. (3/31/1985)
Apr	3.1 in.	21.8 in. (1983)	13.6 in. (4/14/1983)
May	0.1 in.	2.4 in. (1954)	2.2 in. (5/2/1954)
Jun	0.0	0.0	0.0
Jul	0.0	0.0	0.0
Aug	0.0	0.0	0.0
Sep	0.0	0.4 in. (1985)	0.4 in. (9/24/1985)
Oct	0.6 in.	8.2 in. (1991)	8.2 in. (10/31/1991)
Nov	10 in.	46.9 in. (1991)	18.5 in. (11/1/1991)
Dec	10.1 in.	33.5 in. (1969)	12 in. (12/28/1982)
Season (Jul-Jun)	56.3 in.	98.4 in (1983-1984)	18.5 in (11/1/1991)

Blizzard. Blizzards, the most violent of the winter storms, are characterized by low temperatures, usually below 20° Fahrenheit, accompanied by strong winds in excess of 35 miles per hour with enough snow in the air caused by either falling or blowing snow to create visibilities of one-quarter mile or less for an extended period of time, usually at least three hours or more. They have the capacity to completely immobilize large areas. While blizzards can occur in Ramsey County from October through April, they most commonly occur from November through the end of March.

According to the National Weather Service (NWS), a severe blizzard occurs when the occurrence of the following conditions lasting for three hours or longer:

- 1) Wind speeds of 45 mph or more;

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- 2) A great density of falling and/or blowing snow (reducing visibility frequently to near zero); and
- 3) Temperatures of 10° Fahrenheit or lower.

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

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

Heavy Snow or Snowstorm. In Minnesota 6 or more inches of snow define a heavy snow event in a 12-hour period and 8 or more inches of snow in a 24-hour period. Snow is considered heavy when visibilities drop below one-quarter mile regardless of wind speed.

History

TABLE #12

Notable Snow Storms in Ramsey County		
Date	Location	Remarks
12/95	Western and Southern MN	The intensity of this storm prompted statewide closings of schools and many businesses on the 7th.
10/91	Statewide	"Halloween Monster Storm". 28.4" snow at Twin Cities; 36.9" in Duluth.
03/89	Central and Southern MN	1 death. 600 traffic accidents in the Twin Cities metro area.
11/88	Southwestern MN	Blizzard stranded or forced thousands of travelers to seek shelter in local SW MN communities.
03/85	Statewide	1 death in Renville County; 1 death in Douglas County.
11/83	Southern and Eastern MN	8 deaths. Up to 18" of snow; high winds.
04/83	Southeastern MN	17" of snow.
02/83	Statewide	12" of snow.
12/82	Southern and East Central MN	1 death in Lakeville (Dakota County).

TABLE #13

Notable Ice and Sleet Storms Affecting Ramsey County		
Date	Location	Remarks
01/04-5/1998	South Central and Southeast Minnesota	Ice Storm - Freezing rain produced ice accumulations ranging from ¼ to ¾ of an inch. Numerous car accidents were reported, one of which resulted in a fatality.
11/14-15/1996	Southern Minnesota	Ice Storm - ½-inch thick ice was common over the area.

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01/17-18/1996	East Central and Southern Minnesota	Ice Storm - An extended period of rain and freezing rain resulted in significant icing conditions. Up to one-foot thick ice formed on roads. There were significant tree damage and power outages. More than 180,000 Minneapolis/St. Paul metro residents and the entire town of Lafayette were without power.
12/13/1995	Southern Minnesota	Glaze - Between ¼ and ½ inch of glaze occurred forcing some school closures.
11/27-28/1994	Southwest, Central, Northeast, and Southeast Minnesota.	Heavy Snow and Ice - The snow closed the Minneapolis-St. Paul International Airport. The storm contributed to at least three fatalities. A buildup of ice and snow, combined with strong winds, resulted in numerous downed power lines.
04/28-29/1994	Entire State	Heavy Snow and Ice - Heavy, wet snow, sleet, and freezing rain occurred.
03/23-24/1994	Northern and Central Minnesota	Heavy Snow And Ice - A late March snowstorm deposited a band of heavy snow, up to 10 inches, as well as a mixture of freezing rain, sleet, and snow, causing extremely slippery road conditions.
11/12-13/1993	All but Southeast Minnesota	Ice Storm and Snow - A wintry mixture of precipitation in the form of freezing rain, sleet, and snow with significant accumulation of ice. Five inches of snow fell on top of the ice making travel hazardous.

TABLE #14

Snow and Ice events reported in Ramsey County, MN Between 01/01/1980 and 04/30/2004							
Location or County	Date	Time	Type	Deaths	Injuries	Property Damage	Crop Damage
Ramsey County	11/24/1993	8:00am	Heavy Snow	0	0	0	0
Ramsey County	01/05/1994	11:00am	Heavy Snow	0	0	0	0
Ramsey County	04/28/1994	4:00am	Heavy Snow and Ice	0	0	0	0
Ramsey County	11/27/1994	5:00am	Heavy Snow and Ice	0	0	0	0
Ramsey County	11/26/1995	3:00pm	Heavy Snow	0	0	0	0
Ramsey County	12/08/1995	3:00am	Heavy Snow	0	0	0	0
Ramsey County	12/13/1995	2:00am	Glaze	0	0	0	0
Ramsey County	01/10/1996	1:00pm	Heavy Snow	0	0	0	0
Ramsey County	01/17/1996	2:00pm	Ice Storm	0	0	0	0
Ramsey	03/23/1996	9:00pm	Heavy Snow	0	0	0	0

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County							
Ramsey County	11/20/1996	2:00am	Heavy Snow	0	0	0	0
Ramsey County	11/22/1996	9:00pm	Heavy Snow	0	0	0	0
Ramsey County	12/14/1996	1:00pm	Heavy Snow	0	0	0	0
Ramsey County	12/23/1996	5:00am	Winter Storm	1	0	0	0
Ramsey County	03/13/1997	12:00am	Winter Storm	0	0	0	0
Ramsey County	03/08/1999	12:30am	Winter Storm	0	0	0	0
Ramsey County	01/12/2000	5:30am	Heavy Snow	0	0	0	0
Ramsey County	01/19/2000	5:30am	Heavy Snow	0	0	0	0
Ramsey County	12/28/2000	2:00am	Winter Storm	0	0	0	0
Ramsey County	01/29/2001	7:00pm	Winter Storm	0	0	0	0
Ramsey County	03/11/2001	11:00pm	Heavy Snow	0	0	0	0
Ramsey County	11/26/2001	4:00am	Winter Storm	0	0	0	0
Ramsey County	03/08/2002	6:00pm	Winter Storm	0	0	0	0
Ramsey County	03/14/2002	8:00am	Winter Storm	0	0	0	0
Ramsey County	02/02/2003	6:00pm	Winter Storm	0	0	0	0
Ramsey County	11/22/2003	6:00pm	Winter Storm	0	0	0	0
Ramsey County	12/09/2003	3:00am	Winter Storm	0	0	0	0
Ramsey County	01/24/2004	9:00pm	Winter Storm	0	0	0	0
Ramsey County	02/01/2004	2:00am	Winter Storm	0	0	0	0
Ramsey County	03/05/2004	12:00am	Winter Storm	0	0	0	0
Totals:				1	0	0	0
http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms							

Risk Assessment

While all winter storms pose some risk, ice storms probably pose the most risk. While ice storms are unlikely to inflict serious damage to households or public buildings they can result in significant safety concerns for the traveling public. Like the severe summer storms, ice storms are not confined to any particular geographic area although those areas having higher population densities and therefore more power lines, trees and other public infrastructure are at greater risk for property loss than other parts of the county.

Other winter storms posing some degree of threat to the County, it's people and structures are blizzards, the extremely cold temperatures that follow blizzards, and very heavy snowstorms.

Winter storms of all types can cause property damage, loss of life and personal injury, disrupt transportation, communication and emergency services, threaten public health and safety, and be significant threats to essential public infrastructure and services such as power.

Overall Vulnerability	
Frequency	Moderate
Intensity	Moderate
Location	Countywide
Extent	Damage to property, infrastructure and risk to life
Duration	A few days
Seasonal Pattern	Winter
Speed of Onset	Rapid
Warning Time	12 – 36 hours
Probability of Future Occurrences	High

Impact on People and Housing

Ice storms affect the mobility of people whether traveling by auto or on foot and can create significant safety concerns, particularly for the elderly and others whose mobility may be restricted. The ice storm of March 19, 1992 was a particularly severe storm that affected the whole county. This storm was particularly long in duration allowing for significant ice build-up on all surfaces and making it particularly challenging to maintain safe walkways, streets and highways. This storm resulted in traffic fatalities and numerous other injuries due to less serious traffic accidents or people falling due to slippery walkways.

The risk to people caused by ice storms is generally quite limited since storms of long duration and heavy precipitation are not frequent and most people can avoid being out during the storm. In addition, warnings for these storms usually provide significant lead-time to make alternate plans or seek shelter. For people who must be out there are significant safety risks whether traveling by car or foot at least until these surfaces can be treated with sand or chemicals to reduce slippage. One of the greatest threats to people from these storms is the loss of power. Ice and sleet storms can leave residents without heat or electricity for several hours or days. This

often can create a significant hazard to human and animal life. This burden is increased for the special populations such as elderly and people on life support systems.

FEMA states that the occurrence of severe blizzards has a substantial impact on communities and can often result in loss of life due to both accidents and hypothermia. Stranded drivers often make uninformed decisions, such as leaving their cars to walk in conditions unfriendly to human capabilities, putting their lives in greater danger. Because of the blinding snow typical of blizzards, drivers are also at risk of collisions with snowplows.

Drivers and homeowners without emergency plans and kits are vulnerable to the life-threatening effects of blizzards, such as power outages, cold weather, inability to travel, communicate or obtain goods and destinations.

Housing risks in general are minimal. The greatest risk to housing is damage caused by falling tree limbs; in addition to structural damage property owners also suffer additional property loss because of damage to other landscaping from heavy ice accumulation. The frequency of structural fires tends to increase during blizzards, primarily due to utility interruptions and residents' use of alternative heating methods (fireplaces, gas or propane heaters).

According to the FEMA the occurrence of severe blizzards also has a substantial impact on communities, utilities, and transportation systems. In addition to the impacts on transportation, power transmission, communications, agriculture, and people, severe winter storms can cause extensive erosion, and property loss.

Impact on Commercial and Industrial Structures

Blizzards create significant hazardous life, travel, and employment conditions. Often accompanied by very cold temperatures, blizzards possess the ability to immobilize segments of the county's population and economy for significant periods of time. The risk is primarily to travelers, truckers and delivery personnel because of severe drifting of snow and the poor visibility that accompanies these storms.

County road crews and county equipment necessary to combat the storm face at least a limited risk while trying to make roads safer for the public and commercial and industrial vehicles and activities.

Impact on Critical Infrastructure

The weight of the heavy accumulations of ice and snow can bring down trees, electrical wires, telephone poles and lines, and communication towers as well as building collapses and damage to infrastructure.

Communications and power can be disrupted for days while utility companies repair the extensive damage; this can cause households to be without power for several days, and may result in significant economic loss. Not to mention the disruption of essential services in affected communities.

Infrastructure, particularly overhead power lines, is also at risk of winter storms. Ice and wind can take down power lines, which could knock out power for residents and businesses. The risk is higher in cities because of the potential for ice-laden tree limbs to fall on weighted utility lines; however, rural areas are also at risk where the sheer weight of the ice combined with the potential for higher winds is often enough to take down utility lines.

Blizzards also pose some risk to equipment and county personnel responsible for clearing roads. In assessing risk to snow events the county has identified those spots on the county highway system most susceptible to severe drifting and poor visibility.

If roads are impassible, emergency vehicles will be unable to respond efficiently to calls, if at all. Also, due to the cold weather, there may be an increase in calls for emergency response. This could strain emergency response resources. Also, if roads are impassible, employees may have a difficult time getting into work, and absenteeism could soar as a result.

Relationship with Other Hazards – Cascading Effects

Power outages. Power outages that result from downed utility lines create safety concerns for residents where heat is not available for an extended period of time and may cause serious internal damage to the home because of burst water pipes.

Flooding. A series of extremely heavy snowfalls, or a much greater than normal accumulation of snow, over an extended period of time, may result in significant and rapid spring runoff that could cause serious flooding.

Fires. During cold weather, people tend to use fireplaces or space heaters. If these are used improperly or left unmonitored, fires can ensue.

Plans and Programs Currently in Place

- HSEM publishes information on Winter Hazard Awareness Week, which is also linked to on the RC EMHS website.
- **The Warning and Forecast Branch** of the National Weather Service publishes information on Winter Storm Safety. This is also linked to from the RC EMHS website. (<http://www.nws.noaa.gov/om/brochures/wnttrstm.htm>): Winter storm safety information.
- **The American Red Cross:** Winter storm safety information is also linked to on the RC EMHS website.

Gaps and Deficiencies

- Local TV and radio stations do provide warnings but are effective only if tuned to.
- A majority of the power lines in the county are above ground and subject to damage from ice storms, wind and falling tree limbs.
- There are few community requirements that discourage the planting of large trees near power lines.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Encourage critical facilities to buy and maintain generators.
- County and local public works departments should have plows and other snow removal equipment ready in advance of the snow season. Sufficient supplies of sand and chemical should also be maintained.
- Ensure that local building officials enforce the building codes to avoid structural damage in the event of a large heavy snowfall.
- Aggressive trim back programs should be implemented.

TECHNOLOGICAL HAZARDS/HUMAN INDUCED

Hazard: Dam & Levee Failure

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

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

A dam is defined as a barrier preventing the flow of water, or a barrier built across a watercourse for the purpose of impounding water.

A levee is defined as an embankment for preventing flooding, or a continuous dike or ridge for the confining of water.

History

Although there are no dam failures on record for Ramsey County, a number of floods have occurred in the downtown St. Paul area and thus a number of improvements have been made to the levee system.

Risk Assessment

The only Lock and Dam in Ramsey County, is Lock and Dam 1 located on the Mississippi River mile 847.9. According to the US Army Corps of Engineers, this dam is 56 feet wide by 400 feet long. The dam consists of an Ambersen concrete overflow structure 574 feet long, hydro power station owned and operated by Ford Motor Company located in St. Paul, MN next to Lock and Dam 1. The lock is 56 feet wide by 400 feet long. The dam was constructed in 1917, reconstructed in 1929, and the main lock was completed in May 1932. The last major rehabilitation was done from 1978 – 1983. The flood stages of Lock and Dam 1 are listed in Table #15.

Few residents and their homes would be impacted by dam failure, however, a number of businesses and the St. Paul Downtown Airport (Holman Field) lie within the current floodplain and would most certainly be affected by a dam failure.

A major dam break also has the potential to destroy bridges, railroad tracks and a number of major roads downstream from the dam.

Although risks are minimal, dam failure can occur in Ramsey County. This will be covered more extensively in the St. Paul Hazard Mitigation Plan.

TABLE #15

MVP Plan 500-1-1 TAB F			RIVER STAGE TABULATION					Updated: March 21, 2000		
River Gage Date Established USGS Station NWS Site ID	River Mile	Drainage Area Sq Miles	Gage Zero Elevation	NWS Flood Stage	Minor Flood Stage	Alert Stage	Major Flood Stage	Flood of Record Stage/Year	Rationale for Selection of Mobilization Stage	
MISSISSIPPI RIVER at St Paul, MN USGS Gage Est: 1867 USGS: 05331000 NWSID: STPM5	839.3	36,800	684.16 (1912) 683.62 (1929)	14.0	18.0	20.0	23.0	26.0/1965 24.5/1969 23.6/2001 22.4/1997	14 ft: All gates, flaps and stations operational 14 ft: Urban flooding begins in Lilydale 18.5 ft: Holman Field Airport Closes 19.2 ft: Lock & Dam 2 goes out of operation 20.0 ft: Mobilization by city 22.5 ft: Milwaukee Railroad shuts down yard 24.4 ft: MWCC access road threatened 24.5 ft: Everything in-all openings closed 28.5 ft: Top elevation (712.5) right bank levee and flood wall at USGS gage site on Robert Street Bridge. Refer to O&M Manual.	

Overall Vulnerability	
Frequency	Rarely
Intensity	High
Location	Countywide; but most affected is the Mississippi River floodplain area
Extent	Damage to property, infrastructure
Duration	Several weeks
Seasonal Pattern	Spring and summer
Speed of Onset	Rapid
Warning Time	Minimal, if any warning
Probability of Future Occurrences	Very Low

Impact on People and Housing

There is a risk to numerous people if there was a dam failure. Although there is minimal housing in this area, there are a number of businesses and a reliever airport that would be flooded. Depending on when in the year the dam failed, there could also be a number of people killed and injured who are on recreation boats or swimming in the river. Depending on the amount of damage done to downstream bridges, anyone on the bridge at that time may also suffer injuries or even death.

Most of the county’s population is safe from a dam failure. There are some multi-family homes within the 100-year floodplain that would be affected by a dam failure. Obviously, impact on those homes would vary depending on the extent of the failure.

Impact on Commercial and Industrial Structures

As stated earlier, there are a number of businesses and an airport located within the 100-year floodplain that would see devastating damage if there were to be a dam failure. Along with structural damage and possible indirect power loss to other nearby structures, the waterway would be unsuitable for use by boats and barges. This could cause great economic loss and increased prices for goods, as they would need to be brought in by truck or rail. A dam failure would cause the same damage as a flood in the floodplain area surrounding the dam. See the flood section for more details.

Impact on Critical Infrastructure

Although a dam failure has never occurred in the area, one in Ramsey County could be very hazardous on public infrastructure. A major dam break has the potential to destroy or damage an airport, bridges and a rail yard. Flooding from a major dam failure could also damage bridges downstream from the dam. There is a critical egress route from downtown St. Paul heading south that, if the bridge went out, would be of significant concern if egress from the downtown area were necessary. Aside from bridges possibly going out, the same effects of a flood would occur in the downtown floodplain area and would be responded to like that of a flood. See the flood section for more information.

Relationship with Other Hazards – Cascading Effects

Flooding. Dam failure, although the risk is minimal, has the potential to be devastating to the areas within the floodplain. Dam failure would cause immediate flash flooding, destruction of property, erosion of the land, and the potential destruction of infrastructure, in the form of bridges going out. Floods from a dam failure could also stem fires, as the result of water getting into electrical systems. Also, hazardous materials could contaminate water supplies and raise public health concerns.

Plans and Programs Currently in Place

Emergency Plan. The U.S. Army Corps of Engineers has an Emergency Plan and Procedures in place for Lock and Dam #1 located in St. Paul.

