CITY COUNCIL MEETING
City Hall Council Chambers
October 14, 2024

AGENDA

1. Call to Order - 7:00 p.m.

Attendees please turn off cell phones and pages during the meeting. A copy of the full meeting packet is available in the binder at the entrance to the Council Chambers.

2. Roll Call

3. Pledge of Allegiance

4. Informal Open Forum

This is an opportunity for the public to address the City Council on items that are not on the agenda. It is limited to 15 minutes. It may not be used to make personal attacks, air personality grievances, make political endorsements, or for political campaign purposes. Council Members will not enter into a dialogue with the presenter. Questions from the Council will be for clarification purposes only. It will not be used as a time for problem-solving or reacting to the comments made but for hearing the presenter for informational purposes only.

The first call will be for those that have notified the Clerk that they would like to speak during the open forum and then ask if anyone connected to this meeting would like to speak. When called upon, please indicate your name and then proceed. Please be sure to state your name before speaking.

a. Meeting Decorum

5. Invocation - Graves

6. Approval of Agenda and Consent Agenda

These items are considered to be routine by the City Council and will be enacted by one motion. There isn't a separate discussion for these items unless a Councilmember so requests, then it is moved to the end of the Council Consideration Items.

a. Approval of Minutes

- Motion to approve meeting minutes

- *September 23, 2024 Study Session*
- *September 23, 2024 Regular Session*

b. Approval of Licenses

- Motion to approve the licenses as presented.

c. Resolution Appointing Election Judges for the 2024 General Election

- Motion to approve a resolution appointing election judges for the November 5, 2024, General Election.

d. Resolution Requesting Adopting of the Hennepin County All-County Mitigation

Plan

- Motion to adopt the Hennepin County All-Hazard Mitigation Plan.

7. Presentations/Proclamations/Recognitions/Donations

a. Proclamation Recognizing Open Hands, Inc. for their 25th Anniversary on October 5, 2024

8. Public Hearings

a. Proposed Special Assessments for Nuisance Abatement Costs, Administrative Fines/Citations, Tall Grass and Weed Abatement Costs, Dead Disease Tree Abatement Costs, and Administratively Registered Vacant Properties

- Motion to:

- *Open the public hearings concurrently;*
- *Take public input; and*
- *Close the public hearings.*

- Motion to Adopt Resolution Certifying Special Assessments for Administrative Citations to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Diseased Tree Removal Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Weed Removal Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Abatements Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Administratively Registered Vacant Properties Costs to the Hennepin County Property Tax Rolls

b. Resolution Certifying Special Assessments for Delinquent 2024 Public Utility Service Accounts and Resolution Certifying Special Assessments for Emergency Private Utility Service Repairs to the Hennepin County Property Tax Rolls

- Motion to:

- *Open the public hearing;*
- *Take public input; and*
- *Close the public hearing.*

- Motion to approve a resolution certifying special assessments for delinquent public utility service accounts to the Hennepin County property tax rolls.

- Motion to approve a resolution certifying special assessments for emergency private utility service repairs to the Hennepin County property

tax rolls.

9. Planning Commission Items

a. An Ordinance Amending Section 35-4103 (Allowed Use Table) of the City Code of Ordinances Regarding Places for Religious Assembly in the Business Mixed-Use (MX-B) District - 2nd Reading

- Motion to deny the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (Allowed Use Table) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

The Planning Commission recommended approval of the requested amendment on a 3-2 vote at their September 12, 2024 meeting. At the September 23, 2024 City Council meeting, a request was made to table the first reading of the proposed ordinance amendment and a request for additional information was made.

City staff maintains the position that, based on the findings presented within the provided staff report, the requested ordinance amendment should be denied; however, if City Council elects to recommend approval of the request to amend Section 35-4103 (Allowed Use Table) to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District, the motion language should be to approve the second reading and adopt the ordinance amendment.

10. Council Consideration Items

a. Brooklyn Center City Council's Official Public Comment on the Minnesota Department of Transportation's Highway 252/I-94 Over-Under Analysis Preference

- Motion to approve a resolution declaring the Brooklyn Center City Council's official public comment on the Minnesota Department of Transportation's Highway 252/I-94 Over/Under analysis preference.

11. Council Report

12. Adjournment

COUNCIL MEETING DECORUM

To ensure meetings are conducted in a professional and courteous manner which enables the orderly conduct of business, all persons in attendance or who participate in such meetings shall conduct themselves in a manner that does not interfere with the ability of others to observe and, when allowed, to participate without disruption or fear of intimidation.

A. Decorum. Persons who attend meetings must avoid conduct that disrupts, interferes with, or disturbs the orderly conduct of the meeting or the ability of other attendees to observe and participate as appropriate. To that end, persons who attend meetings are subject to the following:

(1) Members of the public may only speak during meetings when allowed under Council Rules and only after being recognized by the presiding officer. The presiding officer may establish time limits for the acceptance of public comments or testimony.

(2) Public comments or testimony must be addressed to the presiding officer and not to other Council Members, staff, or others in attendance.

(3) All elected officials shall be referred to by their proper title and surname.

(4) Public comments should avoid personal accusations, profanity, or other improper content for a public meeting.

(5) Intimidating behaviors, threats of hostility, or actual violence are disallowed.

(6) Audible demonstrations intended to disrupt the meeting should be avoided, including stomping of feet, snapping of fingers, clapping of hands, and other conduct that may be intimidating or threatening to others.

(7) Holding, displaying, or placing banners, signs, objects, or other materials in any way that endangers others, prevents the free flow of individuals within the chamber, or obstructs or prevents the viewing of the meeting by others is not allowed.

B. The presiding officer shall request any person(s) who disrupt, interfere with or disturb the orderly conduct of a meeting to cease the conduct and, as necessary, shall issue an oral warning to the individual(s) found to be in violation. If the individual(s) persists in disrupting, interfering with, or disturbing the meeting, the presiding officer may have the individual(s) removed or, under appropriate circumstances, temporarily clear the gallery. If for any reason the presiding officer fails to take such action, a majority vote may be substituted for action by the presiding officer to maintain order and decorum over the proceedings.

C. The Council Chambers capacity is 76 persons per fire code.

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Dr. Reggie Edwards, City Manager
BY: Barb Suciu, Assistant City Manager/City Clerk

SUBJECT: Approval of Minutes

Requested Council Action:

- *Motion to approve meeting minutes*
  - *September 23, 2024 Study Session*
  - *September 23, 2024 Regular Session*

Background:

In accordance with Minnesota State Statute 15.17, the official records of all meetings must be documented and approved by the governing body.

Budget Issues:

- None

Inclusive Community Engagement:

- None

Antiracist/Equity Policy Effect:

- None

Strategic Priorities and Values:

Provide quality services with fair and equitable treatment

ATTACHMENTS:

Description	Upload Date	Type
09.23 Study Session	10/11/2024	Backup Material
09.23 Regular Session	10/11/2024	Backup Material

MINUTES OF THE PROCEEDINGS OF THE CITY COUNCIL
OF THE CITY OF BROOKLYN CENTER IN THE COUNTY
OF HENNEPIN AND THE STATE OF MINNESOTA

STUDY SESSION
SEPTEMBER 23, 2024
CITY HALL – COUNCIL CHAMBERS

CALL TO ORDER

The Brooklyn Center City Council met in Study Session called to order by Mayor April Graves at 6:07 p.m.

ROLL CALL

Mayor April Graves and Councilmembers Marquita Butler, Dan Jerzak, and Teneshia Kragness. Councilmember Kris Lawrence-Anderson was absent and excused. Also present were City Manager Reggie Edwards, Recreation Department Customer Service Representative Rachel Kenyon, Assistant City Manager/City Clerk Barb Suciu, Deputy City Clerk Shannon Pettit, and City Attorney Cristina Cruz-Jennings.

CITY COUNCIL MISCELLANEOUS DISCUSSION ITEMS

Mayor Graves noted she emailed the Council about Open Hands, Inc. She read the email in full describing the organization, its history, and its efforts in the community. Their 25th Anniversary will be celebrated in October. She suggested drafting a letter or proclamation showing their support and thankfulness for the organization's impact on the community.

Councilmember Jerzak stated he would support a letter and proclamation.

Mayor Graves requested Staff draft a proclamation.

CITY MANAGER MISCELLANEOUS DISCUSSION ITEMS

City Manager Reggie Edwards pointed out City Attorney Siobhan Tolar is not present. In her place, Cristina Cruz-Jennings is present.

2025 LEGISLATIVE PROCESS

City Manager Reggie Edwards explained the legislative process is an annual rhythm for the Council to review their priorities. Dr. Edwards noted there is a tour of the Public Works Garage for Brooklyn Center's representatives because the City is seeking out funding for the Garage. He stated there is an open house at the garage on Friday, October 25 at 9:00 a.m.

Councilmember Jerzak indicated he is interested in attending the event. Councilmember Kragness stated she is interested as well. Dr. Edwards confirmed invitations will be sent out. It would be beneficial for Councilmembers present at the tour to further advocate for the funding.

Dr. Edwards pointed out there was a legislative breakfast hosted by the City during the previous legislative session, and it was very successful. The next legislative lunch is November 20, 2024. The time was moved to make the event more convenient. Save the Dates will be sent out in the near future.

Mayor Graves confirmed she is available on November 20 for the event.

Dr. Edwards stated there will be an agenda item to further discuss legislative priorities after the Public Works Garage tour. There will be two opportunities to discuss legislative priorities and the priorities will be finalized November 12, 2024. The legislative session will begin in January 2025. Then in June 2025, there will be a recap of the session provided to the Council.

Councilmember Jerzak requested the tables at the luncheon be a mix of folks to promote networking. Additionally, he requested a microphone and podium be available. Lastly, he asked that there be some time to eat food prior to entering discussions so everyone has the opportunity to eat without awkwardness.