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

Gaps and Deficiencies

- Property around the dam is owned by the City of St. Paul (East side of Mississippi River) and the City of Minneapolis (West side of Mississippi River), and is easily accessible by the public. Currently the DNR and U.S. Army Corps control security at the dam structure. However, local authorities are responsible for enforcing trespassing laws on city-owned property directly surrounding the dam.
- The county does not monitor tributaries emptying into the reservoir to help identify large volumes of water in times of flooding.
- The county does not have an identified evacuation plan. In the event of a dam failure, residents below the dam have not identified evacuation routes.
- There is no communication system or program to warn downstream communities and residents.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Work with the City of St. Paul to address the zoning issues within the 100-year floodplain and dam failure radius.
- Work with DNR, Division of Water, the U.S. Army Corps of Engineers and local law enforcement to ensure trespassing laws and security issues are being properly handled.
- Assure that tributaries emptying into the reservoir are being monitored.
- Identify an evacuation plan.
- Build a communications system or program to warn and alert residents and business owners of dam failure.
- Flood control dams may also create a water supply reservoir.

Hazard: Domestic Preparedness: Terrorism

Terrorism is the unlawful use of force or 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.

--FBI Definition

Contemporary terrorist actions include the traditional assassinations, bombings, arson, hostage taking, hijacking, kidnapping, seizure and occupation of a building, attacks on a facility, sabotage and perpetration of hoaxes.

Newer categories of operations include ecological terrorism and the still largely potential "high-tech" terrorism using nuclear, biological, and chemical (NBC) weapons and materials.

History

This is considered public safety information and will be covered in the Public Safety Sensitive Section of the plan, which is not available for public view.

Risk Assessment

Ramsey County is part of the "Twin Cities." The Twin Cities of Saint Paul & Minneapolis are one of the largest metropolitan areas between Chicago and the West Coast. Ramsey County is the smallest and most densely populated county in Minnesota. The City of St. Paul is the capitol of the State of Minnesota. Ramsey County also has federal buildings including a Federal Courthouse and a major United States Post Office facility. Police agencies in Ramsey County have a lower than average number of police officers per capita than the United States as a whole. Ramsey County would make a very attractive terrorism target. A terrorist could attack anywhere, so all of Ramsey County is at risk for being in the target location.

Overall Vulnerability	
Frequency	Minimal
Intensity	High
Location	Variable. Most likely downtown St. Paul.
Extent	Damage to property, infrastructure, and life
Duration	Unknown
Seasonal Pattern	No pattern
Speed of Onset	Rapid
Warning Time	Minimal, if any
Probability of Future Occurrences	High

Impact on People and Housing

The effect of a terrorist incident on people and housing is directly related to the type of terrorist attack including the means of attack, magnitude, duration, location, and any possible coordination of multiple attacks either locally, regionally, nationally or internationally.

A small attack by a single-issue lone wolf on a commercial venture will have virtually no effect on people or housing. On the other hand, a large coordinated attack on multiple venues will have a profound psychological effect on the population.

A terrorist attack on critical infrastructures could have a significant effect on people and housing. If electrical service, fuel supply, water or sewer services were interrupted for a period of time the effects on housing and people will be evident. If people are not able to inhabit their homes due to the lack of critical services, shelter space will be quickly overwhelmed. Homes are under risk of significant damage if electricity or natural gas supplies were to be interrupted in the winter months.

Impact on Commercial and Industrial Structures

The effects of a terrorist attack on commercial and industrial structures will be directly related to the type of terrorist attack including the means of attack, magnitude, duration, location, and any possible coordination of multiple attacks either locally, regionally, nationally or internationally. A limited attack will have much fewer consequences than a larger or coordinated attack.

Obviously where and when an attack occurs will determine if there is a disruption to business activities. Some businesses, if hit, would drastically effect the economy. For example, if a mall were to be hit, people may not go to that specific mall or others for fear of another attack. If an attack were to occur at a grocery store, mass panic would definitely follow. The public may not trust food supply from a store or a restaurant. Overall, any business that is the victim of a terrorist attack will have a number of cascading effects.

Impact on Critical Infrastructure

The effects of a terrorist attack on critical infrastructure will be directly related to the type of terrorist attack including the means of attack, magnitude, duration, location, and any possible coordination of multiple attacks either locally, regionally, nationally or internationally. The fact that it could be the critical facilities that are attacked increases the likelihood of adverse effects on critical infrastructure.

Relationship with Other Hazards – Cascading Effects

Terrorist damage to critical infrastructure increases the adverse effects of the hazards these critical infrastructures protect against.

Bio-terror attacks have the ability to overwhelm the medical response infrastructure.

Terror attacks to the electrical / water / sewage infrastructure can create environmental and health hazards.

Attacks on government institutions and response agencies can hinder Public Safety response to other hazards including weather related / other natural disasters industrial accidents or terrorist perpetrated disasters. In the extreme, attacks on governmental institutions can have a damaging effect on the nature and structure of our society and it's ability to help in recovery from the attack.

Plans and Programs Currently in Place

An all-hazards approach to terrorism response is taken.

Continual Police / Fire / EMS training for WMD events.

Emergency Management planning at the local and county levels, along with state planning efforts.

Gaps and Deficiencies

A major gap exists in the PREVENTION of terrorism and the training and education of the first responder to the terrorism threat; it's prevention, mitigation and response.

Terrorism prevention will be much less expensive than response to an incident. Terrorism prevention is very dependent on personnel resources. Current Law Enforcement resources are dedicated to conventional crime fighting and response. A greater emphasis on criminal investigations will provide leads to possible terrorist activities while at the same time preventing and solving "every day" criminal activity. A greater emphasis on training will allow the first responder on the street to recognize possible pre-terrorism activity.

There also is a gap and deficiency in the public's awareness of terrorism. Public education can be invaluable in helping the first responder community to respond to terrorism, whether it is using the public's eyes and ears to report suspected terrorism planning or helping the public to be prepared to help themselves in aftermath of a terrorism incident when the first responder community will be overwhelmed.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Continue training first responders on terrorism response.
- Train first responders in terrorism pre-activity recognition.
- Educate the public to be proactive in contacting law enforcement when something does not look / feel right.
- Greatly expand the investigation of crimes that may be funding terrorism activities.
- Greatly expand the investigation of crimes that may be precursors to terrorism activities.
- Greatly expand the use of information sharing databases to coordinate the investigation of crimes to look for terrorism connections.
- Increase the sharing of personnel between first responding agencies and disciplines to facilitate the crossover of knowledge and experience to help in the recognition of terrorism activities and response to terrorism incidents.

Hazard: Fire

Fire is defined as a rapid, persistent chemical reaction that releases heat and light, especially the exothermic combination of a combustible substance with oxygen. A fire is categorized as both a

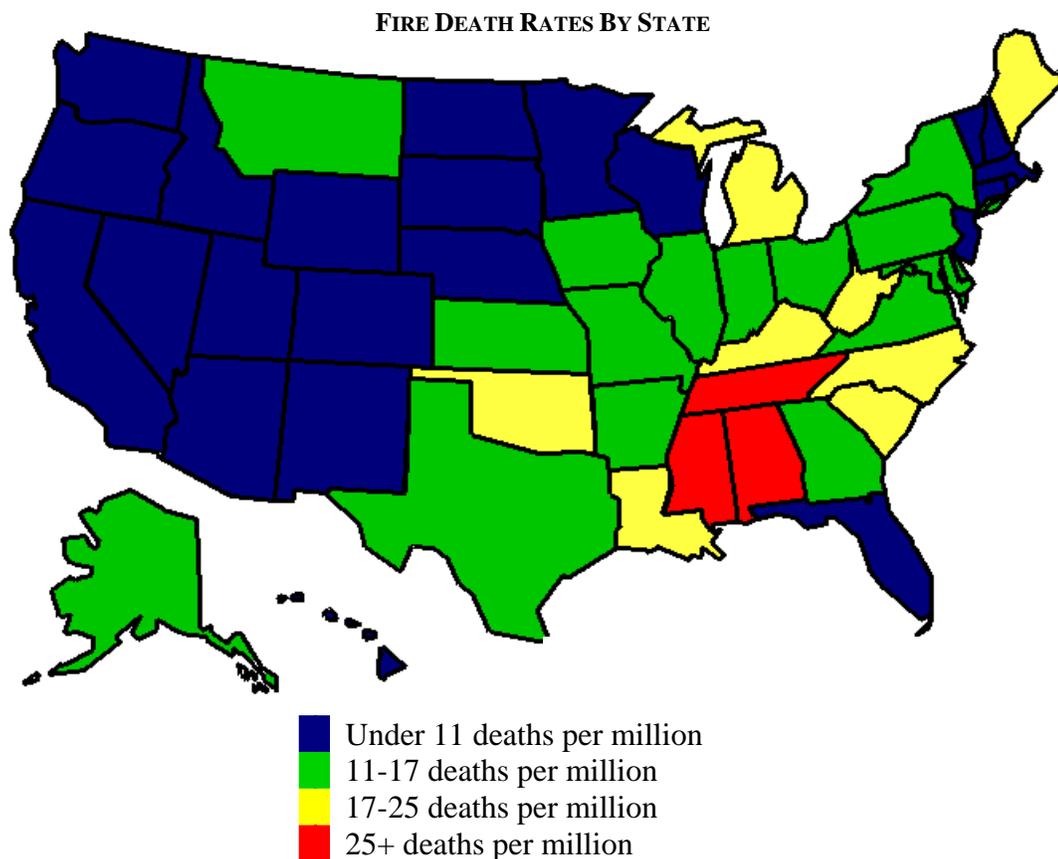
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natural hazard and a technological hazard that occurs in both the outside and non-outside environments.

As a natural hazard, a fire is often the direct cause of a lightning strike that may destroy personal property and public land areas, especially on state and national forest lands. Most wildland fires, however, result from human causes such as debris burning, equipment use, and arson. The immediate danger from wildland fires is the destruction of timber, property, wildlife, and injury or loss of life to persons living in the affected area or using area recreational facilities. Long-term effects from wildland fires are numerous. Major fires can completely destroy ground cover, which can, in turn, cause erosion and lead to flash floods and landslides if heavy rains follow a major fire.

As a technological hazard, fires have many causes including careless smoking, cooking, or campfires, arson, improper building wiring, industrial mishaps, and instances such as train derailments or transportation collisions.

The fire problem in the United States, on a per capita basis, is one of the worst in the industrial world. Thousands of Americans die, tens of thousands of people are injured, and property losses reach billions of dollars because of fires. The annual losses from floods, hurricanes, tornadoes, earthquakes and other natural disasters combined in the United States average just a fraction of the losses from fire. The fire death rate, by State, is shown below.



According to the National Fire Data Center of the U.S. Fire Administration, recent trends show a decline in the numbers of fires, deaths, injuries, and dollar loss to property.

TABLE #16

Year	Number of Deaths	Deaths per Million	State Ranking
1980	107	26.3	23
1990	39	8.9	45
1999	48	10.1	30

However, despite these encouraging trends, an average of over 5,000 deaths and 28,000 injuries to civilians, and over 100 firefighter deaths occurred annually over the 10-year period from 1987 to 1996.

Wildfires

A wildfire is an uncontrolled fire spreading through vegetative fuels, threatening to cause destruction to property. With more people making their homes in or near forests and rural areas the homeowners enjoy the beauty of the environment but face the very real danger of wildfire.

Wildfires often begin unnoticed. They spread quickly, igniting brush, trees, and homes. Human error, such as arson and carelessness, are the cause of four out of every five wildfires. As a natural hazard, wildfires are caused as a result of lightning. The destruction of timber, property, wildlife, and loss of human life are the most frequent dangers from wildfires.

Urban Fires

For the purposes of this Plan, major urban fires are those structure fires in Ramsey County that were greater or equal to three alarm. The leading causes of fires nationally are arson, open flame, and cooking. The leading causes of fire deaths are smoking, arson, and heating. Between 70 and 80 percent of these deaths stem from residential fires. People under age 5 and over age 55 have a much higher death rate than the average population. These two age groups account for more than one-third of all deaths nationally.

Structural Fires

There are three types of structural fires including residential, public and mercantile, and industrial, manufacturing and other buildings. Residential fires include single-family dwellings, apartments, mobile homes, hotels and motels, along with dormitories. Public and mercantile fires include stores, restaurants, grocery stores, institutions, churches, public facilities, and educational buildings. Industrial, manufacturing and other building fires include basic industry, manufacturing, storage, residential garages, and vacant buildings.

Vehicle Fires

Vehicle fires include those that occur to aircraft, automobiles, trucks, trains, boats and buses.

Outside and Other Fires

Dumpsters, trash, and other fires are not classified as a wildfire, urban, vehicle or structural fire.

In Minnesota, outside fires are just as likely to occur in urban areas as in rural areas. It is notable that in 1998, 53 percent of all fires occurred in the Seven-County Metro Area, but these fires represent only 39 percent of the total dollar loss. The remaining 47 percent of all fires occurred throughout the rest of the state; however, this statistic represents 61 percent of the total dollar loss.

History

In Ramsey County a number of fires occur due to a variety of causes. The table below lists the data that was available from the Minnesota Fire Incident Reporting System (MFIRS). Ramsey County Fire Departments have 100% compliance for reporting fire response information with the State Fire Marshal’s Office. Incendiary fires include vehicle fires, brush and grass fires, refuse fires, and structure fires, which includes homes (single family dwellings, apartment buildings, manufactured homes), businesses (office buildings, restaurants, malls) and sheds. Table #17 below shows the number of incendiary fires and the number of civilian deaths for the past 4 years. Although the number of fires has gone down over the years, the number of deaths, continue to rise.

TABLE #17

Year	Number of Incendiary Fires	Number of Civilian Deaths
2003	298	110
2002	276	103
2001	300	100
2000	369	96

<http://www.dps.state.mn.us/fmarshal/firemfirs.html>

Risk Assessment

Fires have occurred throughout the County and have been the result of a variety of causes from accidents to arson. No area is prone to having more fires than another area, though a densely populated city typically has more calls for fire response than a rural city. Looking at the most recent history of fires in the County it is evident that people need more education on fires, including prevention, and assuring that smoke detectors are installed and working, along with fire extinguishers.

Overall Vulnerability	
Frequency	Moderate
Intensity	Moderate
Location	Countywide
Extent	Damage to property, infrastructure and life
Duration	Several hours to a couple of days

Seasonal Pattern	Primarily spring/summer
Speed of Onset	Immediate
Warning Time	Minimal
Probability of Future Occurrences	Medium

Refer to the Wildfire Information Center for current data on wildfire conditions and burning restrictions. <http://www.dnr.state.mn.us/forestry/fire/index.html>

Impact on People and Housing

It must be noted that in the residential setting the leading causes of wildland fires are debris burning, smoking and arson. Urban fires usually result from human rather than natural causes. Only two percent of the U.S. Wildfires are a result of lightning compared to 85 percent that result from human intervention.

In the past 15 years 955 Minnesota civilians have died in fires. But fires in Greater Minnesota have outpaced those in the Seven-County Metro Area by a rate of two to one.

Incidents in residential structures continue to be the primary cause of death and injury as a result of fire. Lack of properly working smoke detectors is often cited as a contributing factor. Leading causes of fire in residential settings continue to be cooking, heating and incendiary.

Over the past several years, incendiary or arson continues to be the leading cause of structure fires in the state. In 1999, structures were involved in 28 percent of the incendiary fires, 51 percent of these were residential. The loss from incendiary fires in 1999 was over \$17 million in Minnesota.

A fire concern in Ramsey County is that a number of the homes built in the county were built prior to 1980. By 1970, 65% of the homes were built, and by 1980 81% of the homes had been built. This means that most homes were built before stricter building codes went into effect. Also, older homes and structures in general, tend to have a greater potential of utility failure, like furnaces, stoves and even electrical outlets.

Impact on Commercial and Industrial Structures

Commercial and industrial structures also pose threats for fire. Commercial and industrial fires are particularly dangerous when they occur in the downtown districts. In these areas, the buildings are typically closely grouped and sometimes connected to other businesses. A fire in these buildings could easily spread to other connecting or closely located commercial buildings.

A number of these structures are also older and building codes, such as sprinkler systems, are not in all businesses. As new structures are built and older ones are remodeled, the latest building codes will be enforced.

These facilities could also contain hazardous materials causing the fire to be an even larger hazard to emergency responders and the community as a whole.

Impact on Critical Infrastructure

Fires at any critical facility are obviously a great concern. Typically these facilities are kept up to code with regular inspections and are equipped with the latest in fire detection devices and generally have sprinkler systems. Though, fires can start from various causes and no building is free of harm from a fire. Depending on the location of where the fire breaks out, the ignition source, and the surrounding environment, will determine how extensive the damage is. Also, the layout of the building and the fire measures that are put into place (i.e. fire doors, fire extinguishers, alarms, etc.) will be key factors in the extent of the damage that occurs.

If a fire is large or out of control and requiring a number of assets and mutual aid agreements to be enacted, other areas may see a longer wait time for response due to the reprioritization of assets. This could tax the emergency responders in a region and mutual aid may be needed to fulfill the day-to-day operations while a fire is being fought.

Relationship with Other Hazards – Cascading Effects

Flooding and Erosion. Major fires can completely destroy ground cover. If heavy rains follow a major fire, flash floods, heavy erosion, landslides and mudflows can occur.

Service disruptions. Major fires can completely destroy structures, including essential public facilities, and utilities like electric and gas lines can be damaged and even destroyed. This could cause service disruptions to a small area or a large area depending on the extent of the damage. The extent will also determine how long service is interrupted.

Health risks. Destruction or damage to essential infrastructure such as water and wastewater facilities can cause public health risks. Again, the extent of the damage will determine how long of period of risk there will be.

Hazardous Materials. Fires can start where hazardous materials are present or spread to areas containing hazardous materials. Hazardous material fires can cause a great public health risk.

Plans and Programs Currently in Place

Minnesota Department of Natural Resources (DNR), Division of Forestry. This division has primary responsibility for wildland fire protections on 22.8 million acres of public and private land throughout the state. Its total responsibility encompasses 45.5 million acres or 89 percent of the total land base.

MN DNR, Division of Forestry. This division also runs weather stations and collects weather data on a daily basis. This data is put into a U.S. Department of Agriculture (USDA) Fores Service computer, which uses the National Fire Danger Rating System to determine daily and forecasted fire danger indices. The indices are combined with specially tailored fire weather forecasts from the National Weather Service (NWS) to develop short-range guidelines for scheduling detection, equipment standby and personnel.

State Fire Marshal Department (SFMD). The SFMD manages a variety of fire prevention and enforcement programs intended to reduce the likelihood and impact of fires. These programs include development of fire codes, fire safety inspections, public education and maintenance of statistical fire data from which fire prevention and response plans are developed.

Minnesota Arson Reward Project. Incendiary and arson fires continue to be a very large threat throughout the state. The Minnesota Arson Reward Project was developed to deter crime of arson in the state of Minnesota.

Fire Protection Systems Program. The mission is to save life and property through effective licensing, plan review, and inspection of fire protection sprinkler systems; to work together with government, industry, and the public to improve the quality of installation of fire protection sprinkler systems; and, to regulate the fire protection sprinkler industry in a fair, consistent, and equitable way to achieve effective enforcement and administration of statutory obligations.