Councilmember Kragness expressed her support for the plan and explained she hopes to get their priorities in front of the right people.

Mayor Graves asked if there are priorities of interest to the Council that aren't currently on Staff's radar.

Councilmember Jerzak asked for Staff to provide a list of priorities to the Council for review prior to an official discussion. He noted he would like to see the Public Works Garage receive funding, and he would like to prepare for possible testimony in support of the Garage.

Mayor Graves stated Staff could send a list of the previous year's priorities for the Council to work from. There has been consideration if the calculations for Local Government Aid are equitable for cities like Brooklyn Center. She noted she recently met with the Crime Prevention Federal Advocacy Committee through the National League of Cities, and they have prepared their legislative priorities at the Federal level. She added there is an urge for the Federal government to provide funds supporting crime prevention efforts at the local level, and she would like to see Brooklyn Center prioritize the same concept.

Councilmember Jerzak pointed out that the Surgeon General recently declared a public health crisis regarding social media. It may be worth learning more about the declaration and if there is a place for legislative support.

Mayor Graves stated there is a need for more diverse voices at elective tables. She suggested more

folks participate in committees and whatnot.
Councilmember Jerzak reiterated his interest in obtaining financial support for the Public Works Garage. He would also like to see Tax Increment Funding timelines be extended. Highway 252 and alternative response teams could also benefit from some additional support.

Mayor Graves noted she would like to revisit the Council conduct documents.

Councilmember Kragness confirmed she has notes to discuss that topic.

Councilmember Jerzak stated he has reviewed the documents, but he has been more focused on the budget lately. He stated he would prepare suggestions for the draft.

DISCUSSION OF WORK SESSION AGENDA ITEMS AS TIME PERMITS

PARKS AND SPECIAL EVENTS PERMIT PROCESS

Dr. Edwards introduced the item and invited Customer Service Representative Rachel Kenyon and Assistant City Manager/City Clerk Barb Suciu to continue the presentation.

Ms. Kenyon explained she and one other Staff member oversee the permitting process for park use. There are shelter or building rentals available at fifteen parks throughout Brooklyn Center. Rentals are available from May 1 through October 15. Brooklyn Center residents are able to make reservations around mid-March of each year while non-residents can make reservations beginning in late April. Rental applications must be filled out in person at the Community Center. A proof of address is required when applying for a park permit. The permitholder must be onsite during the rental.

Ms. Kenyon noted Staff has a number of procedures during the time of application. There are different shelters and buildings recommended based on the party size, amenities, and available dates. Staff reviews park policies and permitholder responsibilities at the time of the rental. If any request has a component that would require a Special Events Permit, Staff refer the applicant to the City Clerk's Office.

Ms. Kenyon added Staff call permitholders the week of their rental to remind them of the park policies and expectations. Parks and Recreation Outreach Staff stop by each rental to discuss policies and expectations and act as a contact if the permitholder needs any assistance during their rental. After the rental, Staff compiles feedback from Outreach Staff, Public Works Department Staff, and law enforcement to determine whether a deposit will be refunded.

Assistant City Manager/City Clerk Barb Suciu pointed out that a Special Events License is issued for a temporary, organized activity sponsored by an event organizer involving the gathering of people to attend, participate, or observe an activity occurring entirely or partly outdoors on City or private property.

Ms. Suciu explained criteria for a Special Events License include the attendance of 100 or more people, ancillary activities, and the use of sound amplification systems or speakers that will likely result in noise levels that will unreasonably disturb others in the immediate area. City Ordinance requires an event occurring on the same property shall not extend for more than three consecutive days without special circumstances. Additionally, events that are scheduled to occur on a regular basis or throughout an entire season can have one Special Event Permit for the entire period.

Ms. Suciu noted the fully completed application must be submitted at least 45 days before the event's starting date. For large-scale events involving 1,000 participants or more, the application must be made 90 days in advance. The application is reviewed by the City Clerk's Office for completeness.

Ms. Suciu added the application is routed to various Departments. The Parks and Streets Superintendent reviews the application for any necessary road closures and traffic control measures. The Public Works Director considers utilities and clean-up. The Police Chief handles amplified sound and security plans as needed. The Parks and Recreation Director handles any approvals for park use and clean up. The City Planner or Building Official determines needs for trash disposal, restrooms, food permits, and tents. Lastly, the City Clerk oversees any alcohol permitting.

Ms. Suciu explained once an application is reviewed by all relevant Departments, the City Clerk sees if the application has been approved or denied. From there, the City Clerk sends the applicant the Special Events License if approved.

Councilmember Kragness asked if an applicant signed anything. Ms. Kenyon pointed out where the applicant signs on the forms. There is an area to review policies before signing.

Councilmember Kragness stated the documents state tobacco and the like are prohibited from use in the amphitheater or any City property, but it doesn't specify the same for shelter rentals. Ms. Kenyon stated not every Ordinance is listed on the application. However, the tobacco prohibition detail can be added.

Mayor Graves noted the documents stated a County food license is required when serving food. Later on, the document states gambling or charging admission is prohibited. She asked how an event at the amphitheater can be a private event. Ms. Kenyon stated an amphitheater may be used for a smaller gathering, but there isn't anything such as a physical barrier to keep others out of the amphitheater.

Councilmember Jerzak asked if there has been a study to determine if the fees match the required Staff time to process an application. Ms. Kenyon stated she wasn't involved in the initial fee calculations, but they do consider Parks and Recreation Staff timing. They also compare rates to other parks.

Ms. Suciu added there is a debrief held after the rental season to discuss any changes that need to

be made.
Mayor Graves thanked Staff for the presentation.

ADJOURNMENT

Mayor Graves adjourned the meeting at 6:51 p.m.

MINUTES OF THE PROCEEDINGS OF THE CITY COUNCIL
OF THE CITY OF BROOKLYN CENTER IN THE COUNTY
OF HENNEPIN AND THE STATE OF MINNESOTA

REGULAR SESSION
SEPTEMBER 23, 2024
CITY HALL – COUNCIL CHAMBERS

1. INFORMAL OPEN FORUM WITH CITY COUNCIL

The Brooklyn Center City Council met in Informal Open Forum called to order by Mayor April Graves at 7:00 p.m.

2. ROLL CALL

Mayor April Graves and Councilmembers Marquita Butler, Dan Jerzak, and Teneshia Kragness. Councilmember Kris Lawrence-Anderson was absent and excused. Also present were City Manager Reggie Edwards, Director of Fiscal & Support Services Angela Holm, Zoning Administrator Ginny McIntosh, Assistant City Manager/City Clerk Barb Suciu, Deputy City Clerk Shannon Pettit, and City Attorney Cristina Cruz-Jennings.

3. PLEDGE OF ALLEGIANCE

The Pledge of Allegiance was recited.

4. INFORMAL OPEN FORUM

Mayor April Graves opened the meeting for the purpose of Informal Open Forum. She reviewed the rules of conduct.

Sophia W. suggested yard signs be made for residents to share information about the Community Center referendum as it will be on the upcoming ballot. The link could also provide more information on the ballot in general. Yard signs could be used year-round encouraging folks to read about local politics to promote community engagement.

Councilmember Jerzak moved and Councilmember Butler seconded to close the Informal Open Forum at 7:08 p.m.

Motion passed unanimously.

5. INVOCATION

Councilmember Butler shared a quote from the Dalai Lama, “Do not let the behavior of others destroy your inner peace.”

6. APPROVAL OF AGENDA AND CONSENT AGENDA

Councilmember Jerzak moved and Mayor Graves seconded to approve the Agenda and Consent Agenda, and the following consent items were approved:

6a. APPROVAL OF MINUTES

1. September 9, 2024 – Study Session
2. September 9, 2024 – Regular Session
3. September 9, 2024 – EDA/Work Session

6b. LICENSES

RENTAL

INITIAL (TYPE II – two-year license)

4307 66th Avenue N	Fyr Sfr Borrower Llc
5712 Bryant Avenue N	Fyr Sfr Borrower Llc
5901 Pearson Drive	HOME TRS LLC
6243 France Avenue N	Fyr Sfr Borrower Llc

RENEWAL (TYPE IV – six-month license)

1302 69th Avenue N	Aeon Holdings Llc
5542 Judy Lane	Kao Yang & Mai Yer Xiong
6400 Fremont Avenue N	Jesus Vazquez Martinez

RENEWAL (TYPE III – one-year license)

3012 51st Avenue N	Sri Lakshmi Valiveti
5906 Dupont Avenue N	Bruce & Rebecca Goldberg
6613 Camden Drive	Mark One Resources Llc

RENEWAL (TYPE II – two-year license)

4210 Lakebreeze Avenue N	Simons Revocable Trust
5327 Queen Avenue N	Myrka Zambrano
5322 Irving Avenue N	Peter Phuong Nguyen

RENEWAL (TYPE I – three-year license)

4207 Lakeside Ave N, #238	Hussein G Seman

2932 69th Lane N	Mayerling Rios
5541 Morgan Avenue N	5541 Morgan Ave LLC
5818 June Avenue N	Herman Capital Partners VII, LLC
5842 Washburn Avenue N	Pryde Real Estate Solutions
6601 Unity Avenue N	Cel Monton LLC
6737 Camden Avenue N	Ronald F Jasicki
6749 Humboldt Avenue N	Patrick Nguyen
7193 Unity Avenue N	Mary R Turcotte

6c. RESOLUTION NO. 2024-89; APPROVING AN AMENDMENT TO THE BROOKLYN CENTER FIRE DEPARTMENT RELIEF ASSOCIATION BY-LAWS

6d. RESOLUTION NO. 2024-90; REQUESTING APPROVAL FOR THE CITY MANAGER TO SIGN A PURCHASE AGREEMENT FOR A USED FIRE ENGINE

6e. RESOLUTION NO. 2024-91; AUTHORIZING EXECUTION OF A PROFESSIONAL SERVICES AGREEMENT, PROJECT NO. 2026-01, HUMBOLDT AVE (COUNTY ROAD 57) RECONSTRUCTION (53RD TO 57TH) PROJECT

6f. RESOLUTION NO. 2024-91; ACCEPTING FEASIBILITY REPORT AND CALLING FOR AN IMPROVEMENT PUBLIC HEARING FOR IMPROVEMENT PROJECT NO. 2025-02, 67TH AVENUE AND JAMES AVENUE MILL & OVERLAY

Motion passed unanimously.