Public School Inspection Program. The primary focus of this program is to eliminate the fire and safety violations in public school building that have historically contributed to disastrous events.

Minnesota Juvenile Firesetter Program. This program developed regional task forces responsible for providing the necessary components for successful interventions to continued juvenile firesetting. Task forces are comprised of agencies that include the fire service, juvenile justice system, police departments, mental health agencies, and various social service divisions.

Fire and Life Safety Inspection Teams. The residential fire safety inspection team inspects all licensed hotels, motels and resorts throughout the State and conducts inspections of family/group child care, family/group foster care, child care centers, complaints and other special request inspections. The health care fire safety inspection team is responsible for conducting annual fire and life safety inspections in health care facilities licensed by the Minnesota Department of Health and residential group homes licensed by the Minnesota Department of Human Services.

Code Development/Plan Review. The goal of this initiative is to provide consultation and technical assistance in matters related to fire safety to local/state fire building officials, property owners/managers, architects, engineers, contractors and the general public.

Fire/Arson Investigation Team. This unit is comprised of eleven investigators and one trainer. The team assists fire officials and law enforcement by investigating large numbers of fires per year that are determined to be suspicious.

Minnesota Office of Pipeline Safety. The Office of Pipeline Safety manages a variety of public awareness and compliance programs, such as the Gopher State One Call “Call Before You Dig” program to ensure the safe operations and maintenance of natural gas and hazardous liquid pipeline systems and facilities in Minnesota.

Zoning. Zoning departments throughout the county are responsible for regulating the development of new construction. These departments are also often in charge of inspections.

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They are also charged with enforcing safety restrictions including setbacks, lot coverage, depth and structure height. Typically, the inspectors are in charge of inspecting residential structures, while the fire marshal inspects commercial structures for potential fire hazards.

Gaps and Deficiencies

- Lack of regulations regarding vegetation on property.
- Lack of training for residents on how to properly clean chimneys, safe cooking in the kitchen, or holiday hazards.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

Public Education.

- A major public education effort which uses “Smokey Bear” to promote Forest Fire Prevention.
- Conduct public education on fire-resistant landscaping.
- Expand publication of the Arson Hotline.
- Provide information to the public on how to check and maintain their smoke detectors and fire extinguishers in their home.

Preparedness.

Continue regional approach to spending grant dollars to assure that fire departments are adequately prepared and reduce the duplication of efforts and purchases.

Encourage all jurisdictions to enact a standard set of codes, covering at a minimum building, plumbing, electrical and fire.

Residential: Available and/or mandated fire detection, suppression and preparedness equipment.

- Fire extinguishers
- Smoke and heat detectors
- Escape ladders

Industrial/Commercial: Available and/or mandated fire detection, suppression and preparedness equipment to comply with OSHA mandates.

- Emergency evacuation signs/plans
- Fire extinguishers
- Smoke and heat detectors
- Fire sprinkler systems

Local Jurisdictions:

- Recruit career and volunteer firefighters

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- Recruit career and volunteer emergency medical services personnel
- Ensure local fire departments have an inspection program so that all commercial and multi-resident structures are inspected once per year.
- Encourage all First Responders to be trained at least to the HAZMAT Awareness Level.
- Encourage more joint training among First Responder agencies regardless of existing formal mutual aid agreements.
- Promote and enforce building codes that require fire sprinkler systems in every new commercial, residential or industrial building.

Response.

Improve mutual aid agreements so that reimbursement can be obtained when enacted.

Hazard: Hazardous Materials

Hazardous materials are comprised of substances that are either flammable or combustible, explosive, toxic, noxious, corrosive, oxidizers, irritants or radioactive.

Hazardous Materials exist as a part of everyday life. In fact, they make the standard of living that we enjoy possible. The challenge is to use and transport hazardous materials in a safe way that does not harm the community and prepare an effective response to unwanted releases of hazardous materials when they occur.

From a hazard mitigation perspective, the existence of hazardous materials presents two distinct arenas that must be addressed: those associated with hazardous materials use at fixed facilities and those associated with the transport of hazardous materials. In either case, a hazardous material spill or release can pose a risk to life, health or property. An incident can force the evacuation of a few people, a section of a facility or an entire neighborhood or community, resulting in significant economic impact. Spilled material can be costly to cleanup and may render the area of the spill unusable for an extended period of time.

A relative technological issue is the dependence of so many businesses and government on the availability of computer-based information processing tools and communications networks. Disruption of these systems caused by any means can have a significant impact on the ability of business and government organizations to function.

Fixed Facilities

A variety of hazardous materials exist in fixed facilities. They run the gamut from flammable liquids stored or used to fuel vehicles, through exotic chemicals used in manufacturing processes, to radioactive materials and biological agents in medical facilities. Some materials are particularly lethal even in small amounts, while others require strong concentrations with prolonged exposure periods to cause harm.

In the State of Minnesota, facilities are required to prepare and file Risk Management Plans with the U.S. Environmental Protection Agency (EPA) as required under the Clean Air Act (CAA), Section 112(r). This section requires facilities that store or use threshold quantities of certain

hazardous materials to prepare an analysis of off-site consequences of accidental releases of substances regulated under the section.

Transportation

Hazardous materials are conveyed by a variety of transportation modes, including:

- Aircraft
- Pipeline
- Rail
- Road
- Water

Each mode presents variations on the type, quantity, configuration and frequency of transit through the State. Each mode also presents differing levels of risk of unwanted release of the hazardous materials while in transit. Transported products include hazardous materials moving from producers to users, moving between storage and use facilities, and hazardous waste moving from waste generators to treatment and disposal facilities. Each of the specific categories of hazardous products identified in Table #19 (biological, hazardous chemicals, hazardous waste, nuclear) are moved through the State by various transport means. In addition, the on-board fuel supply of the vehicle transporting the hazardous cargo becomes involved and contributes to the scope of the hazardous materials incidents as a result of vehicle accident.

The most recent information available on volume of total cargo (both hazardous and non-hazardous) by mode of transportation is presented below in Table #18.

TABLE #18

Shipment Characteristics by Mode of Transportation				
Mode of Transportation	Value (\$)	Tons	Percent of Tons	Ton-Miles
Single Mode	114,829,000,000	247,293,000	88.4	91,432,000,000
Truck	100,592,000,000	158,187,000	56.6	25,192,000,000
Rail	7,318,000,000	88,812,000	23.9	48,043,000,000
Water	1,661,000,000	15,132,000	5.4	17,924,000,000
Air (includes truck/air)	3,962,000,000	116,000	-	164,000,000
Pipeline	1,332,000,000	7,047,000	2.5	Data not available
Multiple Mode	34,120,000,000	26,486,000	9.5	24,498,000,000

Aircraft

Aircraft, especially commercial aircraft, carry large amounts of flammable liquids as a fuel source. Accidents involving aircraft create the situation where that fuel may be released in addition to any hazardous cargo that might be carried.

Pipeline

Hazardous materials transported by pipeline are either compressed or liquefied gas or pressurized flammable liquids. When a release occurs, the product usually vents under high pressure until the leak is detected and the valves controlling the product are closed. In high-pressure transmission lines, the quantity of product released is usually large due to the high pressures used and the spacing between control valves. For liquid releases from transmission lines, the amount released can be several hundred thousand gallons.

Road

National data from U.S. Department of Transportation (DOT) indicates the type of hazardous material being released in both fatal and non-fatal accidents.

TABLE #19

Trucks in Crashes by Class of Hazardous Materials Releases, 1998		
Class of Hazardous Materials Release	Fatal	Non-Fatal
Explosive	2.3%	3.0%
Gases	9.3%	6.5%
Flammable Liquids	51.2%	42.3%
Flammable Solids	0.0%	0.7%
Oxidizing Substances	2.3%	2.0%
Poison and Infectious Substances	0.0%	1.1%
Radioactive Material	0.0%	0.0%
Corrosives	7.0%	6.5%
Miscellaneous Dangerous Goods	14.0%	17.8%
Missing	14.0%	20.0%
Total Numbers		
	4,300	54,100

For more info: <http://www.ai.volpe.dot.gov/CrashProfile/crash.asp?file=NatProfile1998.pdf>

Rail

According to the EPA, Office of Compliance Sector Notebook Project, “*Profile of the Ground Transportation Industry, Trucking, Railroad, and Pipeline,*” there are 4,500 miles of Class I railroads in Minnesota.

The spilling/leaking of hazardous materials is a significant environmental concern for the rail industry. According to DOT statistics, approximately 16 percent of all nationwide transportation incidents involving hazardous material in 1999 were from rail transport. In addition to being harmful to the environment, hazardous material spills and release are subject to a variety of environmental regulations and may result in costly cleanups or fines. Valve leakage or safety valve releases can be sources of material spills on pressurized and general service tank cars or other hazardous material containers such as covered hoppers, inter-modal trailers/containers, or portable tanks. These leaks can manifest themselves as odors or vaporous clouds from tanker top valves; spraying or splashing from the tanker top valves; wetness on the side of the car; or

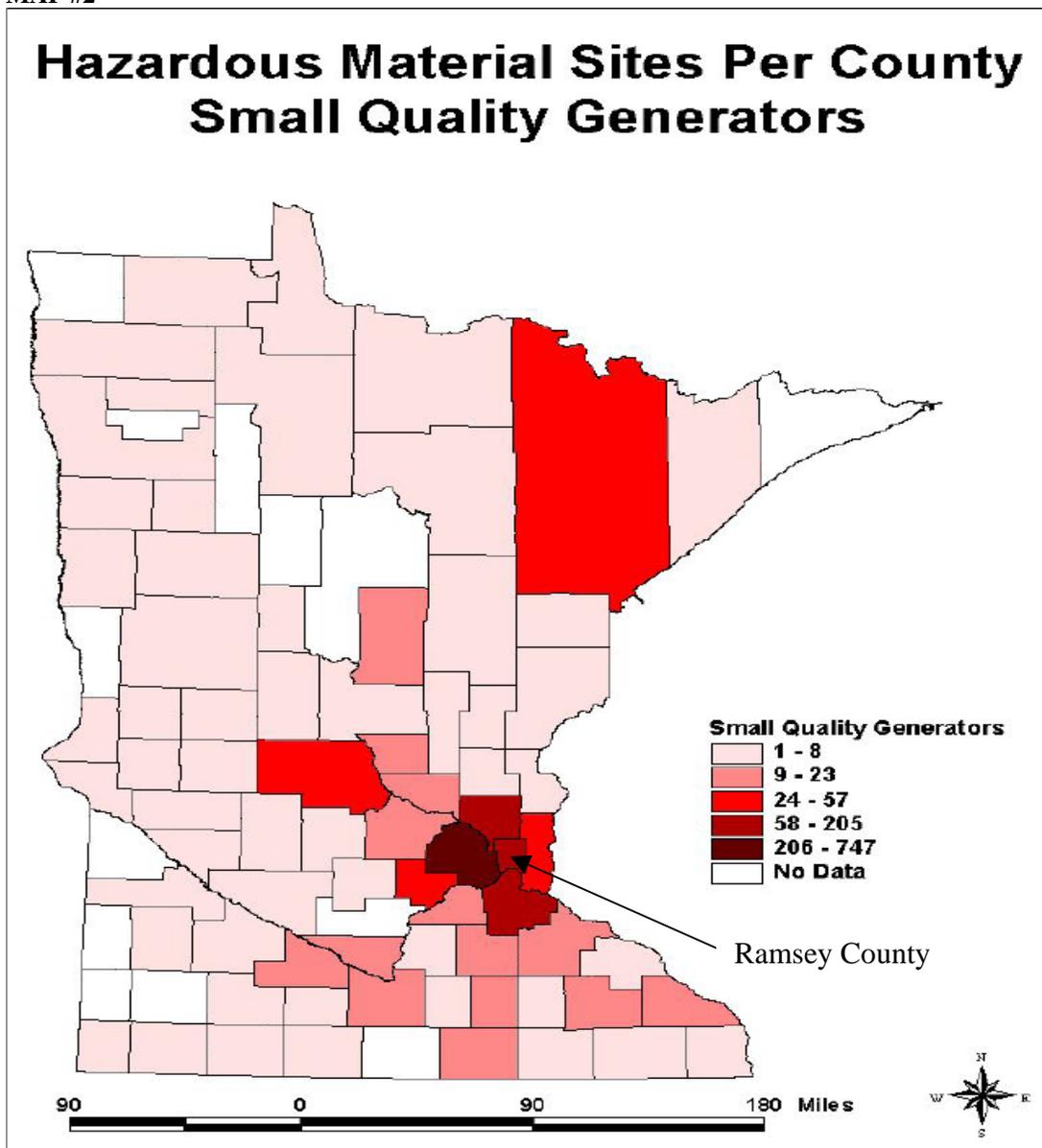
drainage from the bottom outlet valve. Inter-modal container doors and other openings can be spill/release sources. Unloading and transfer facilities are high potential spill and release areas as well.

Water

Transportation of hazardous materials by water presents particularly difficult mitigation issues for land-based responders. One of the prime objectives of hazardous materials incident response is to contain the product before it reaches waterways. Releases that occur from water vessels go directly into the water, and thus the ability of responders to contain the product is more difficult.

The following Map #2 shows the number of hazardous material sites per county in Minnesota.

MAP #2



Clandestine Drug Labs (Meth Labs)

A clandestine drug lab (or clan lab) is a collection of materials and ingredients used to manufacture illegal drugs. Methamphetamine (meth) is the drug most commonly made in Minnesota labs. Minnesota officials discovered and seized about 400 drug labs during 2003. Most of these labs were located away from the largest Minnesota cities, in rural or semi-rural areas, although they do occur in the urban and suburban area. Meth labs have been discovered in private homes and apartments, hotel and motel rooms, restaurants, manufactured homes, barns, storage facilities, fields, vacant buildings and moving or stationary vehicles.

While law enforcement agencies report different numbers, it appears that there were 17 labs in 2003 in Ramsey County. According to information gathered from the St. Paul – Ramsey County Department of Public Health 9 labs were located within St. Paul and 8 were in suburban Ramsey County. Best estimates are that the number of meth labs in Ramsey County has slightly increased since 2000, while the number has increased substantially in rural Minnesota. Table #20 shows the number of meth labs found in Ramsey County (including St. Paul) over the past 4 years.

TABLE #20

Year	Ramsey
2000	8
2001	11
2002	10
2003	17

Meth is made mostly from common household ingredients. When these ingredients are mixed and “cooked” together they make a dangerous drug and potentially harmful chemical mixtures that can remain on household surfaces for months or years after “cooking” is over. According to the St. Paul – Ramsey County Department of Public Health, approximately five to seven pounds of chemical waste are produced for each pound of meth manufactured. Therefore, each drug lab is a potential hazardous waste site, requiring evaluation. There may be health effects in people exposed to lab chemicals before, during and after the drug-making process.

In addition to the dangers of active drug labs and possible harm caused by lab residues in uncleaned, former labs, meth use and manufacture is associated with: increased crime, particularly property crimes, personal violence, child abuse and endangerment; increased demand for medical and social services, including foster-and short-term care, drug and psychiatric treatment, and various public health services; increased demands on jails and jail services, fire department and law enforcement agencies, and additional strain on educators, parents and communities.

Communication about meth labs could improve. For example, of the 8 meth labs in suburban Ramsey County in 2003, the Department of Health was informed about 3. No notifications came from local or state law enforcement agencies.

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Meth lab cleanups are handled inconsistently in the County.

- In St. Paul, upon discovery of a clan lab, the Police Department will notify the Fire Department's Hazmat Unit and the Citizen's Service Office Code Enforcement Unit. The Hazmat Unit will determine if the structure is habitable. If unsafe levels of toxic or hazardous materials are found to be present, the Code Enforcement Unit will condemn the structure under the authority of Chapter 34 of the city legislative code, Minimum Property Maintenance Standards for Structures and Premises. The structure may not be occupied until an environmental testing company has tested it and found to be free of toxic and hazardous chemicals above unsafe levels.
- In suburban Ramsey County there are no housing codes, and the only authority guiding a public health response is the public health nuisance law found in Minnesota Statute 145.08. The Department has responded to meth labs in a variety of ways, depending on the public health risk evident at the site.

Contractors or Hazmat teams under direction usually remove chemicals that pose an imminent threat by local or State law enforcement agencies. State superfund (through the MPCA) and federal drug enforcement funds pay for this immediate cleanup.

A number of Minnesota Counties have adopted public health nuisance ordinances that serve to clarify the roles, responsibilities and procedures involved in responding to meth labs.

Additional information can be found at: <http://www.health.state.mn.us/divs/eh/meth/index.html>

History

TABLE #21

Fixed Facilities		
Year	Location	Remarks
1997	Statewide	MN ranks 37 out of 56 reporting states and territories with about 30,000,000 pounds of hazardous materials released from fixed facilities based on data from EPA's Toxic Release Inventory (TRI).

<http://www.epa.gov/tri/tri98/state/>

TABLE #22

Transportation – All Modes		
Year	Location	Remarks
1997 – 1999	Statewide	An average of 261 hazardous materials incidents per year occurred, resulting in an average dollar loss of \$703,801 and a three-year total of one death and 6 injuries. Minnesota ranked 22 nd in 1997, 20 th in 1998 and 19 th in 1999 in the number of hazardous materials incidents among all the states.

<http://hazmat.dot.gov/files/hazmat/hmisframe.htm>

TABLE #23

Transportation – Air		
Year	Location	Remarks
1997 – 1999	Statewide	An average of 9.3 hazardous materials incidents per year occurred involving aircraft, resulting in zero dollar loss and zero deaths or injuries. http://hazmat.dot.gov/files/hazmat/hmisframe.htm
1994 – 1999	Statewide	752 accidents and 19 incidents during the past five years in MN are reported in the National Transportation Safety Board (NTSB) Aviation Accident/Incident Database. In the NTSB database, an event is classified as an accident or an incident. “Aircraft accident” means an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. The NTSB defines “Incident” to mean an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations. http://nasdac.faa.gov/asp/fw_ntsb.asp
1994 – 1999	Statewide	1282 incidents exist in the Federal Aviation Association (FAA) Incident Data System. The FAA Incident Data System contains incident data records for all categories of civil aviation. Incidents are events that do not meet the aircraft damage or personal injury thresholds contained in the NTSB definition of an accident. For example, the database contains reports of collisions between aircraft and birds while on approach to or departure from an airport. While such a collision occurred is valuable safety information that may be used in the establishment of aircraft design standards or in programs to deter birds from nesting in areas adjacent to airports. http://nasdac.faa.gov/asp/fw_fids.asp

TABLE #24

Transportation – Pipeline		
Year	Location	Remarks
1986	Ramsey County	At 4 a.m. on July 8, 1986, a gas pipeline owned by Williams Pipeline Company, ruptured, sending vaporized and liquid gas into the streets of Mounds View, Minn. Twenty minutes later a car passed and ignited the gas. Two people burned to death. The city attempted to prevent the pipeline from resuming operation until safety concerns were dealt with. Pipeline company officials then went to federal court and secured a permanent injunction blocking the city from taking actions restricting their operations. This incident with the Williams Pipeline Company resulted in

		the State of Minnesota creating the Office of Pipeline Safety in December of 1986. http://www.dps.state.mn.us/pipeline/opsabout.html
1994 – 1999	Statewide	An average of seven federally reportable pipeline incidents/accidents have occurred per year. State staff has investigated an average of 40 incidents per year since 1994 based on State Fire Marshal data. http://www.dps.state.mn.us/pipeline/Statistics.htm

TABLE #25

Transportation – Road		
Year	Location	Remarks
1997 – 1999	Statewide	An average of 245.3 hazardous materials incidents per year occurred involving highway transportation, resulting in an average \$699,489 dollar loss and a three-year total of one death and 6 injuries. http://hazmat.dot.gov/files/hazmat/hmisframe.htm

TABLE #26

Transportation – Rail		
Year	Location	Remarks
1997 – 1999	Statewide	An average of 6.7 hazardous materials incidents per year occurred involving rail, resulting in an average \$4,279 dollar loss and a three-year total of zero deaths and injuries. http://hazmat.dot.gov/files/hazmat/hmisframe.htm

Risk Assessment

Vulnerability from hazardous materials during an unwanted release is great. The specific hazards created by a release are dependent on the hazardous characteristics of the material, the amount released, the location where the release occurs, and the weather and topographic conditions in the area. A more specific assessment of vulnerability is provided when looking at how hazardous materials are present in the community, i.e., in fixed facilities hazards and/or those involved in transportation. From 1997 – 1999 Minnesota averaged 261 transport incidents per year involving hazardous materials.

Overall Vulnerability	
Frequency	Low
Intensity	Moderate to High
Location	Countywide
Extent	Damage to property, infrastructure and life
Duration	Several hours to a couple of days
Seasonal Pattern	No pattern
Speed of Onset	Immediate
Warning Time	Minimal
Probability of Future Occurrences	Low

Impact on People and Housing

The hazards to life presented by hazardous materials vary by the type of product, the rate of release, the total amount release, and the physical attributes (topography, bodies of water, weather conditions, people exposed) of the area where the release occurs. These factors are easier to identify and plan for at fixed facility incidents that for transportation incidents since information regarding the location and nature of the products involved can be determined ahead of time.

The life hazard created by a transportation hazardous materials incident depends on the location of the incident in relation to population groups, the toxicity and quantity of material involved, the rate of release, and the mechanisms of spread as well as weather and topographic conditions. People on or immediately adjacent to transportation corridors are at highest risk. Those people along the path of the spread of the material are also at risk.

Impact on Commercial and Industrial Structures

The hazards to property present by hazardous materials vary by the type of product, the rate of release, the total amount released and the physical attributes (topography, bodies of water, weather conditions, adjacent property exposed) of the area where the release occurs. These factors are easier to identify and plan for at a fixed facility incident, than for transportation incidents, since information regarding the location and nature of the products involved can be determined ahead of time.

Each facility that stores or uses hazardous materials above a threshold amount must develop and file an RMP with the LEPC, SERC and EPA. There are 570 records of current RMPs on file for the State of Minnesota in the EPA's CEPPPO RMP database. Each plan identifies the significant hazards for the facility, the likely release scenario for the hazards, the estimated properties impacted by the release, and the specific steps to take in the event of a release to protect that property from harm.

Property can be damaged or destroyed by the effects of the materials or their reaction. Access to and use of property can be prohibited while assessment of contamination is conducted and while clean-up operations are completed. Contamination by some hazardous materials can render the property unusable for years, if not forever.

The property hazard created by a transportation hazardous materials incident depends on the location of the incident in relation to population groups, the type and quantity of material involved, the rate of release, and the mechanisms of spread as well as weather and topographic conditions. Properties adjacent to transportation corridors are at highest risk. As with fixed facilities, if critical community infrastructures are exposed, plans must be developed to minimize the exposure and protect the assets.

Impact on Critical Infrastructure

Potential impacts on critical infrastructure, such as domestic water systems, must be assessed. Where exposures exist, plans must be developed to minimize the exposure and protect these vital assets from hazardous materials releases.

Transportation routes could be closed for a lengthy period of time due to a hazardous materials accident. This would lead to alternate routes needing to be used. Additional resources and State teams and resources may need to be called in as well.

Relationship with Other Hazards – Cascading Effects

Water Supply Contamination. Due to pollutants getting into the water system.

Public Health Concern. Due to possible water supply contamination and/or air pollution or plume depending on the hazardous materials incident.

Plans and Programs Currently in Place

Minnesota Department of Public Safety (DPS), Homeland Security and Emergency Management (HSEM), Hazardous Materials Program. The hazardous Materials Program coordinates state agency activities for hazardous materials response. HSEM administers the financial/administrative and logistical components of the DPS' Hazardous Materials Regional Response Team Program. Division Hazardous Materials Program staff provide on-call technical assistance and response. The State Fire Marshal Division (SFMD), in a joint effort with HSEM, responds to hazardous materials incidents.

Minnesota Department of Health (MDH), Environmental Health Division (EHD). The mission of EHS is to reduce and prevent the occurrence of environmentally induced disease and injury. In this regard, EHD acts as an advocate and protector of public health. EHD is the principal agency of state government charged with responsibility for protecting the public health from exposures to environmental hazards.

Regional Hazardous materials Response Team Management. The Regional Hazardous Materials Response Teams are under the direction of the Commissioner of DPS, collaboratively managed by the HSEM and SFMD. The Commissioner believes that it is important to maintain a collaborative dialogue between the customers served by these two divisions. Teams are available for, and dispatched to assist local units of government in response to hazardous materials incidents that exceed local government response capabilities.

Minnesota Pollution Control Agency (MPCA). MPCA identifies, regulates and cleans up spills, leaks, and other hazardous materials that can affect our health and our environment.

Minnesota Department of Agriculture (MDA). MDA identifies, regulates and cleans up agricultural chemical spills, leaks and releases that can affect human health and/or the environment.

DPS, Emergency Response Commission (ERC). ERC is responsible for coordinating information about hazardous chemicals at facilities around the state so that local emergency officials can prepare for emergencies.

Great Lakes Commission (GLC). GLC offers educational materials about spill prevention and management in waterways.

Minnesota Office of Environmental Assistance (OEA). OEA offers public education in improving the environment, including hazardous materials information.

National Transportation Safety Board (NTSB). NTSB investigates significant transportation incidents involving hazardous materials and produces in-depth reports.

Superfund Amendments and Reauthorization Act (SARA). SARA amended the CERCLA on October 17, 1986. SARA reflected EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program. SARA also required EPA to revise the Hazard Ranking System (HRS) to ensure that it accurately assessed the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List (NPL).

Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). EPCRA, also known as Title III of SARA, was enacted by Congress as the national legislation on community safety. This law was designated to help local communities protect public health, safety and the environment from chemical hazards.

Occupational Safety and Health Administration (OSHA). Congress authorized the OSHA to establish rules and regulations to ensure worker and workplace safety. Their goal was to make sure employers provide their employees a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress or unsanitary conditions.

Toxic Substances Control Act (TSCA). TSCA of 1976 was enacted by Congress to give the EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the U.S. EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Clean Air Act (CAA). CAA is the comprehensive federal law that regulates air emissions from area, stationary and mobile sources. This law authorizes the EPA to establish National Ambient Air Quality Standards to protect public health and the environment.

Clean Water Act (CWA). CWA is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the U.S.

Gaps and Deficiencies

- First Responders may not know what hazardous materials are on scene at certain businesses or organizations. Also, the site's capabilities are unknown to the responders and vice versa.
- Containers holding hazardous materials may not be properly labeled.
- Personnel handling/transporting hazardous materials may not be properly trained to do so.
- DOT procedures for transporting hazardous materials may not be followed or properly enforced.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- Evaluate and implement new technology to improve information and data exchange during emergency response and recovery to:
 - Provide timely information and supporting decision-making.
 - Provide service through on-scene assistance immediately following a request for assistance.
 - Notify responders on a 24-hour-a-day basis.
 - Maintain continuous communication with responders.
 - Inform the public.
 - Coordinate the response of federal, state and local resources.
- Continue and expand use of mutual aid agreements and memoranda of understanding to improve coordination of state, local, and federal agencies and private sector entities.
- Purchase, train and use GIS capabilities available to map locations of hazardous materials fixed facilities, transport corridors and estimate the degree of risk based on analysis of populations and property exposed. (police, fire, ems, EM's)
- Develop the capability to integrate plume modeling software with GIS technology to model the potential hazards created by releases of liquid, gaseous or airborne solid hazardous materials for use in identifying and prioritizing needed mitigation projects.
- Assure compliance with all reporting mandates put out by State and Federal authorities in regards to hazardous materials incidents.
- Encourage all area residents to become aware of and prepare for hazardous materials emergencies likely to occur in their communities.
- Assure all OSHA mandates are followed and annual training is conducted.
- Ensure all fire responders are trained to at least the Hazardous Materials (HAZMAT) Awareness level and the Terrorism – Weapons of Mass Destruction Awareness level.
- Ensure a working partnership with DOT officials to assure compliance of hazardous materials safety measures.

Hazard: Water Supply Contamination

Water contamination is defined as the introduction of non-point source pollutants into public groundwater and/or surface water supplies.

As Ramsey's population increases and becomes more concentrated, threats to our drinking water systems are also increased. For instance, chemicals can migrate from disposal sites and contaminate sources of drinking water.

Animal wastes and pesticides are also a problem. They can be carried to lakes and streams by rainfall runoff or snow melt. Human wastes may be discharged into receiving waters that ultimately flow to water bodies used for drinking water.

Drinking water comes from surface water and from ground water. Large-scale water supply systems tend to rely on surface water resources such as rivers, lakes, and reservoirs. Smaller water systems tend to use ground water pumped from wells that are drilled into aquifers, geologic formations that contain water.

On average, our society uses almost 100 gallons of drinking water per person per day, yet only a small amount of this is actually consumed. Residential water use is mostly used for other purposes, such as toilet flushing, bathing, cooking, cleaning, and lawn watering. On average, the total cost of collecting, treating, and delivering water into our homes is only about \$2 per 1,000 gallons.

The U.S. Environmental Protection Agency (EPA), as required by the Safe Drinking Water Act, 1974, as amended, sets uniform nationwide minimum standards for drinking water. State public health and environmental agencies have the primary responsibility for ensuring that each public water supplier meets these federal drinking water standards, or more stringent ones as established by the state.

Nationwide, drinking water systems have spent hundreds of millions of dollars to build drinking water treatment and distribution systems, and they spend an additional \$22 billion per year to operate and maintain them. Currently, the nation's approximately 55,000 community water systems must test for more than 80 contaminants and for any violations of water treatment standards.

Water suppliers use a variety of treatment processes to remove contaminants from drinking water. The most commonly used processes include filtration, flocculation and sedimentation, and disinfections. A typical water treatment plant would have only the combination of processes needed to treat the contaminants known to exist in the source water supply used by the facility.

An ongoing water quality monitoring program is also required. One primary test is to measure the level of coliform bacteria from human and animal wastes. If found to exceed the standard, it is an indicator that the water has not been properly treated or disinfected, and that other harmful contaminants may be in the water as well. All violations must be reported and corrective actions must be implemented in accordance with the Safe Drinking Water Act.

Water suppliers must promptly inform the public if their supply becomes contaminated by something that can cause immediate illness. A public service announcement must be provided explaining the potential adverse effects on human health, the steps they are taking to correct the violation, and the need to use bottled water or other alternative water supplies until the problem is corrected.

For households on private wells, state and local health departments usually test and enforce standards, but maintenance and associated costs are generally borne by the homeowner. Once a year, private wells should be tested for coliform bacteria, nitrates, and other potential problems, as well as disinfected with bleach or hypochlorite granules in accordance with the manufacturer's instructions. The EPA has a website with additional guidance on the maintenance of private wells.

History

There are no records of a contamination to the water supply in Ramsey County.

Risk Assessment

All groundwater and surface water sources are vulnerable to contamination. This contamination can be the result of a variety of causes such as floods or inadequate irrigation management. A number of contaminants can get into the system such as human and animal waste, as well as hazardous materials. These can be introduced to the system by runoff, as a cascading effect of another hazard, or a direct effect of an act of terrorism.

Overall Vulnerability	
Frequency	Rarely
Intensity	High
Location	Countywide
Extent	Risk to life
Duration	Several days to weeks
Seasonal Pattern	No apparent pattern
Speed of Onset	Immediate
Warning Time	Minimal to none
Probability of Future Occurrences	Very Low

Impact on People and Housing

Effects on life are dependent on the specific contaminant in the water supply. In most cases, water treatment facilities can mitigate this potential impact for human consumption of the water. This could be a major public health concern or a minor one, depending on the cause of the contamination and the quickness in which it can be treated.

Depending on the extent (location) of the contamination, local beaches may not be suitable for the public to swim in. Signs would need to be posted and public service announcements should be made to alert residents to this.

Contamination of water supplies can have a subsequent impact on the use of property.

Impact on Commercial and Industrial Structures

The effects on commercial and industrial structures would depend on the type of business being conducted as well as how the water supply became contaminated. If the water supply was contaminated as the result of another hazard, then they may also be affected by the original hazard. However, if water supply contamination were the only hazard at hand, it would be affected by how much water affected the business they conducted.

The restaurant and food supply businesses and organizations would see the greatest impact. Alternative water sources would need to be brought in and used if boiling the water was not sufficient enough. These businesses would need to heed the advice of the public health officials.

Impact on Critical Infrastructure

Again, businesses and organizations that rely on water to operate may have a decreased productivity. Depending on the contaminant in the water, it may not be suitable for fire suppression as well. This would mean that an alternative water source and delivery of that water would need to be determined, and hopefully worked out well in advanced.

Health care facilities needing to use water will need to find alternative sources of water and methods of which to transport that water to their facilities as well.

Relationship with Other Hazards – Cascading Effects

Public Health Concern. Polluted human water sources can cause illness and epidemics in both humans and animals. The water may not be suitable for human or animal consumption and it may or may not be suitable for use outdoor, such as watering landscape.

Lack of water. The general public will need to find alternative sources of water, as will businesses and organizations that use water. This could cause mass panic and cause surrounding areas to be overtaxed on their water supply as their own residents worry about a shortage or as residents of Ramsey County begin to seek water in their communities.

Fire Suppression. This may be an issue if the water is not suitable for fire suppression due to the contaminants in it.

Plans and Programs Currently in Place

U.S. Army Corps of Engineers. The Corps administers the Planning Assistance to the State program, known as Section 22. This cost shared program allows for the development of plans for the use and conservation of water and related land resources, which can include water quality and water supply.

Ramsey County All-Hazard Mitigation Plan

Local governments, public water systems, the states, and Environmental Protection Agency (EPA) work together towards the goal of ensuring that all public water supplies are safe. The Minnesota Department of Health (MDH), Environmental Health Division is responsible for safe drinking water programs.

Safe Drinking Water Act of 1974. The U.S. EPA sets uniform nationwide minimum standards for drinking water. State public health and environmental agencies have the primary responsibility for ensuring that each public water supplier meets these federal drinking water standards, or more stringent ones established by the state.

Public water supply monitoring. The EPA requires an ongoing water quality monitoring program to ensure public water systems are working properly. Local officials work together with the MDH and the EPA to ensure that all public water supplies are safe. Also, the EPA requires all local suppliers to promptly inform the public if their supply becomes contaminated.

Minnesota Well Code. Since 1974, all water wells constructed in Minnesota must meet the location and construction requirements of the Minnesota Well Code. These requirements pertain to private wells, also. The MDH recommends that private wells be tested annually for contamination. However, private wells are maintained by the owner, and inspections are not required.

Gaps and Deficiencies

- Efforts to educate citizens with private wells are not well coordinated with state and federal efforts.
- There is no program promoting the importance of sealing unused wells on private lands. Sealing abandoned or unused wells would minimize the direct contamination of aquifers.

Resource Manual.

- There is no single listing of what the county or any communities within the county currently have as resources for any type of response to any hazard occurring within the borders of the county.

Recommendations

- State and local health departments, as required by the Safe Drinking Water Act, have strong programs in place for developing and maintaining the drinking water infrastructure and for the ongoing monitoring of drinking water quality.
- Assure that inspections of private wells are being conducted on a timely, routine basis.
- Assure compliance is being followed as to the violations noted and corrective actions that need to be taken.
- Assure that monitoring equipment at flood gauging stations upstream can alert the water plant to close intake valves if the water source becomes contaminated.
- Look into the replacement of combined storm and sewer outflow systems, which may have short-term disaster mitigation benefits as well as longer-term environmental ones.
- Identify alternate water sources and methods of transporting this water to its destination.

Priorities

The Ramsey County Division of Emergency Management and Homeland Security was given the opportunity to prioritize the mitigation projects listed in the Ramsey County All-Hazard Mitigation Plan. This was completed based on a number of factors. The results of the Hazard Analysis Survey that was conducted were used in setting priorities for completing projects. Also taken into consideration was the population in which the project would affect. Some projects will affect only a small portion of the county, where as other projects are countywide and the priority ratings reflect that. Furthermore, the current resources available to complete a particular project were noted, including current staffing levels, available funding and equipment. All of these factors played into how each was prioritized, what a projected timeframe for completion is, and where possible additional funding sources lie.

Do know that priorities are constantly changing. Budgets, policies, changes in elected officials and upgrades in technology can and do affect what is considered important. When funding becomes available from additional sources, Ramsey County and the Mitigation Committee will review the projects to determine if the original priorities are still valid. The Ramsey County Division of Emergency Management and Homeland Security is committed to keeping mitigation itself a priority and will continue to pursue opportunities to mitigate or eliminate the effects of disasters whether natural or human induced.

*For the following Goals section the following terms have the subsequent definitions.

High: top priority and should be completed within the next year or two.

Medium: project that needs completion within two to three years or on-going attention.

Low: non-critical project to be completed in five years or an on-going project.

Goals, Strategies and Action Plans

Hazard:

Extreme Temperatures

Goal 1:

To reduce the loss of life and damage to property due to extreme temperatures.

Strategy 1:

Conduct a comprehensive public education campaign on extreme temperatures.

Action Plans:

1. Conduct education on the health risks of extreme temperatures and the safety measures that should be taken.
2. Conduct education on proper vehicle maintenance to ensure vehicles will work properly in hot or cold temperature extremes.
3. Conduct education on heating or cooling shelters if they are available and how people can get to and from them.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	On-going	St. Paul-Ramsey County Public Health	Existing staff, HMGP
Low	On-going	Municipal & County Public Works	Existing staff, HMGP
Low	As necessary	St. Paul-Ramsey County Public Health	Existing staff, HMGP

Strategy 2:

Ensure heating and air-conditioning is available to all.

Action Plans:

1. Ensure Red Cross maintains sufficient shelter sites.

2. Identify transportation methods to shelter sites.
3. Reduce impact of cascading electrical outages by ensuring backup generators at shelter sites.