7. PRESENTATIONS/PROCLAMATIONS/RECOGNITIONS/DONATIONS

None.

8. PUBLIC HEARINGS

8a. AN ORDINANCE NO. 2024-10; AMENDMENTS TO CHAPTER 12 AND 19 OF THE CITY CODE OF ORDINANCES REGARDING PROPERTY

MAINTENANCE REQUIREMENTS AND COMMERCIAL VEHICLE STORAGE - SECOND READING

City Manager Reggie Edwards introduced the item and invited Community Development Director Jesse Anderson to make the staff presentation.

Community Development Director Jesse Anderson explained the first reading of the Ordinance was held on August 12, 2024, and the Work Session was held on April 22, 2024. The proposed changes are to Chapter 12 and Chapter 19, which include proposals for requiring mailboxes at all licensed rental properties, commercial addressing requirements, and the changes to the definition of commercial vehicles.

Mr. Anderson stated the proposed changes for Chapter 12 include mailbox requirements for licensed rental properties. Inspection Staff has received complaints about multi-family properties not replacing mailboxes which leads to mail delivery being held at the post office.

Mr. Anderson pointed out there are currently no requirements for mailboxes. Federal and State regulations dictate the size, location, and type of mailbox but do not require properties to have a mailbox. The proposal would be for the City to require that all rental properties are required to provide a mailbox that meets Federal and State requirements for their tenants.

Mr. Anderson noted the City does not have an ordinance that specifies a size for the addressing of a commercial or retail building. Residential buildings have requirements outlined in the Building Code and in the International Property Maintenance Code (IPMC). Staff has looked into the building code and the building code is silent on the matter. The proposed changes would only impact retail and commercial properties and inserted into Chapter 12. One-story commercial buildings would require the address to be 12 inches, 18 inches for two stories, and 24 inches for three-story buildings and taller.

Mr. Anderson added that commercial vehicle storage in a residential district is enforced in both Chapter 19 Public Nuisance and Petty Offenses and Chapter 35 Unified Development. Since the adoption of the Unified Development Code in 2023, the definitions of commercial vehicles do not match. The purpose of bringing this forward is to ensure that both definitions would be identical and allow for smaller commercial vehicles to be stored in a residential district.

Mr. Anderson pointed out that currently, Chapter 19-103.12 identifies a commercial vehicle as a vehicle that is "…a length greater than 21 feet, or a height greater than 8 feet, or a gross vehicle weight greater than 9,000 pounds…" The proposed language would read as follows, "Commercial vehicles will be defined as a vehicle length greater than 22 feet, a height greater than 10 feet (measured from grade), or a gross vehicle weight more than 20,000 pounds."

Mr. Anderson stated the newly adopted definition in chapter 35-5512.c only allows vehicles identified as class 1-4 by the Minnesota Department of Transportation. The proposed language would allow small box trucks, step vans, and cube vans to be parked/stored in an R1 and R2 district. The language would continue to prohibit the storage of construction equipment, farm

vehicles, dump trucks, construction trailers, backhoes, front-end loaders, bobcats, well drilling equipment, farm trucks, combines, thrashers, tractors, tow trucks, and truck tractors.

Mayor Graves asked if there are any Ordinances regarding storage containers. Mr. Anderson confirmed there are Ordinances restricting the use of storage containers, and the uses are different depending on the type of property. Some properties may have been grandfathered in with previous rules for accessory buildings.

Councilmember Jerzak asked if there was an opportunity to amend the Ordinance. Mr. Anderson stated the item could be tabled to allow for revisions. However, the motion itself could include minor changes.

Mayor Graves asked if it was legally permissible. City Attorney Cristina Cruz-Jennings confirmed Mr. Anderson's explanation was correct.

Councilmember Jerzak stated he could support the proposed changes to Chapter 19-103.12. He requested the Council reconsider the commercial vehicle restrictions to add four feet to the length. The Ordinance is virtually impossible to enforce. Additionally, food trucks can be longer than the proposed length. Food trucks are often owned by minority business owners and don't need additional expenses for food truck storage. The proposed Ordinance is less restrictive than what the City currently has, but they need to consider all food trucks.

Councilmember Butler stated she wants to support food trucks. However, larger trucks park on the street and may create safety issues. There is additional wear and tear on the roads from the large trucks.