4. Establish criteria that would not allow power companies to turn off power to any customers.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	On-going	Red Cross	Existing staff
Medium	Fall 2007	Municipal & County Emergency Management Agencies	Existing staff
Medium	Fall 2007	Red Cross	PDM and HMGP Grants
Medium	Fall 2007	Municipal & County Emergency Management Agencies	Existing staff

Strategy 3:

Provide early warning and notification of extreme temperature conditions.

Action Plans:

1. Recruit CERT, VOAD, and other volunteer organizations to inventory Ramsey County and identify the vulnerable populations and check on these individuals at the time of a crisis or disaster.
2. Provide warning and notification in alternative languages: ECHO

Priority	Timeframe	Lead Agency	Funding Source(s)
N/A	Completed	Researched was conducted and this was found to not be a feasible option. There are current policies in critical areas that are in place as necessary. No further action will be pursued.	
Medium	On-going	Partners in ECHO	Existing staff and HMGP

Hazard:

Infectious Diseases

Goal 1:

To reduce the loss of life in the event of an infectious disease outbreak.

Strategy 1:

To help citizens survive an infectious disease outbreak.

Action Plans:

1. Coordinate with public health officials to provide information to the public on infectious diseases and precautions to take.
2. Organize, plan, train, equip and exercise with appropriate public health officials and emergency responders, including hospitals, clinics and nursing homes.
3. Write quarantine plans.
4. Identify sites for mass clinics.
5. Determine what equipment will be needed for the mass clinic sites.
6. Determine security and transportation needs for mass clinic sites.
7. Ensure the St. Paul - Ramsey County Department of Public Health routinely reviews and revises the Public Health All-Hazard Preparedness and Response Plan.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	As necessary	St. Paul-Ramsey County Public Health	Existing staff
High	On-going	St. Paul-Ramsey County Public Health, Municipal & County EMA	Existing staff, HSGP
High	Fall 2007	St. Paul-Ramsey County Public Health, Municipal & County Attorneys	Existing staff, HRSA
N/A	Completed	St. Paul-Ramsey County Public Health	CRI, HSGP
High	Fall 2007	St. Paul-Ramsey County Public Health	Existing staff
High	Fall 2007	St. Paul-Ramsey County Public Health, Local First Responders	Existing staff, HSGP
Medium	As necessary	St. Paul-Ramsey County Public Health	Existing staff

Strategy 2:

To provide early warning to the public regarding an infectious disease outbreak.

Action Plans:

1. Early detection and notification of appropriate officials.
2. Ensure appropriate use of the Health Alert Network (HAN).
3. Provide information to the public regarding signs and symptoms and what actions to take.
4. Provide communication in alternate languages: ECHO.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	On-going	St. Paul-Ramsey County Public Health	Existing staff
Low	As necessary	St. Paul-Ramsey County Public Health	Existing staff
High	As necessary	St. Paul-Ramsey County Public Health	Existing staff
High	As necessary	St. Paul-Ramsey County Public Health	Existing staff, HMGP

Hazard:

Precipitation

Goal 1:

An educated and responsive public in regards to flooding.

Strategy 1:

Provide early warning and notification of flooding.

Action Plans:

1. Conduct public education on the EAS system.
2. Encourage people to purchase NOAA All-Hazard Radios.
3. Provide warnings and notification in alternate languages: ECHO.

Strategy 2:

Conduct a comprehensive public education campaign on flooding.

Action Plans:

1. Conduct public education on the NFIP.

2. Conduct public education on clean up activities after a flood.
3. Conduct public education on the risks associated with flash flooding.
4. Conduct public education on the ways to prevent flash flooding.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	Fall 2008	Municipal & County EMA	Existing staff, HMGP
Low	On-going	Municipal & County EMA	Existing staff
Low	As necessary	Partners in ECHO Project	Existing staff

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	On-going	County EMA	Existing staff, HMGP
Low	On-going	Municipal & County Public Works, Environmental Health	Existing staff, HMGP
Low	On-going	County EMA	Existing staff, HMGP
Low	On-going	County EMA	Existing staff, HMGP

Goal 2:

To prevent damage to property from flooding.

Strategy 1:

Identify areas that are prone to flooding.

Action Plans:

1. Identify means to prevent sewer back ups.

2. Identify means to improve drainage in areas that are prone to flooding.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	Fall 2008	Municipal & County Public Works	Existing staff, HMGP, PDM
Low	Fall 2008	Municipal & County Public Works	Existing staff, HMGP, PDM

Goal 3:

To lessen the effects of a drought.

Strategy 1:

Identify areas and populations that are vulnerable to a lack of water.

Action Plans:

1. Identify sources of potable water and transportation for it.

2. Assure adequate water reserves are intact.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	Fall 2008	Municipal & County EMA	Existing staff
Low	Fall 2008	Municipal & County Public Works	Existing staff, HMGP, PDM

Ramsey County All-Hazard Mitigation Plan

Goal 4:

An educated and responsive public in regards to drought conditions.

Strategy 1:

Conduct a comprehensive public education campaign on drought and water restriction activities.

Strategy 2:

Provide early warning and notification of drought conditions.

Action Plans:

1. Encourage people to purchase NOAA All-Hazard Radios.
2. Provide warnings and notification in alternate languages: ECHO.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	On-going	Municipal & County EMA	Existing staff
Low	As necessary	Partners in ECHO Project	Existing staff

Hazard:

Summer Storms

Goal 1:

Safe and accessible shelter from violent storms.

Strategy 1:

All single family homes without basements have a safe shelter where household residents may go in case of violent storms.

Strategy 2:

Multi-unit residential developments without basements have a safe shelter where household residents may go in case of violent storms.

Strategy 3:

All manufactured home parks have a safe shelter for park residents either through a structure on site or a plan of evacuation to a safe shelter off site.

Strategy 4:

All hospitals, nursing home facilities, and schools have a severe storm plan in place to protect patients and students.

Action Plans:

1. Assess all county facilities with regard to storm safety shelter adequacy and limitations.
2. Ensure all county facilities have building emergency plans and procedures in place.
3. Pass ordinances that require all new construction and any remodeling to include safe shelter areas.
4. Pass ordinances that require community shelters in developments that have slab on grade housing.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Fall 2007	County EMA	Existing staff
High	Fall 2007	County EMA	Existing staff
High	Fall 2008	Municipal & County Code Enforcement	Existing staff
High	Fall 2008	Municipal & County Code Enforcement	Existing staff

Ramsey County All-Hazard Mitigation Plan

Goal 2:

Ensure an adequate severe storm warning system for the entire county.

Strategy 1:

Early warning and reliable notification of emergency management personnel, county sheriff, emergency response persons and the public as soon as possible in the event of a severe storm warning.

Strategy 2:

Fully functioning emergency sirens.

Strategy 3:

All sectors of the county have immediate access to severe weather warnings.

Action Plans:

1. Evaluate the county's current warning system: how the county is notified; who is notified, how people and organizations within the county are notified.
2. Secure funding to upgrade the county warning system.
3. Inventory and assess adequacy of the county and cities emergency sirens.
4. Encourage more volunteers to become active in the severe storm spotters network.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	County EMA	Existing staff, HMGP
Medium	Spring 2009	City Councils & County Board	Existing staff, HSGP
Medium	Fall 2008	Municipal & County EMA	Existing staff, HSGP
Low	On-going	Municipal & County EMA	Existing staff

Goal 3:

Ensure infrastructure is protected at the time of severe summer storms.

Strategy 1:

Protect new and existing local electrical/telephone distribution lines.

Strategy 2:

Control tree growth in power line right-of-ways.

Strategy 3:

Protect county structures from lightning strikes.

Strategy 4:

Develop cooperative ventures with cities and townships to make the most efficient and effective use of road maintenance equipment in weather related emergencies to provide for rapid recovery efforts.

Action Plans:

1. Ensure municipalities and County have current emergency operation plans.
2. Restore traffic ability in a timely manner.
3. Provide for debris removal and disposal activities.
4. Enhance strategies for debris management activities.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Fall 2006	Municipal & County EMA	Existing staff
High	As necessary	Municipal & County Public Works	Existing staff
Medium	As necessary	Municipal & County Public Works	Existing staff
Medium	Fall 2008	Municipal & County Public Works	Existing staff, HMGP

Ramsey County All-Hazard Mitigation Plan

Strategy 5:

Work with utility companies on restoration prioritization.

Action Plans:

1. Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorms: aggressive trim back program.
2. Encourage development and enforcement of wind-resistant building sitting and construction codes.
3. Require the burying of utility lines whenever the streets are dug up.
4. Conduct a feasibility studying on looping electric power feeds.
5. Explore options for requiring that existing power and telephone lines be placed underground at time of movement or replacement.
6. Amend county zoning ordinances and county subdivision regulations to require burial of all new power distribution and telephone lines before any new subdivision plat will be approved or building permit be issued. Encourage the cities' planning commissions and city councils to adopt similar language in their ordinances.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	Municipal & County Public Works	Existing staff, HMGP, PDM
Medium	Fall 2008	Municipal & County Code Officials (Government Admin.)	Existing staff, HMGP, PDM
Medium	On-going	Municipal & County Public Works & Government Admin.	Existing staff, HMGP, PDM
Medium	Fall 2008	Municipal & County Public Works	Existing staff, HMGP
Medium	Fall 2008	Municipal & County Public Works & Government Admin.	Existing staff, HMGP, PDM
Medium	Fall 2008	Municipal & County Government Admin.	Existing staff, HMGP, PDM

Goal 4:

An educated and responsive public in regards to summer weather.

Strategy 1:

Conduct a comprehensive public education campaign.

Action Plans:

1. Promote Severe Weather Awareness Week.
2. Educate the public on the dangers of straight-line winds and windstorms.
3. Encourage securing of personal property prior to storms.
4. Provide public awareness on safe sheltering.
5. Further educate public on warning signals.
6. Conduct education on warning signals in alternate languages: ECHO.
7. Encourage people to purchase NOAA All-Hazard Radios.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Annually	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
High	On-going	Partners in ECHO Project	Existing staff, HMGP
High	On-going	Municipal & County EMA	Existing staff, HMGP

Hazard:

Winter Storms

Goal 1:

Safe and accessible roadways for all.

Ramsey County All-Hazard Mitigation Plan

Strategy 1:

Ensure that emergency vehicles can safely travel on roadways.

Action Plans:

1. Ensure there is an adequate supply of snowplows on hand.
2. Ensure there is an adequate supply of sand and other snow removing chemicals in stock at all times during the winter season.
3. Enforce "Snow Emergency Routes" for parking issues to allow for timely and efficient plowing of streets.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	As necessary	Municipal & County Public Works	Existing staff
High	As necessary	Municipal & County Public Works	Existing staff
High	As necessary	Municipal & County Law Enforcement	Existing staff

Goal 2:

An educated and responsive public in regards to winter weather.

Strategy 1:

Conduct a comprehensive public education campaign.

Action Plans:

1. Promote Winter Hazard Awareness Week.
2. Promote winter survival kits.
3. Increase public awareness of severe winter storm mitigation activities.
4. Encourage the public to purchase NOAA All-Hazard Radios.
5. Educate the public on the importance of winter weather advisories and what actions they should take.
6. Encourage citizens to purchase food and other necessary supplies to live off of for a minimum of 3 days.
7. Conduct education on Winter Weather Awareness in alternate languages: ECHO.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Annually	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
High	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
Medium	On-going	Municipal & County EMA	Existing staff, HMGP
High	On-going	Partners in ECHO Project	Existing staff, HMGP

Goal 3:

Ensure an adequate severe storm warning system for the entire county.

Strategy 1:

All sectors of the county have immediate access to severe weather warnings.

Action Plans:

1. Evaluate the county's current warning system: how the county is notified; who is notified; how people and organizations within the county are notified.
2. Secure funding to upgrade the county warning system.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	County EMA	Existing staff, HMGP
Medium	Spring 2009	Municipal & County Government Admin.	Existing staff, HMGP

Hazard:

Dam Failure

Goal 1:

Continued structural integrity of the Lock and Dam #1.

Ramsey County All-Hazard Mitigation Plan

Strategy 1:

Ensure the dam is maintained and functioning properly.

Action Plans:

1. Coordinate with the DNR to ensure that dam inspections are done as scheduled.

*Further goals will be set forth in the City of St. Paul Hazard Mitigation Plan.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	County Engineer	Existing staff, HMGP, PDM, HSGP

Hazard:

Domestic Preparedness

Goal 1:

To reduce the loss of life and property in the event of a terrorist attack whether domestic or foreign in origin.

Strategy 1:

Ensure first responders are properly prepared to respond to a terrorist attack.

Action Plans:

1. Organize, plan, train, equip, and exercise all 10 first responder disciplines, as defined by the Office of Domestic Preparedness, to a minimum level of training as defined by the UASI Strategy.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	County EMA	Existing staff, HMGP, HSGP

Goal 2:

Assure timely and accurate notification to the public of any necessary safety measures that need to be implemented.

Strategy 1:

Identify the immediate concern.

Action Plans:

1. Give the public information on basic measures that can be taken to protect themselves that is simple, easy to follow, and designed not to cause either panic or ridicule.

2. Ensure the message is relayed in alternate languages: ECHO.

*See the UASI Strategy for further goals. The UASI Strategy is not included in this document and is available upon written request only.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	As necessary	Municipal & County EMA & Law Enforcement	Existing staff
High	As necessary	Partners in ECHO Project	Existing staff, HMGP, HSGP

Hazard:

Fire

Goal 1:

Protect structures from fires.

Strategy 1:

Improve prevention and response efforts countywide.

Ramsey County All-Hazard Mitigation Plan

Action Plans:

1. Pass an ordinance requiring prompt removal of snow around commercial and industrial buildings in order to ensure access for fire and other emergency equipment.
2. Identify roadways of insufficient width to handle fire trucks and establish priorities and approaches for addressing deficiencies.
3. Ensure Fire Code is up-to-date and fire inspections are being conducted.

4. Ensure heat and smoke detectors are in place.

5. Ensure fire extinguishers and fire pull stations are in place.

6. Ensure building evacuation plans are written and practiced.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	Municipal & County Government Admin.	Existing staff, Fire Grants
Medium	Spring 2009	Municipal Fire Agencies	Existing staff, Fire Grants, HMGP
Medium	On-going	Municipal Fire Agencies	Existing staff
Medium	On-going	Municipal Fire Agencies	Existing staff, Fire Grants, HMGP
Medium	On-going	Municipal Fire Agencies	Existing staff, Fire Grants, HMGP
Medium	On-going	Municipal & County EMA & Municipal Fire Agencies	Existing staff, HMGP

Goal 2:

An educated and responsive public.

Strategy 1:

Conduct a comprehensive public education campaign.

Action Plans:

1. Provide school programs to youth, focusing on stoves, smoke detectors, fire safety and evacuation.
2. Provide public education to homeowners, focusing on chimney inspections, electrical systems, flammable materials, heating systems, household chemicals and evacuation, as well as use of fire extinguishers.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	On-going	Municipal Fire Agencies	Existing staff, Fire Grants, HMGP
Medium	On-going	Municipal Fire Agencies	Existing staff, Fire Grants, HMGP

Hazard:

Hazardous Materials

Goal 1:

Emergency personnel and other potentially affected parties are informed about hazardous materials located in and transported through the county.

Strategy 1:

Create or revise current policies and programs that assist in creating factual and timely information about hazardous materials locations and transportation.

Action Plans:

1. Assure GIS has updated, accurate information for mapping of 302, 312, 313 facilities.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	On-going	County GIS, County EMA, & Municipal Hazmat & Fire Agencies	Existing staff, Fire Grants, HMGP, HSGP

Ramsey County All-Hazard Mitigation Plan

Goal 2:

An educated and informed public.

Strategy 1:

Conduct a comprehensive public education campaign.

Action Plans:

1. Develop a local public relations campaign to educate potentially affected parties about the various hazardous materials that are in the county.
2. Develop an emergency warning system to warn and instruct citizens as to the existence of a specific hazard and what to do.
3. Conduct public warnings and notifications in alternate languages: ECHO.
4. Encourage people to purchase NOAA All-Hazard Radios.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	Municipal Fire & Hazmat Agencies & Municipal & County EMA	Existing staff, Fire Grants, HMGP
Medium	Fall 2008	Municipal Fire & Hazmat Agencies & Municipal & County EMA	Existing staff, Fire Grants, HMGP
High	As necessary	Partners in ECHO Project	Existing staff, HMGP
High	On-going	Municipal & County EMA	Existing staff, HMGP

Goal 3:

Train and equip all field response first responders to a minimum hazardous materials awareness level.

Strategy 1:

Determine minimum standard for training.

Action Plans:

1. Conduct training for all fire personnel to a minimum standard.
2. Implement the standard for all new recruits.
3. Exercise training.
4. Conduct training on the MN Duty Officer program offered by HSEM.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	On-going	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
Medium	On-going	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
Low	Spring 2009	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
Medium	On-going	Municipal Fire & Hazmat Agencies	Existing staff

Goal 4:

Increase security at high profile hazardous material sites.

Strategy 1:

Determine these sites.

Action Plans:

1. Determine the criteria to select these sites.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2008	Municipal Fire & Hazmat Agencies & Municipal & County Law Enforcement & EMA	Existing staff, Fire Grants, HMGP, HSGP

Ramsey County All-Hazard Mitigation Plan

2. Determine cost effective ways to provide higher levels of security at these sites (i.e. security cameras, fencing, monitoring devices, on-site patrols).

Medium	Spring 2009	Municipal Fire & Hazmat Agencies & Municipal & County Law Enforcement & EMA	Existing staff, Fire Grants, HMGP, HSGP
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Goal 5:

Reduce the risk to all people working in and around chemicals, including emergency responders.

Strategy 1:

Identify potential chemical hazards.

Action Plans:

1. Ensure chemicals are labeled properly (including all placards and MSDSs are in place).
2. Ensure chemicals are stored in proper, secured containers and facilities.
3. Ensure decontamination/first aid stations are available at facilities that utilize chemicals and that appropriate training is conducted on the use of them.
4. Ensure evacuation plans and emergency procedures are in place at facilities that have hazardous materials on-site.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Fall 2008	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
High	Fall 2008	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
High	Fall 2008	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP
High	Fall 2008	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP

Goal 6:

Ensure a working relationship between first responders and facilities containing hazardous materials.

Strategy 1:

Ensure first responders are prepared to respond to a hazardous materials incident.

Action Plans:

1. Organize, plan, train, equip and exercise with facilities containing hazardous materials.
2. Purchasing detection equipment and train on how to use the equipment.

Priority	Timeframe	Lead Agency	Funding Source(s)
High	Fall 2007	Municipal Fire & Hazmat Agencies & County EMA	Existing staff, Fire Grants, HMGP, HSGP
Medium	Fall 2009	Municipal Fire & Hazmat Agencies	Existing staff, Fire Grants, HMGP, HSGP

Hazard:

Water Supply Contamination

Goal 1:

Safe drinking water for all county residents at all times.

Strategy 1:

Provide adequate drinking water in the event of ground water contamination.

Ramsey County All-Hazard Mitigation Plan

Action Plans:

1. Identify sources for obtaining bottled water, including bottled water distributors and local grocery stores.
2. Identify means of transporting potable water.
3. Provide education materials on protecting water supplies (including well inspections) and preparing for water emergencies.
4. Gather and map information about the surface and subsurface water sources of the county.

Priority	Timeframe	Lead Agency	Funding Source(s)
Medium	Fall 2009	Municipal & County EMA	Existing staff, HMGP, PDM
Medium	Fall 2009	Municipal & County EMA	Existing staff, HMGP, PDM
Low	Fall 2009	St. Paul-Ramsey County Public Health	Existing staff, HMGP, PDM
Low	Fall 2009	County GIS	Existing staff, HMGP, PDM

Goal 2:

Quality ground water resources.

Strategy 1:

Stop contaminants from entering ground water.

Strategy 2:

Protect wellhead areas.

Action Plans:

1. Establish an abandoned well sealing program within the county.
2. Create Wellhead Protection Plans.
3. Ensure all communities over 3,300 in population are completing their Water Vulnerability Assessment.

Priority	Timeframe	Lead Agency	Funding Source(s)
Low	Fall 2009	St. Paul-Ramsey County Public Health	Existing staff, HMGP, PDM
Low	Fall 2009	St. Paul-Ramsey County Public Health	Existing staff, HMGP, PDM
Low	Fall 2009	St. Paul-Ramsey County Public Health	Existing staff, HMGP, PDM

Ramsey County All-Hazard Mitigation Timeline Overview

2004

March

General research and meetings with other counties working on their plans.

May

Additional research and map requests submitted. Interview local “experts.”



September

Public meetings will be held.

October

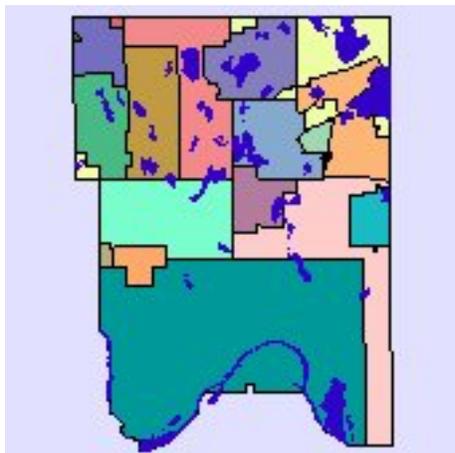
Plan presented to city and county managers.

November

Plan submitted to FEMA and State.

2005 – 2006

Implement plan and monitor progress.



Krysta Reuter
Ramsey County
Emergency Management & Homeland Security

Ramsey County All-Hazard Mitigation Timeline Detailed

March 2004

- ❖ Read through FEMA “How-to-Guides”
- ❖ General research on mitigation planning
- ❖ Read through other County’s mitigation plans throughout the Country
- ❖ Work with St. Paul on plan
- ❖ Reviewed State’s All-Hazard Mitigation Plan
- ❖ Reviewed State’s “Careful County Plan:” Mock Plan

April 2004

- ❖ Meet with Washington County to get feedback on planning and general guidance
- ❖ Spoke with State Mitigation Officers for preliminary discussion on Ramsey County’s plan
- ❖ Reviewed Goodhue County’s plan
- ❖ Spoke with and reviewed draft of Dakota County’s plan

May 2004

- ❖ Additional research conducted
- ❖ Went to MN Historical Society for weather data research
- ❖ Went to MN History Museum to collect info
- ❖ Began Community Profile section

June 2004

- ❖ Began interviewing local “experts”
- ❖ Census research
- ❖ Conducted history of Ramsey County research, including contacting the Ramsey County History Museum
- ❖ Gathered info on “Major Employers” within Ramsey County

July 2004

- ❖ Convene the Policy/Planning Committee
- ❖ Set up times and locations for public meetings for September
- ❖ Draft up PowerPoint Presentation
- ❖ Prepare take-home handouts and surveys
- ❖ Add information to Website: Homepage & Public Education
- ❖ Start hazard info and assessment: Review ODP Jurisdictional Assessment Report from October 2003

August 2004

- ❖ Draft Mitigation Goals, Objectives and Strategies
- ❖ Conduct surveys: at meetings and via the web
- ❖ Spoke with State Mitigation Officer
- ❖ Send out News Release
- ❖ Mail out Municipal Resolution

September 2004

- ❖ Meet with City Officials
- ❖ Meet with County Manager
- ❖ Conduct 5 public meetings

October 2004

- ❖ Gather resolutions from City Officials
- ❖ Complete any necessary revisions

November 2004

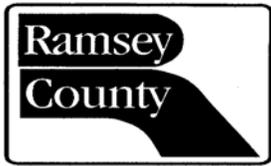
- ❖ Submit Ramsey County All-Hazard Mitigation Plan to FEMA and MN HSEM

Participants for the Ramsey County All-Hazard Mitigation Plan

Name	Title	Agency
Local Emergency Management		
Krysta Reuter	Emergency Management Coordinatior	Ramsey County Emergency Management & Homeland Security
Judd Freed	Director	Ramsey County Emergency Management & Homeland Security
Bill Hughes	Emergency Management Coordinatior	Ramsey County Emergency Management & Homeland Security
Kristy Gisch	Intern	Ramsey County Emergency Management & Homeland Security
Walter Johnson	Emergency Manager	Shoreview
Jim Daly	Emergency Manager	North Oaks
Tim Bulter	Emergency Preparedness Coordinator	St. Paul
Dave Pleasants	Emergency Manager	St. Paul
Bob Dollerschell	Emergency Manager	Maplewood
Neighboring Emergency Management		
Dave Gisch	Emergency Preparedness Coordinator	Dakota County Emergency Preparedness
B.J. Battig	Risk Manager	Dakota County Operations Management Department
Meg Grove	Community Services Planning	Dakota County
Kelli Swanson	Mitigation Intern	Washington County Emergency Services
Judy Rue	Assistant Director	Hennepin County Emergency Preparedness
Local and County Government		
Mary Karcz	Senior Policy Analyst	Ramsey County, County Manager's Office
Terry Speiker	Director, Intergovernmental Relations	Ramsey County, County Manager's Office
Dave Verhasselt	Public Communications Manager	Ramsey County
Sue Gehrz	Mayor	Falcon Heights
Heather Worthington	City Administrator	Falcon Heights
Mark Sather	City Administrator	White Bear Lake
Local Emergency Responders		
Jeff Lanenberg	Supervisor	Allina Medical Transportation
Vince Pellegrin	President	North Suburban Hazmat Team
Bob Jacobson	Director	New Brighton Public Safety
JR Schmahl	Captain	White Bear Lake Police Department
Tim Vadnais	Chief	White Bear Lake Fire Department
Randy Johnson	Sergeant	Roseville Police Department
Steve Lukin	Chief	Maplewood Fire Department
Tim Boehlke	Chief	Lake Jo Hanna Fire Department
George Altendorfer	Sergeant	RCSO
Doug Biehn	Lieutenant	RCSO, WMD Unit
Gary Olding	Assistant Fire Chieft	RCSO, WMD Unit

Participants for the Ramsey County All-Hazard Mitigation Plan

Name	Title	Agency
Public Safety Answering Points (PSAP)		
Joe Dillenburg	Public Safety Communications Supervisor	RCSO PASP
John Sells	Support Services Supervisor	White Bear Lake PSAP
Marsha Pacolt	Supervisor	Maplewood PSAP
Emergency Response Organizations		
Kay Owens	Director of Health and Safety Services	Red Cross
Bill McNally	Manager of Disaster Services	Red Cross
Walter Loos	Director of Emergency Services	Red Cross
Chrissie Morrison	Divisional Emergency Disaster Services Director	Salvation Army
Area Businesses & Interest Groups		
Kathy Sobieck	Supervisor, Investigations & Security Services	Minnesota Mutual
Steve Roberts	Environmental Health & Safety Manager	3M
Sonia Pitt	Homeland Security Planning Director	Minnesota Department of Transportation
Joe Harris	Airports Manager - Reliever Airports	Metropolitan Airport Commission
Public Health		
Rob Fulton	Director	St. Paul - Ramsey County Department of Public Health
Jane Norbin	Director, Health Policy & Planning	St. Paul - Ramsey County Department of Public Health
Dick Ragan	Assistant to the Director	St. Paul - Ramsey County Department of Public Health
Lillian McDonald	Public Information Officer	St. Paul - Ramsey County Department of Public Health
County Services		
Ken Haider	Director	Ramsey County Public Works
Carla Coates	GIS Analyst	Ramsey County Public Works, GIS
Greg Mack	Director	Ramsey County Parks and Recreation
Mike Mattson	Director of Arena Services & Buildings	Ramsey County Parks and Recreation
Fred Logman	Director (former)	Ramsey County Information Services
Mary Mahoney	Director of Administration Services	Ramsey County Information Services
Dr. Michael McGee	Medical Examiner	Ramsey County
Tom Petersen	District Manager	Ramsey Soil and Water Conservation District



News

www.co.ramsey.mn.us
Dave Verhasselt
Communications Manager
Phone: 651-266-8017
Mobile: 651-402-0059

Friday, September 10, 2004

NEWS ADVISORY: Citizen input on Ramsey County Emergency Pre-disaster Plan sought

WHO: Any interested area residents

WHAT: Preparing all disaster response plan for Federal Government

WHEN/ WHERE: Schedule for Public Meetings:

Thursday, September 16:

Shoreview City Council Chambers from 7:00-9:00pm. 4600 Victoria Street North, Shoreview MN

Thursday, September 23:

Falcon Heights City Council Chambers from 7:00-9:00pm. 2077 W. Carpenter Ave., Falcon Heights, MN

Monday, September 27:

Maplewood Fire Station #2 from 7:00-9:00pm. 1955 Clarence St., Maplewood, MN

Wednesday, September 29:

Roseville Oval from 7:00-9:00pm. 2661 Civic Center Drive, Roseville, MN

Thursday, September 30:

White Bear Lake Police Department from 7:00-9:00pm. 4701 Highway 61, White Bear Lake, MN

How should Ramsey County and local communities respond in the event of a major fire? a flood? Any natural disaster? incident of terrorism? That is a question Ramsey County Emergency Management and Homeland Security officials are working to answer with the help of local Emergency responders and the public. The Ramsey County All-Hazard Mitigation Plan will be aimed at helping the communities in the county to mitigate (prepare) for a variety of hazards, such as flooding, tornadoes, and terrorism before they occur. The plan will outline goals; objectives and strategies for the county in order to better prepare and coordinate efforts for disasters. This in turn will help to reduce the costs when hazards do occur.

The public is invited to any or all of the public meetings scheduled above to share their input and ideas about how to lessen the effects of a disaster that may face Ramsey County and East Metro communities.

The County officials will incorporate the public input into the Ramsey County All-Hazard Mitigation Plan. If you are unable to attend any of the public meetings, you are encouraged to review a draft of the plan and submit comments on it at the Ramsey County Emergency Management and Homeland Security Website. Please submit comments by Friday, October 1, 2004.

www.co.ramsey.mn.us Click on Emergency Management

MEDIA/INTERVIEW CONTACT:

Krysta Reuter

Office: 651-266-1015

Mobile: 612-387-0974

Ramsey County All-Hazard Mitigation Plan Public Meeting

Agenda

1. Introductions
2. Hazard History in Ramsey County
3. Overview of Emergency Management
4. Hazard Mitigation Plan:
 - a. Why write a mitigation plan?
 - b. The benefits of mitigation
 - c. The components of the plan
5. Goals, Strategies & Action Plans
6. Approval Process & Deadline

**Ramsey County All-Hazard Mitigation Survey
August 2004**

Prepared by: Krysta Reuter, RCEMHS

1. Where in Ramsey County do you live? Please list the City or Township.
2. Are you employed by or do you volunteer with any of the following agencies:
 ◇Law Enforcement ◇Fire ◇EMS
 ◇Public Works ◇Public Health ◇Emergency Management
3. Are you a member of the Armed Forces (whether active duty, reserve or National Guard)?
 ◇Yes ◇No

Use the list in question 4 to answer questions: 5 - 8

4. Which of these events have occurred at your home or in your neighborhood during the past 10 years?
 ◇Brush or Wildfire ◇Bomb/Explosion ◇Blizzard
 ◇Flood or Flash Flood ◇School Violence ◇Heavy Snow Fall
 ◇Tornado ◇Workplace Violence ◇Ice or Sleet
 ◇Severe Thunderstorm ◇Cyber Terrorism ◇Extreme Cold
 ◇Lightning ◇Terrorism ◇Extreme Heat
 ◇Wind Storm ◇Structure Fire ◇Hail Storm
 ◇Drought ◇Dam or Levee Failure Power Failure for 2 hours+
 ◇Train Accident ◇Aircraft Crash ◇Civil Disturbance
 ◇Food Supply Contamination ◇Water Supply Contamination
 ◇Road Closure due major traffic accident ◇Nuclear Power Plant Emergency
 ◇Hazardous Materials release from a building
 ◇Hazardous Materials release from a: pipeline, truck, train, or aircraft
5. Did you have to leave your home because of any of these events? If so, which events and why?
6. Did you lose time at work or school because of any of these events? If so, which events and why?
7. Which of these events do you foresee happening in the near future?
8. Of these events, which would have them would have the greatest impact on you and your family?

Ramsey County All-Hazard Mitigation Plan

9. Of the following events, what are you most concerned about happening in the future?

- ◇Severe Summer Storms
- ◇Severe Winter Storms
- ◇Chemical attack
- ◇Biological attack
- ◇Incendiary, Explosive or some other kind of kinetic weapon
- ◇Emergencies caused by a criminal act
- ◇Emergencies caused by a hazardous materials release (accidental)
- ◇Emergencies caused by a hazardous materials release (intentional)
- ◇Public Health Emergencies: Infectious Diseases

10. Of the events listed in number 9, list the ones you think are most likely to occur.

11. What facilities in your community do believe to be “critical” at the time of an emergency?

12. Do you have a pet? If so, do you have a plan in place in case you need to evacuate or shelter in place?

13. Do you have a home fire or other emergency plan?

- ◇Yes
- ◇No

14. Do you have an emergency kit? If so, what items have you placed in it (water, food, flashlights, etc.)?

15. Are there emergency plans at your place of employment? If so, do you practice them?

16. Do you own a NOAA Weather Radio? If so, is your NOAA Weather Radio S.A.M.E. (Specific Area Message Encoding) Capable?

17. Are you familiar with the EAS (Emergency Alert System)?

18. Can you receive emergency warning information on your pager, cell phone or other wireless messaging device? If not, would you like to?

19. Would you be interested in:

◇Joining or forming a block club?

◇Learning about what you can do to protect yourself and your family?

◇Learning first aid, rescue or other skills to help your neighbors when emergency services cannot come right away?

◇Becoming a volunteer with your local fire or police department, public health agency or emergency management agency?

◇Becoming a volunteer with one of the many disaster relief agencies in your area (Red Cross, Salvation Army, etc.)?

◇Helping your community develop, revise or maintain emergency plans?

*Please list your name and how we may contact you if you would like additional information on these opportunities.

20. Please list any general comments or concerns you may have. If you would like us to follow up with you on any of these concerns, please list your name and how we may contact you.

THURSDAY, SEPTEMBER 23, 2004 | WWW.TWINCITIES.COM

PIONEER PRESS



HAPPENINGS

Disaster planning meetings under way

St. Paul suburban residents are hearing how to lessen the impact of natural, manmade and accidental disasters.

In a series of meetings, Ramsey County's Office of Emergency Management and Homeland Security is discussing a work in progress, an All-Hazard Mitigation Plan required of communities by the federal government.

The next meeting is tonight at Falcon Heights City Hall. Others are scheduled Monday at Maplewood Fire Station No. 2, Wednesday at the John Rose Minnesota Oval in Roseville, and Sept. 30 at White Bear Lake Police headquarters. All meetings begin at 7 p.m.

For more information:
www.co.ramsey.mn.us/emergencyservice.

Your Best Source for Community Information

Shoreview Press

TUESDAY, SEPTEMBER 14, 2004

www.press-publication.com

Public input sought on emergency plan

Ramsey County is asking for residents' input on emergency response plans.

How should the county and local communities respond in the event of a major fire, flood, natural disaster or terrorist incident?

Ramsey County Emergency Management and Homeland Security officials plan to incorporate public input in disaster response plans they are currently preparing.

The public is invited to attend a meeting from 7 to 9

p.m. Thursday, Sept. 16, in the Shoreview City Council Chambers. City Hall is located at 4600 N. Victoria St.

Meetings at nearby communities are also open to the larger public. Area meetings will be held from 7 to 9 p.m. Wednesday, Sept. 29, at the Roseville Oval, 2661 Civic Center Drive; and from 7 to 9 p.m. Thursday, Sept. 30, at the White Bear Lake Police Department, 4701 Highway 61.

Shoreview-Arden Hills

BULLETIN

PERIODICALS 50¢

A Lillie Suburban Newspaper

Wednesday, September 15, 2004 SVB

Key to keeping cool in heated situations is preparation

September is National Emergency Preparedness Month

Stephanie Ariganello
staff writer

When it comes to disasters, hateful acts or even surprises, preventative maintenance may be the best tonic to minimize, repair and heal damage quickly.

Homeland Security Secretary Tom Ridge declared September National Preparedness Month, and in an effort to construct safe emergency plans, local, state and national organizations are banding together to minimize the effects of emergency situations when they arise.

"National Preparedness Month is an opportunity to inform individuals, families, businesses, schools and other organizations about the importance of having a plan in case of emergencies," explained Walter Loos, director of Emergency Services for the American Red Cross of the St. Paul Area. "We place an emphasis behind highlighting this particular month. And for us to be

successful at local, state and national levels — like down in Florida — our success is really reliant on our community. We encourage people to take an active role and to get involved. Training and education is so critical."

The Red Cross suggests five actions "to prepare for disaster of any magnitude": make a plan, build an emergency kit, get trained in the basics (and beyond), volunteer and give blood.

That plan can be as simple as agreeing on a safe place to meet in the event of an emergency or how to get in touch with spread-out family members who are at work or school — things people usually don't think about until a situation arises.

At the county

Ramsey County has also embarked upon a campaign to ready citizens for disaster response. The County will sponsor five meetings this month to answer questions such as: "How should Ramsey County and local communities respond in the event of a major fire? A flood? Any natural disaster? Incident of terrorism?"

According to Krysta Reuter, a coordinator within the Ramsey County Emergency Manage-

ment and Homeland Security, County officials are working to answer those questions with the help of local emergency responders and the general public.

"We are working on this plan to help get people involved — doing things like making sure they make an emergency plan," Reuter said. "They need to know things like where to meet up with family and how to help in the community. For example, terrorism, observing suspicious activity and reporting things to the authorities."