Councilmember Jerzak stated he agrees with Councilmember Butler's concerns about safety. It is the role of the Police Department to handle parking violations that impact safety. Box trucks are excluded from the proposed Ordinance. No matter what, there isn't street parking allowed 2:00 a.m. to 6:00 a.m. He hasn't heard complaints about food trucks, but he has heard complaints about semi-trucks, box trucks, and the like.

Councilmember Kragness stated there needs to be a line drawn somewhere. She doesn't oppose food trucks.

Mr. Anderson stated that minor amendments could be made if the Council would like.

Mayor Graves asked if the number of food trucks in the City was considered. Mr. Anderson stated there is not an inventory of food trucks in the City.

Councilmember Kragness asked how the length was chosen by Staff for the amendment. Mr. Anderson stated Staff didn't measure every food truck in the City. Instead, they measured a handful of food trucks and other common vehicles that Staff has seen frequently.

Councilmember Kragness stated Staff should do more measurements to ensure the majority of food trucks are allowed. Mr. Anderson pointed out most food trucks are not allowed under the current Ordinance, so it is possible not all food trucks would be around the City for measurements. It would take some time to inventory 7,700 properties and find all commercial vehicles.
Mayor Graves asked what the downside is for implementing a longer truck length. Mr. Anderson stated there could be some parking on the grass, but that would be addressed in another ordinance.

Councilmember Jerzak pointed out there are quite a few ways that food trucks are restricted already such as with height or vehicle type. Any violations are based on reports from the community. He requested the additional four feet be added to the Ordinance. If there is an issue with a maximum length of 26 feet then Staff can bring the item back to Council.

Mayor Graves noted the importance of having a Councilmember with code enforcement experience.

Councilmember Butler stated she is open to the proposed changes due to the clarification regarding box trucks.

Councilmember Jerzak moved and Councilmember Butler seconded to open the Public Hearing.

Motion passed unanimously.

Kevin S. stated trucks that are currently stored elsewhere may be stored in Brooklyn Center should the Ordinance change.

Lori B. asked if there could be an exception for current business owners to follow a longer truck rule. Mayor Graves noted her agreement. There are issues with grandfathering some people in because it gets confusing. The City also doesn't know who does and who doesn't have longer trucks currently.

Councilmember Jerzak moved and Councilmember Kragness seconded to close the Public Hearing.

Motion passed unanimously.

Councilmember Jerzak moved and Mayor Graves seconded to approve the second reading and adopt ORDINANCE NO. 2024-10; Amending Chapter 12 of the City Code of Ordinance by Adding Sections 12-309 and 12-310 regarding Property Maintenance Standards with an amendment to allow trucks up to 26 feet in length.

Motion passed unanimously.

9. PLANNING COMMISSION ITEMS

9a. AN ORDINANCE NO. 2024-011; AMENDING SECTION 35-4103 (ALLOWED USE

TABLE) OF THE CITY CODE OF ORDINANCES REGARDING PLACES FOR RELIGIOUS ASSEMBLY IN THE BUSINESS MIXED-USE (MX-B) DISTRICT - FIRST READING

Dr. Edwards introduced the item and invited Planning Manager Ginny McIntosh to continue the presentation. Ms. McIntosh provided an overview of zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

Ms. McIntosh stated per Section 35-71301, an amendment of the City's Unified Development Ordinance (UDO) may be initiated by the Council, Planning Commission, or a City property owner. The use is currently permitted as a conditional use in the City's R1, R2, C, and I districts. A public hearing notice was published in the Brooklyn Center Sun Post on August 29, 2024. Mail notifications were sent to 36 property owners and physical addresses within the Business Mixed-Use District. A public hearing notice was also published on the City's website.

Ms. McIntosh stated August 2023, City Council held a concept review of a proposal to allow for places for religious assembly in the Business Mixed-Use (MX-B) District. City Staff presented the proposal to City Council, identifying points to consider regarding a proposed conversion of 6010 Earle Brown Drive from office use to a place for religious assembly, and potential impacts to other properties located within the MX-B District, of which in part included parking and traffic concerns and considerations for the greater MX-B District.

Ms. McIntosh stated the applicant has spent the past year fundraising and working on plans for a potential buildout of the property. If the amendment is approved, the applicant would still need to enter into a purchase agreement with the property owner and receive separate approval of a conditional use permit (CUP). Conditional uses are generally permitted uses so long as certain conditions are met with respect to the mitigating of potentially negative impacts on neighboring properties for uses already permitted.

Ms. McIntosh showed the Allowed Use Table and its proposed changes. She also showed the property of interest on a map with 2040 Planned Land Use Designations.

Ms. McIntosh pointed out that the City's Business Mixed-Use land use is a new designation under the City's 2040 Comprehensive Plan and includes properties located along Earle Brown Drive and north of I-694 off Freeway Boulevard and Shingle Creek Parkway. Adoption of the City's Unified Development Ordinance in January 2023 resulted in the retirement of the City's long-standing I1 (Industrial Park) District, and it was, for the most part, replaced with the City's Business Mixed-Use District.