Holding meetings at the local level, the County aims to include resident input in its report. Reuter said one thing they are looking for is information on problem areas, like if flooding continuously appears in one area. Once a spot or need is identified, the County may be able to secure funding for possible solutions, like creating a different storm water management program or building levees near the problem area. Another example is if one neighborhood loses power frequently. Reuter said the County, backed by federal dollars, would consider burying the lines to

see **Preparation** on page 3

Preparation . . .

from page 1

prevent future knock-downs.

Reuter said the timing of National Preparedness Month and the County's efforts coincidentally overlapped, and were not planned in conjunction.

"This is a plan that is mandated by the federal government to be completed by Nov. 1," Reuter said. "Ultimately it is so the County and municipalities are eligible for funds, prior to a disaster happening."

The report will be an outline of emergency response strategies, and identification of preventative maintenance — garnered from County research as well as the resident input at the scheduled meetings.

Reuter also said the campaign is an "all-hazard approach." Just having one emergency response plan for the different types of situations is generally effective.

"Basically when responding to an emergency, you follow the same protocols for any type," Reuter reasoned. "We're working on one countywide plan to pull off the shelf to look at, when you need to, you can turn to that

specific section."

The County recommends people interested in helping with emergency response to volunteer, join the Red Cross, form block clubs and participate in the upcoming meetings.

City life

As far as being prepared for emergencies, some cities already have an edge. Over the last three years Falcon Heights has trained 50 CERT (Community Emergency Response Team) members — two of whom are now firefighters for the city. New Brighton also began training residents in a CERT program. Participants learn things like damage assessment, CPR, light search and rescue, First Aid, Emergency responder protocol, traffic controls, and other safety and emergency responses.

Falcon Heights also has an overall homeland-security plan, that concentrates on rapid communication within the city neighborhoods and increasing the ability of those in the community to respond to emergency situations, like the CERT members.

"Every person of every age can do something to help in a

disaster situation," said Falcon Heights Mayor Sue Gehrz. "Those who have taken the time to build some skills before a disaster will be able to most effectively help save lives and property."

Gehrz also said about four of the Falcon Heights CERT members have applied to go to Florida to aid the hurricane clean-up efforts.

Opportunities

The Red Cross is hosting different classes, informational talks and practice emergency drills throughout September. For more information, contact the Red Cross at 291-6789 or visit www.stpaulredcross.org.

The County has scheduled five meetings for the next few weeks. All of the meetings will be held from 7-9 p.m. On Thursday, Sept. 16, the first meeting will be held in the Shoreview City Council Chambers. Falcon Heights will host a meeting 7-9 p.m. Thursday, Sept. 23, in the council chambers at City Hall. The Maplewood Fire Station No. 2 will host an emergency-preparedness meeting on Monday, Sept. 27. On Wednesday, Sept. 29, County

representatives will speak at Roseville in the Roseville Oval. The final meeting is set for Thursday, Sept. 30, at the White Bear Lake Police Department on Hwy. 61. For more information on the meetings, or county emergency preparedness efforts, call 266-1015.

Falcon Heights and New Brighton offer CERT training to residents and people who work in the area. For more information on training, contact the city halls or visit the city Webpages.

On Saturday, Sept. 11, Falcon Heights conducted an emergency drill that will be continued on Saturday, Oct. 2. Gehrz warned that the drill on Oct. 2 may look like an actual disaster with responders canvassing the city and "victims" who have volunteered to play the roles. The efforts will be concentrated in Community Park at Roselawn and Cleveland avenues from 9 a.m. until 12:30 p.m. The drill is a simulated tornado and terroristic act. People passing by the park should not be alarmed.

SUN ☐ FOCUS

Ramsey County edition

NEWS
&
NOTES

Sept. 16, 2004

All Hazards Mitigation meetings set

The Federal Emergency Management Agency (FEMA) requires all counties and cities to adopt a plan to receive disaster funds for whenever a tornado, flood or terrorist event may occur. A federal act put this policy in place in 2000.

Ramsey County will hold several public meetings in late September. The public is invited to give input. The final plan must be submitted to the State of Minnesota by Nov. 1.

Thursday, Sept. 16: Shoreview Council Chambers, 4600 Victoria St. N., from 7 to 9 p.m.

Thursday, Sept. 23: Falcon Heights Council Chambers, 2077 W. Larpenteur Ave., from 7 to 9 p.m.

Monday, Sept. 27: Maplewood Fire Station #2, 1955 Clarence St., from 7 to 9 p.m.

Wednesday, Sept. 29: Roseville Oval, 2661 Civic Center Drive, from 7 to 9 p.m.

Thursday, Sept. 30: White Bear Lake Police Department, 4701 Hwy. 61, from 7 to 9 p.m.

Shoreview Sept. 16, 2004 Mitigation Meeting

name

city you live or work in

contact info: email or phone number

Kristy Gisch

South St. Paul ; St. Paul

TERENCE QUIGLEY

SHOREVIEW TQUIG@COMCAST.NET

Greg Sherrill

Shoreview Gregory. Sherrill@Target.Com

Steven Bornus

Shoreview Public Safety Commitee

Daniel Ravenhorst

Shoreview public safety commitee

MARC PELLETIER

Shoreview Public Safety Commitee

Bill Hauserman

Shoreview Resident

Walter Johnson

Shoreview - Resident

Tim Boenke

LAKE JEFFERSON FIRE DEPT.

Jeff Lauenberg

Allina Emergency Medical Services North Me

Joel Montan

Shoreview Nonto002@tc.umn.edu

presenter: Krysta Reuter

Ramsey County All-Hazards Mitigation Plan
 Public Meeting: Falcon Heights City Council Chambers
 Thursday, September 23, 2004 from 7pm-9pm

Name	City you live or work in	Phone Number	Email Address
Sue Gehrz	Falcon Heights	651-641-1229	sgehrz@comcast.net
Bob Heideman	St. Paul & Falcon Heights	612-720-2875	bjh1953@comcast.net
Marty Everest	Falcon Hts.	651-646-8026	geverest@csom.umn.edu
Kim Kubens	Falcon Hts.	651-644-0085	Kubensma@isd.net
Pam Harris	Falcon Heights	651-645-3319	pmharris@midlandaw.com
Eric Hasen	Columbian Heights	763-766-0890 ^{ext} 763-766-0890 ^{ext}	ehasen@mminpub.com
Pat Ryan	Falcon Heights	651-643-0765	patrick.ryan@usbank.com
Adele Hoblin Regu. Aiken.	Falcon Heights	651-647-6054	hob10002@umn.edu
FRANK Z. MEACH	Falcon Hts	651-644-8318	roger.wiken@creedproject.org
Pat Norris	St. Paul	651-645-6765	fzmeach@yahoo.com
Paul O'Connor	Falcon Hts	651-644-3402	patrick_norris@hotmail.com
STEVE MORELAW	VILLE CANON	651-646-3520	pawel.dew23@aol.com
Joe Dillenburg	SNOWDOW VIEW	651-483-3727	LEFDICKEF3@MSN.COM
Krysta Reuter	Presenter	651-490-4538	jcl.dillenburg@co.ramsey.mn.us

Ramsey County All-Hazards Mitigation Plan
 Public Meeting: Maplewood Fire Station #2
 Monday, September 27, 2004 from 7pm-9pm

Name	City you live or work in	Phone Number	Email Address
Karen Yeaton	Maplewood	651-771-3581	yeaton99@earthlink.net
Les Yeaton	
Ralph Arnott	New Brighton	651-633-0265	rjarnott@aol.com
ROBERT DALLERSHELL	MAPLEWOOD	651-770-8047	BIG-BLUE@TCQ.NET
Bud Berry	Maplewood	651-777-6784	bud@mytel.net
Tim Butler	Maplewood	651-772-3006	tim.butler@ci.stpaul.mn.us
Klysta Reeder	Presenter		

Ramsey County All-Hazards Mitigation Plan
Public Meeting: Roseville Oval
Wednesday, September 29, 2004 from 7pm-9pm

Name	City you live or work in	Phone Number	Email Address
Randy Johnson	Roseville PD	657-792-7228	randy.johnson@ci.roseville.mn.us
Carol Sletner	Roseville PD	657-792-7201	carol.sletner@ci.roseville.mn.us
Krysta Lenter	Presenter		

Ramsey County All-Hazards Mitigation Plan
 Public Meeting: White Bear Lake Police Department
 Thursday, September 30, 2004 from 7pm-9pm

Name	City you live or work in	Phone Number	Email Address
Kristy Giisch	work in St. Paul	651-450-1071	Kgiisch10@yahoo.com
Violet Failing	live in WBL	651-653-1358	D
NORMAN VOGEL	WHITE BEAR LK	65-428-5500	
Krysta Reuter	Presenter		



Memorandum

To: Police Chiefs and Fire Chiefs in Ramsey County
CC: David Twa, County Manager
From: Krysta Reuter, Emergency Management Coordinator
Date: 10/29/2004
Re: Countywide mitigation planning

Ramsey County has long maintained an active emergency management program. In the past, most emergency planning efforts have looked at strategies to better equip the county and the jurisdictions within the county to prepare and respond to disasters. Little attention has been paid to the less traditional approach of mitigating against (reducing the impact or likelihood of) such disasters. That old-style view is now changing and the Division of Emergency Management and Homeland Security (EMHS) is currently writing a countywide All-Hazards Mitigation Plan.

Being all-hazard, the plan will analyze the impact of the following hazards:

- Natural hazards: Earthquakes, Extreme Temps, Infectious Diseases, Karst, Precipitation, Snow and Ice, Solar Storms, Severe Storms (T-storms, hail, lightning, high winds), Tornadoes, Wildfires, and Forest Fires.
- Technological hazards: Dam & Levee Failure, Fires, Hazardous Materials Spill, Radiological, Water Supply and Food Supply Contamination.
- And of course, Terrorism and Domestic Preparedness issues.

We have established a planning committee made up of representatives from the various jurisdictions, emergency response agencies, county and municipal government, public health, IT/IS departments, airport officials, local emergency managers, and the private sector. This group is currently assessing the risks to Ramsey County from the hazards in order to provide guidance as to what we should focus our efforts on. Mitigation strategies, goals and priorities will be established for this plan as well.

Ramsey County All-Hazard Mitigation Plan

Public meetings will be held in September to allow the public to review and comment on draft versions of the plan, and to contribute their ideas and concerns. Public Safety sensitive information will, of course, be withheld from public versions of the plan.

Under mandates from the Federal Emergency Management Agency of the Department of Homeland Security, the plan must be submitted to the State of Minnesota by November 1, 2004.

Federal rules require that every county and every community in the nation must develop a mitigation plan in order to continue to be eligible for many federal disaster relief and grant programs. In order to coordinate mitigation activities, the development of a single countywide plan is the only logical format, and the municipalities would need to formally "adopt" the countywide plan as their own. We are assuming that municipalities will adopt the plan on condition of FEMA/State/County Board approval, and that the County Board will need to "adopt" it on the condition of FEMA/State approval. All City Councils will need to review and adopt the plan in October.

Why create this plan:

The Disaster Mitigation Act (DMA) of 2000 requires counties and communities to have a Mitigation Plan to receive disaster funds whether from a tornado, flood or terrorist event. The DMA of 2000: "reinforces the importance of mitigation planning in both pre and post-disaster situations, and emphasizes planning for disasters before they occur."

Mitigation planning is important to save lives, reduce property loss and economic loss at the time of a disaster. By reducing the likelihood of disasters that can be prevented, and reducing the impact of those that cannot be prevented, we are taking a huge step to better protect the citizens of the county. By developing a single, countywide approach and coordinating it with the single, county wide emergency operations plan, we will leverage opportunities for action that will cross jurisdictional boundaries and leave us better prepared overall.

Enclosed with this Memorandum is a hazard mitigation survey that I encourage you to complete and return to my office. This will help the planning committee evaluate what hazards the County should be focusing on in the Mitigation Plan.

If you have any questions or concerns, please do not hesitate to contact me at:

Krysta Reuter
Ramsey County
Division of Emergency Management & Homeland Security
50 W. Kellogg Blvd.
Suite 913
St. Paul, MN 55102

651-266-1015 Office
651-266-1019 Fax
Krysta.Reuter@co.ramsey.mn.us

Hazard Analysis
Basic Information

Name

Title

Contact information

_____ Phone _____ e-mail

Community information

_____ Name _____ address

What high profile, political, or symbolic activities take place in the community?
(i.e. courts, controversial industries, etc)

What high risk activities take place in the community? (i.e. handling or storage of
extremely hazardous materials, housing of prisoners)

HAZARD ANALYSIS DEFINITIONS

Probability – choose one

5	Very high	Near 100% probability in the next year
4	High	Between 60-100% probability in next year, or at least 1 chance in 10 years
3	Medium	Between 30-60% probability in next year, or at least 1 chance in 20 years
2	Low	Between 1-30% probability in next year, or at least 1 chance in 30 years
1	Very low	Less than 1% probability, or 1 chance in 100 years

Magnitude – choose one

5	Very high	Catastrophic – more than 75% of property and/or staff is severely affected
4	High	Critical – 50-75% of property and/or staff is severely affected
3	Medium	Serious – 25-50% of property and/or staff is affected
2	Low	Limited – 5-25% of property and/or staff is affected
1	Very Low	Negligible – less than 5% of property and/or staff is affected

Warning time/Onset of event – choose one

5	Very high	No warning
4	High	Minimal warning – minutes to hours
3	Medium	6-12 hours warning
2	Low	12-24 hours warning
1	Very low	24+ hours warning

Operations Continuity – choose one

5	Very high	Unable to continue – cannot provide 75-100% of services
4	High	Severely weakened – cannot provide 50-75% of services
3	Medium	Weakened – cannot provide 25-50% of services
2	Low	Somewhat weakened – cannot provide 5-25% of services
1	Very low	Negligible – cannot provide 0-5% of services

Total risk

- The higher the number, the greater the risk
- Plan first for those hazards with the highest score

Ramsey County All-Hazard Mitigation Plan

Community

Date

Hazard	Probability	Magnitude	Warning time	Operations continuity	Average
NATURAL					
Blizzard					
Drought					
Flood (not flash)					
Hailstorm					
Heavy rain/flash flood					
Ice storm					
Landslide					
Pandemic/epidemic					
Severe cold					
Severe heat					
Tornado					
Wildfire					
Windstorm					
TECHNO					
Air pollution					
Computer outage					
Dam failure					
Hacker,virus attack					
Haz materials spills/releases					
HVAC outage					
Road closure/access issue					
Telephone outage					
Transportation accident					
Utility damage (i.e.sewer backup)					
Utility outage					
CIVIL/POLITICAL					
Bomb threat					
Bomb actual					
Civic events					
Civil unrest/protest					
Explosion					
Fire affects facility					
Strikes					
Terrorist threat					
Terrorist act					
Workplace violence					

Special Planning Considerations

- Proximity to hazardous materials facilities and/or major transportation routes (including rail)

- Vulnerable populations in community

- Technology, backup systems, generators, etc. to mitigate effects

- Consider relationship between probability and magnitude, i.e. catastrophic event with low probability versus less serious event with high probability – what will you plan for first

- Do you have any special circumstances? Please explain.



September 28, 2004

Krysta Reuter
Ramsey County
Division of Emergency Management
50 West Kellogg Blvd
Suite 913
St. Paul, MN 55102

Subject: City of Arden Hills Resolution #04-53 Participating in the Hazard Mitigation Planning Process

Dear Krysta Reuter:

Per our previous conversations, please find attached a fully executed copy of Resolution #04-53 supporting the City's participation in the Ramsey County hazard mitigation planning process.

If you have any questions or concerns, please feel free to contact me at 651-634-5125.

Sincerely yours,

Schawn P. Johnson
Assistant to the City Administrator
City of Arden Hills



**CITY OF ARDEN HILLS
COUNTY OF RAMSEY
STATE OF MINNESOTA**

RESOLUTION NO. 04-53

**RESOLUTION TO PARTICPATE IN THE HAZARD MITIGATION PLANNING
PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all hazard mitigation plans either independently or on a county-wide, multi jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of governments and businesses; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

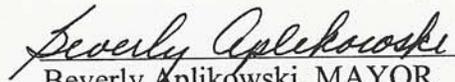
WHEREAS, this resolution does not preclude the City of Arden Hills from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED that the City of Arden Hills supports the countywide all hazard mitigation planning effort, and, be it further

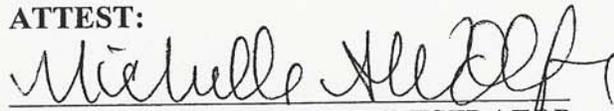
RESOLVED that the City of Arden Hills wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of Arden Hills, and, be it further

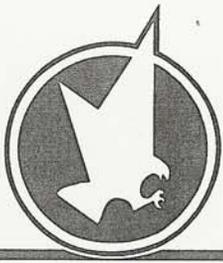
RESOLVED, that the City of Arden Hills requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all hazard mitigation planning efforts for the City of Arden Hills in the future.

**ADOPTED BY THE CITY COUNCIL OF THE CITY OF ARDEN HILLS
THIS 27TH DAY OF SEPTEMBER, 2004.**


Beverly Aplikowski, MAYOR

ATTEST:


Michelle Wolfe, CITY ADMINISTRATOR



CITY OF
FALCON HEIGHTS

2077 W. Larpenteur Avenue
Falcon Heights, MN 55113-5594

email: mail@ci.falcon-heights.mn.us
website: www.ci.falcon-heights.mn.us

Phone - (651) 644-5050
Fax - (651) 644-8675

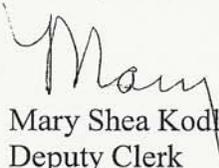
September 24, 2004

Mr. Judson Freed, Director
Ramsey County Emergency Management
And Homeland Security
50 West Kellogg Boulevard - Suite 913
Saint Paul, Minnesota 55102

Dear Mr. Freed:

Enclosed are two copies of Resolution 2004-19, approved by the Falcon Heights City Council on September 22, 2004, authorizing the City's participation with Ramsey County in a Hazard Mitigation Planning Process.

Thank you and best regards,


Mary Shea Kodluboy
Deputy Clerk

Enclosures: Two



CITY OF FALCON HEIGHTS

RESOLUTION 2004-19

RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING PROCESS

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

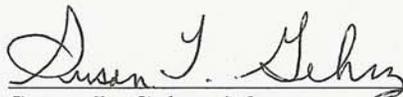
WHEREAS, this resolution does not preclude the City of Falcon Heights from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Falcon Heights supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of Falcon Heights wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City and, be it further

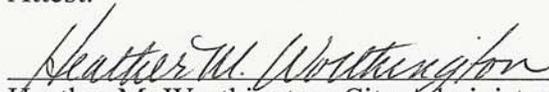
RESOLVED, that the City of Falcon Heights requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City in the future.

Adopted this 22nd day of September, 2004.



Susan L. Gehrz, Mayor

Attest:



Heather M. Worthington, City Administrator



Telephone: (651) 426 - 6443

Fritz Magnuson, City Clerk

CITY OF GEM LAKE

Office of the City Clerk
1369 County Road "E" East
Gem Lake, MN 55110-5231
Email: gemplakecity@aol.com

Paul Emeott, Mayor



Facsimile: (651) 426 - 6444

Sarah Cobian, Treasurer

28 September 2004

Ms. Krysta Reuter, Mitigation Officer
Ramsey County
Emergency Management & Homeland Security
50 West Kellogg Boulevard
Suite 913 RCGC-West
Saint Paul, MN 55102

REF: All Hazard Mitigation Plan

Dear Krysta,

On 20 September 2004, the City of Gem Lake City Council adopted Resolution No. 2004-20 supporting Ramsey County's development of an all-hazard mitigation plan which will include a plan for the City of Gem Lake and it's residents. Please keep us apprised of your needs, efforts on our behalf and your requirements for our participation in the development and maintenance of the plan.

At this time, all communications in this matter should be directed to me.

Regards,
CITY OF GEM LAKE

F. C. "Fritz" Magnuson
City Clerk

encl. Resolution No. 2004-20
cc: Mayor, Council Planning Commission

efile: EmergencyOperations\HazMitPlan\kreuter040928A.wpd

CITY OF GEM LAKE
RESOLUTION NO. 2004-20
20 September 2004

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions,; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated a willingness to coordinate these efforts should a municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of Gem Lake from preparing it's own plan in the future should it desire to do so; now, therefore, be it

RESOLVED, that the City Council of the City of Gem Lake supports the county wide all-hazard mitigation planning effort; and be it further

RESOLVED that the City of Gem Lake wishes to join with Ramsey County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of Gem Lake; and be it further

RESOLVED that the City of Gem Lake requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of Gem Lake in the future.

The foregoing Resolution was offered by Council Member *Igo* and was supported by Council Member *Bosak* and was declared *adopted* based upon the following vote:

NAME	EMEOTT	WATSON	BIRKEBAK	IGO	BOSAK
VOTE	Aye	Aye	Aye	Aye	Aye

ATTEST

I, Frederic C. Magnuson, the duly qualified City Clerk of the City of Gem Lake, County of Ramsey, State of Minnesota, do hereby certify that the foregoing Resolution is a true and accurate representation of action taken by the City Council of the City of Gem Lake on the date first written.

<i>Frederic C. Magnuson</i>	<i>20 September 2004</i>
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Frederic C. Magnuson, City Clerk

Date

Certified Copy

RESOLUTION NO. 092804B

CITY OF LAUDERDALE
COUNTY OF RAMSEY
STATE OF MINNESOTA

RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION
PLANNING PROCESS

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of Lauderdale from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Lauderdale supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of Lauderdale wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City and, be it further

RESOLVED, that the City of Lauderdale requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City in the future.

Adopted this 28th day of September, 2004.



Jeffrey E. Dains, Mayor

Attest:


Rick Getschow, City Administrator

City of Little Canada

RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING PROCESS

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the [city or township] from preparing its own plan in the future should it desire to do so; Therefore Be It

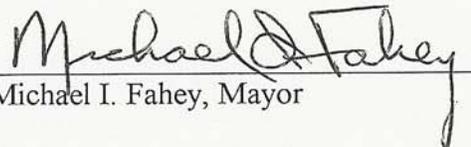
RESOLVED, that the City of Little Canada supports the county-wide all-hazard mitigation planning effort, and, be it further

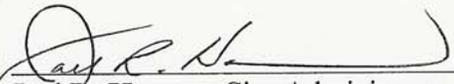
RESOLVED, that the City of Little Canada wishes to join with the County in preparing and maintaining the plan, and be it further

RESOLVED, that the City of Little Canada recognizes that the final plan will apply within the City subject to final ratification of said plan by the Little Canada City Council, and be it further

RESOLVED, that the City of Little Canada requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City in the future.

Adopted this 22nd day of September, 2004.

By: 
Michael I. Fahey, Mayor

Attest: 
Joel R. Hanson, City Administrator

City of Maplewood

**RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING
PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act established a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

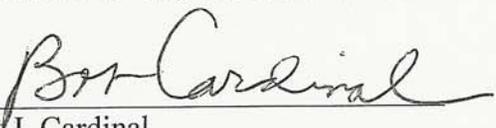
WHEREAS, this resolution does not preclude the City of Maplewood from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Maplewood supports the countywide all-hazard mitigation planning effort, and, be it further

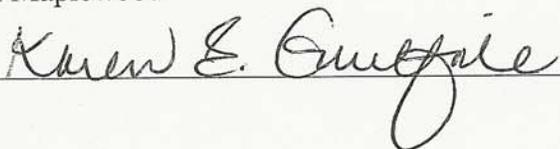
RESOLVED, that the City of Maplewood wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of Maplewood, and, be it further

RESOLVED, that the City of Maplewood requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of Maplewood in the future.

Adopted this 27th day of September, 2004.



Robert J. Cardinal
Mayor of Maplewood

Attest: 

RESOLUTION NO. 6374

**CITY OF MOUNDS VIEW
COUNTY OF RAMSEY
STATE OF MINNESOTA**

**RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING
PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

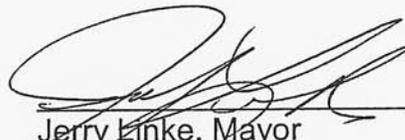
WHEREAS, this resolution does not preclude the City of Mounds View from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Mounds View supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of Mounds View wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the city and, be it further

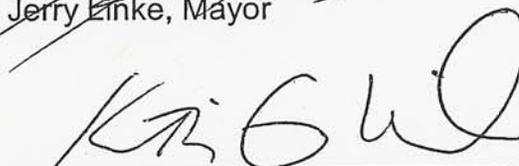
RESOLVED, that the City of Mounds View requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the city in the future.

Adopted this 11th day of October 2004.



Jerry Linke, Mayor

ATTEST:



Kurt Ulrich, City Administrator

(seal)

RESOLUTION NO. 04-091

**CITY OF NEW BRIGHTON
COUNTY OF RAMSEY
STATE OF MINNESOTA**

**A RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING PROCESS
WITH RAMSEY COUNTY**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

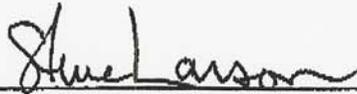
WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

NOW, THEREFORE, BE IT RESOLVED that the City of New Brighton supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of New Brighton wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of New Brighton, and, be it further

RESOLVED, that the City of New Brighton requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning effort

Adopted by the City Council of the City of New Brighton this 26th day of October, 2004.

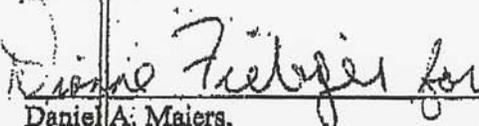


Steve Larson, Mayor



Matthew S. Fulton, City Manager

ATTEST:



Daniel A. Maers,
Director of Finance and Support Services/
City Clerk

(SEAL)



**City of
NORTH OAKS**

State of Minnesota)
County of Ramsey) ss
City of North Oaks)

**RESOLUTION NUMBER 1137
RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING
PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on the other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

100 Village Center Drive • Suite 150 • North Oaks, Minnesota • 55127

Phone: 651-484-5777 • Fax: 651-484-2712 • Email: northoaks@cityofnorth-oaks.com

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of North Oaks from preparing its own plan in the future should it desire to do so; Therefore Be It

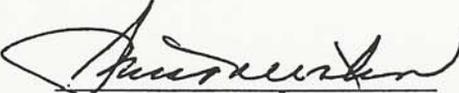
RESOLVED, that the City of North Oaks supports the countywide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of North Oaks wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of North Oaks, and, be it further

RESOLVED, that the City of North Oaks requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of North Oaks in the future.

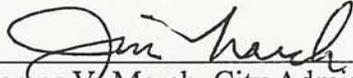
PASSED BY THE COUNCIL of the City of North Oaks this 14 day of October, 2004.

APPROVED:



Thomas N. Watson, Mayor

ATTEST:


James V. March, City Administrator

CITY OF NORTH ST. PAUL

RESOLUTION NO. 04-120

RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING
PROCESS

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of North St. Paul from preparing its own plan in the future should it desire to do so; and

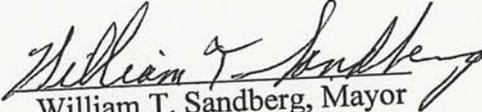
NOW THEREFORE BE IT RESOLVED, by the City Council of the City of North St. Paul, that it fully supports the countywide all-hazard mitigation planning effort; and

BE IT FURTHER RESOLVED, the City of North St. Paul wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of North St. Paul; and

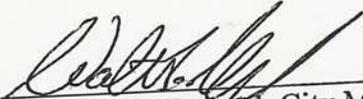
BE IT FURTHER RESOLVED, that the City of North St. Paul requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of North St. Paul in the future.

ADOPTED this 5th day of October, 2004, on Motion by Pontrelli, Seconded by Walczak.

Voting: Ayes: All


William T. Sandberg, Mayor

Attest:


Walter T. Wysopal, City Manager

As Deputy Clerk of the City of North St. Paul
I hereby certify that this Resolution is a true
and correct copy of the one adopted by the
City Council at a regular meeting held on the

5th day of OCTOBER, 2004



Mary H. Mills, Deputy Clerk

Resolution 10251
EXTRACT OF MINUTES OF MEETING
OF THE
CITY COUNCIL OF THE CITY OF ROSEVILLE

* * * * *

Pursuant to due call and notice thereof, a regular meeting of the City Council of the City of Roseville, County of Ramsey, Minnesota was duly held on the 11th day of October, 2004, at 6:00 p.m.

The following members were present: Kough, Maschka, Ihlan, Schroeder and Klausung, and the following were absent: none.

Member Maschka introduced the following resolution and moved its adoption:

RESOLUTION No. 10251

RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING PROCESS

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the [city or township] from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Roseville supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of Roseville wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City, and, be it further

RESOLVED, that the City of Roseville requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City in the future.

The motion for the adoption of the foregoing resolution was duly seconded by Member Ihlan, and upon a vote being taken thereon, the following voted in favor thereof: Kough, Maschka, Ihlan, Schroeder and Klausung, and the following voted against the same: none.

WHEREUPON said resolution was declared duly passed and adopted.

**EXTRACT OF MINUTES OF MEETING OF THE
CITY COUNCIL OF SHOREVIEW, MINNESOTA
HELD OCTOBER 4, 2004**

* * * * *

Pursuant to due call and notice thereof, a meeting of the City Council of the City of Shoreview, Minnesota was duly called and held at the Shoreview City Hall in said City on October 4, 2004, at 7:00 p.m.

The following members were present: Mayor Martin; Councilmembers Morrisette, Quigley and Wickstrom;

And the following members were absent: Councilmember Huffman

Member Quigley introduced the following resolution and moved its adoption.

RESOLUTION NO. 04-102

**RESOLUTION TO PARTICIPATE IN A HAZARD
MITIGATION PLANNING PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of Shoreview from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that City of Shoreview supports the county-wide all-hazard mitigation planning effort, and, be it further

RESOLVED, that the City of Shoreview wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of Shoreview, and, be it further

RESOLVED, that the City of Shoreview requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of Shoreview in the future.

The motion of the foregoing resolution was duly seconded by Member Morrisette and upon a vote being taken thereon, the following voted in favor thereof: Mayor Martin; Councilmembers Morrisette, Quigley and Wickstrom;

And the following voted against the same: None.

WHEREUPON, said resolution was declared duly passed and adopted the 4th day of October, 2004.

STATE OF MINNESOTA)

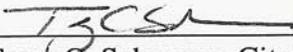
COUNTY OF RAMSEY)

CITY OF SHOREVIEW)

I, the undersigned, being the duly qualified City Manager of the City of Shoreview of Ramsey County, Minnesota, do hereby certify that I have carefully compared the attached

and foregoing extract of minutes of a meeting of said City Council on the 4th day of October, 2004, with the original thereof on file in my office and the same is full, true and complete transcript therefrom insofar as the same relates to participating in the Hazard Mitigation Planning Process being undertaken by Ramsey County.

WITNESS MY HAND officially as such City Manager and the corporate seal of the City of Shoreview, Minnesota this 5th day of October, 2004.



Terry C. Schwerm, City Manager

City of Vadnais Heights

**RESOLUTION TO PARTICIPATE IN A HAZARD MITIGATION PLANNING
PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants; and

WHEREAS, this resolution does not preclude the City of Vadnais Heights from preparing its own plan in the future should it desire to do so; Therefore Be It

RESOLVED, that the City of Vadnais Heights supports the county-wide all-hazard mitigation planning effort, and, be it further

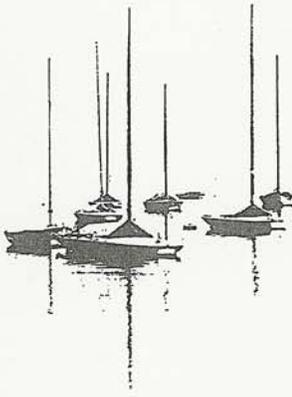
RESOLVED, that the City of Vadnais Heights wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the City of Vadnais Heights, and, be it further

RESOLVED, that the City of Vadnais Heights requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the City of Vadnais Heights in the future.

Adopted this 19th day of October, 2004.

Susan L. Banovetz
Susan L. Banovetz
Mayor, City of Vadnais Heights

Attest: Gerald J. Urban
Gerald J. Urban
City Administrator, City of Vadnais Heights



City of White Bear Lake

4701 Highway 61 • White Bear Lake, Minnesota 55110
TDD (651) 429-8511 • Fax (651) 429-8500
Phone (651) 429-8526

September 16, 2004

Judson Freed, Director
Ramsey County
Division of Emergency Management & Homeland Security
50 West Kellogg Boulevard
Suite 913 RCGC-West
St. Paul, MN 55102

Dear Mr. Freed:

Enclosed please find the resolution adopted by the White Bear Lake City Council on Sept. 16 authorizing the City's participation in the Hazardous Mitigation Planning Process.

If you have any questions, please feel free to contact me at 651-429-8516.

Best Regards,

A handwritten signature in black ink that reads "Mark Sather". The signature is written in a cursive, flowing style.

Mark Sather
City Manager

Encl.

A Resolution To Participate in a Hazardous Mitigation Planning Process

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390; and

WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a county-wide, multi-jurisdictional basis; and

WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions; and

WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan; and

WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses; and

WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into other planning documents and how the County will maintain public participation and coordination ; and

WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire; and

WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners, and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft; and

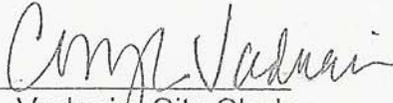
WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants.

NOW, THEREFORE, BE IT RESOLVED that the City of White Bear Lake supports the countywide all-hazard mitigation planning effort and hereby states its intent.

The foregoing resolution offered by Council member BRIGGS and supported by Council member FRAZER, was declared carried on the following vote:

Ayes: BRIGGS, DEVORE, FEFFER, FRAZER
Nays: NONE
Passed: SEPTEMBER 15, 2004

ATTEST:


Cory L. Vadnais, City Clerk


~~Paul L. Auger, Mayor.~~
Darryl LeMire, President



**WHITE BEAR
TOWNSHIP**

1858
RAMSEY COUNTY
MINNESOTA

Board of Supervisors
ROBERT J. WEISENBURGER, *Chairman*
RICHARD A. SAND
WILLIAM R. MAMPLE

1281 HAMMOND ROAD
WHITE BEAR TOWNSHIP, MN 55110

651-429-5827

FAX 651-426-2258

Email: wbt@ci.white-bear-township.mn.us

October 20, 2004

Krysta Reuter
Emergency Management Coordinator
Ramsey County
Division of Emergency Management & Homeland Security
50 West Kellogg Blvd., Suite 913
St. Paul, Minnesota 55102

Dear Ms. Reuter:

Enclosed please find the **Resolution To Participate In a Hazard Mitigation Planning Process**, which was adopted by White Bear Township on October 18, 2004.

Sincerely,

PATTI S. WALSTAD
Paralegal

PSW/s
Enc.
cc:admin.file
b:hazardmitigation



recycled paper

EXTRACT OF MINUTES OF A MEETING OF THE TOWN
BOARD OF THE TOWN OF WHITE BEAR, MINNESOTA,
HELD ON OCTOBER 18, 2004

Pursuant to due call and notice thereof, a Special meeting of the Town Board of the Town of White Bear, Minnesota, was duly held at the Town Hall in said Town on October 18, 2004, at 7:00 o'clock p.m.

The following members were present: Weisenburger, Sand, Mample; and the following members were absent: None.

Supervisor Sand introduced the following Resolution and moved its adoption:

**RESOLUTION TO PARTICIPATE IN A HAZARD
MITIGATION PLANNING PROCESS**

WHEREAS, the County of Ramsey Division of Emergency Management and Homeland Security is participating in the all-hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, Pub. L. No. 106-390,

AND WHEREAS, the Act requires all counties and municipalities to develop and maintain all-hazard mitigation plans either independently or on a County-wide, multi-jurisdictional basis,

AND WHEREAS, such plans must be well integrated and coordinated to account for the fact that hazards in one jurisdiction impact on other nearby jurisdictions,

AND WHEREAS, the Act establishes a framework for the development of an all-hazard mitigation plan,

AND WHEREAS, the Act as part of the planning process requires public involvement and local coordination among neighboring local units of government and businesses,

AND WHEREAS, the plan must include a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs,

AND WHEREAS, the plan must include an implementation and maintenance process including plan updates, integration of the plan into

other planning documents and how the County will maintain public participation and coordination,

AND WHEREAS, Ramsey County Division of Emergency Management and Homeland Security has indicated its willingness to coordinate these efforts should the municipality so desire,

AND WHEREAS, the draft plan will be shared with all municipalities, the County Board of Commissioners and the State of Minnesota Department of Public Safety, Division of Homeland Security and Emergency Management for coordination of state agency review and comment on the draft,

AND WHEREAS, final approval of the all-hazard mitigation plan will make the municipalities and the County eligible to receive Hazard Mitigation Grant Program (HMGP) project grants,

AND WHEREAS, this resolution does not preclude White Bear Township from preparing its own plan in the future should it desire to do so,

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN BOARD OF THE TOWN OF WHITE BEAR, MINNESOTA:

1. That White Bear Township supports the County-wide all-hazard mitigation planning effort.
2. That White Bear Township wishes to join with the County in preparing and maintaining the plan and recognizes that the final plan will apply within the Township.
3. That White Bear Township requests that the Ramsey County Division of Emergency Management and Homeland Security coordinate all-hazard mitigation planning efforts for the Township in the future.

The motion for the adoption of the foregoing Resolution was duly seconded by Supervisor Mample, and upon vote being taken thereon, the following voted in favor thereof: Weisenburger, Sand, Mample; and the following voted against the same: None.

Whereupon said Resolution was declared duly passed and adopted.