Ms. McIntosh stated the designation encouraged redevelopment or development of commercial, office, general business, and light industrial uses in coordination with supporting retail or commercial uses to encourage a more dynamic and connected experience for workers.

Ms. McIntosh noted the City is predominantly reserved for low-density residential, such as R1, and there are limited opportunities for any new or expected additional employment opportunities with the exception of certain land use designations.
Ms. McIntosh explained while the district's predecessor, the I1 District, was very much a typical business park/light industrial district, in that the uses were limited to manufacturing activities, wholesale trade activities, service activities, public transportation terminals, foundries, and textile mills, with retail permitted via special use as an accessory use only.

Ms. McIntosh stated new MX-B District does grant new flexibilities in use by allowing for non-residential educational uses like business and trade schools, medical and health uses, brewpubs, micro-wineries and distilleries, restaurants, grocery stores, indoor recreational fitness, and hospitality lodging. However, these uses function differently than a place for religious assembly might in that they are oftentimes centered around service times, and oftentimes operate outside of typical business hours.

Ms. McIntosh stated the only example of a religious assembly use in a commercial area. The building was formerly a veterinary hospital turned mosque at 4900 France Avenue North. Prior to this, all places for religious assembly required primary vehicular access to be located on a collector or arterial street in order to manage traffic volumes as people arrive and leave service. The mosque is located on a dead-end cul-de-sac and, although a parking and traffic study was provided as part of their special use application, with plans to operate a shuttle given limited on-site parking, their conditions of approval are not being met and City staff has noted on-street parking during service times, which constrains emergency vehicle access to the property's sole access, access to neighboring industrial businesses and residential homes, as well as parking occurring off-site at the Xcel Transformer Station. As its location is not served by sidewalks, this
also forces members to walk in the City streets or across private properties.

Ms. McIntosh pointed out assembly uses, such as religious institutions, tend to have higher parking demands than other types of uses due to the nature of their visitors. Industrial uses by contrast tend to have low parking demands relative to their square footage because these uses generally have lower employment densities, although the 2040 Comprehensive Plan seeks to add employment intensity to the B-MU land use designation.

Ms. McIntosh stated places of public assembly, such as houses of worship, theatres, auditoriums, mortuaries, stadiums, arenas, and dance halls require one parking space for every three seats, or attendees, per Section 35-5506 under the City's Unified Development Ordinance. Conversely, industry and wholesale uses, as are more typically found in the City's MX-B District, require one space for every two employees based upon maximum planned employment during any work period or one space for every 800 square feet of gross floor area, whichever requirement is greater. In the event the latter requirement is greater, adequate land area shall be provided for the required off-street parking area, but improved space need only be provided according to the employees ratio.

Ms. McIntosh showed images of the existing buildings. In reviewing the City's existing MX-B District properties, it was noted that the majority of properties are home to uses traditionally found

in a business park/light industrial district. These include Medtronic, Endurable Building Products, Hiawatha Rubber, Revival, RAO Manufacturing, the former Metro Transit Reuter Bus Garage, and the City's Public Works Garage. The majority of these properties are located on minor roadways that are intended to provide access for employees, trucking, and logistics, with loading docks, gated access, or outside storage present. Although there are some properties that do not fit this description, these are the existing conditions for many of the 36 properties within the MX-B District.

Ms. McIntosh added there are certain barriers that would also require consideration in retrofitting industrial or office type buildings or tenant spaces for "assembly" type uses as they require higher fire suppression standards than other types of uses due to the congregation of people that occurs within buildings and the potential need for exiting in case of an emergency. Conversion of a standalone building or tenant space would likely constitute a change of use from the perspective of the Building and Fire Code and thus would trigger a change of use from the perspective of the Building and Fire Code.

Ms. McIntosh stated in the case of the few multi-tenant office buildings located off Earle Brown Drive and within the MX-B District, their building type could restrict the location of a proposed place for religious assembly type use. For example, on a 2B construction-type building, an assembly use could not be located higher than the third floor. In reviewing the standards for approving an ordinance amendment, the proposed amendment shall be consistent with and compatible with surrounding land use classifications; whether the proposal demonstrates merit beyond the interests of an owner or, in this case, an interested party, for an individual parcel. The specific policies and recommendations as outlined within the City's Comprehensive Plan or other City plans.

Ms. McIntosh explained although this is not contemplated within this application, any applicant pursuing a conditional use permit (CUP) for a "Places for Religious Assembly" use would further need to satisfactorily demonstrate that all conditional use permit criteria as outlined under Section 35-7703 (Conditional Use Permit Criteria) has been meet. These criteria include, but are not limited to whether: the establishment of the conditional use will impede the normal and orderly development and improvement of surrounding property for uses permitted in the district, that adequate measures have been or will be taken so as to provide ingress, egress, and parking so designed as to minimize traffic congestion in the public streets, be in accordance with the general objectives, or with any specific objective, of the City's Comprehensive Plan and Unified Development Ordinance, and not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the neighborhood.

Ms. McIntosh pointed out that the Planning Commission recommended approval of the requested ordinance amendment on a 3-2 vote at their September 12, 2024 meeting. No members of the public were present, nor were any comments submitted in advance of the meeting. The applicant and representation from their architect were present.

Ms. McIntosh stated the Planning Commissioners held a lengthy discussion on the uses allowed within the MC-B district, its intended purpose, and the 2040 Comprehensive Plan land use designation of B-MU. The Planning Commission asked a number of questions. They asked if the Heritage Center was within this District. Staff confirmed the Heritage Center is a non-confirming use under the 2040 Plan and UDO and it was not a like-for-like comparison. The Commission asked whether event centers would be permitted within the MX-B District if "Places for Religious Assembly" are permitted as event centers as accessory uses.

Ms. McIntosh explained the Planning Commission commented a "Places for Religious Assembly" use may be beneficial to industrial businesses in that they would operate during the off hours. If the City were to allow it, they could see what would happen. One Commissioner asked how Staff plans to address violations at 4900 France which is the only "Places for Religious Assembly" used in the District.

Ms. McIntosh added Commissioners asked how likely it was that other properties in the MX-B District might convert to a "Places for Religious Assembly" use. While it cannot be a reason for determination as part of a land use application and the Planning Commission's scope of duties, there were considerations as to how "Places for Religious Assembly" would strengthen the City's tax base. The 2040 Comprehensive Plan outlines the B-MU land use as the City's greatest opportunity to provide employment intensity and be competitive economically as a City.

Ms. McIntosh noted the Planning Commission expressed concerns regarding potential impacts to existing light industrial businesses in Brooklyn Center, the City's support and protection of them, and whether introducing the proposed use would be consistent in providing "highest and best" uses in the area of the City. Finally, there were concerns about potential spot zoning to allow for use at a property of interest. Ms. McIntosh pointed out that the Planning Commission recommended approval of the requested ordinance amendment on a 3-2 vote at their September 12, 2024 meeting.

Ms. McIntosh stated following the September Planning Commission meeting, the City Attorney informed City Staff that a Bill was passed during the legislative session regarding "sacred settlements" or "sacred communities." The Bill went into effect on January 1, 2024. The Bill requires cities to allow religious institutions to permit micro-unit dwellings on properties owned by religious institutions as a permitted or conditional use regardless of the zoning district they are located.

Ms. McIntosh explained the change is intended to provide additional means for faith communities to serve chronically homeless and extremely low-income individuals in accordance with religious vocations. Micro-units cannot exceed 400 square feet and must be built on a permanent chassis and anchored. Other minimum requirements include access to water and electricity and access to a common kitchen, toilet, bathing, and laundry consistent with boarding house requirements. City Staff doesn't have enough information to determine whether these micro-unit dwellings would be of consideration or feasible on any of the properties within the MX-B District. Ms. McIntosh showed photo examples of micro-units.

Ms. McIntosh concluded City Staff remains in the position that, based on the findings presented within the provided report, the requested ordinance amendment should be denied. However, if the City Council elects to recommend approval of the request to amend Section 35-4103 to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District, the motion language would need to be amended to approve a first reading and set the second reading of the ordinance amendment to October 14, 2024.
Councilmember Kragness asked how the violations at 4900 France are being addressed and how the conditions are impacting Staff's recommendation to deny the present application. Ms. McIntosh stated Staff has been paying more attention to 4900 France because of the new application. It will be handled by Code Enforcement Staff and law enforcement.

Councilmember Kragness stated it is unfair for a new applicant to be hindered by another entity's violations. Ms. McIntosh confirmed the two situations are being handled separately. The issues at 4900 France were only mentioned because it is the most similar use to the proposal. City Staff is working with other religious assemblies to expand as they are bigger than they used to be. There are requests for large auditoriums, schools, or call centers. Councilmember Kragness noted the interest in expansion is a good thing.

Councilmember Jerzak explained he doesn't like special permits or uses because each applicant would believe they are entitled to special treatment. He also supports the recommendation from Staff as they are professionals. He noted it is unclear if the entity is seeking tax-exempt status. The Planning Commission referenced the use may be beneficial to the tax base, but that has not been confirmed.

Mayor Graves asked if Staff had received complaints regarding the mosque. Ms. McIntosh confirmed they have received complaints from neighboring businesses about the mosque.

Mayor Graves asked if Staff would have the same recommendation to deny the application if the UDO wasn't in place. Ms. McIntosh explained there was such a big gap between the previous code and the updated code. In 2019, the UDO guided the property as B-MU. The UDO is in line with the 2040 Comprehensive Plan.

Mayor Graves asked for clarification on the restrictions of the UDO. Ms. McIntosh stated that Section 35-4103 of the Unified Development Ordinance outlines manufacturing, assembly, and processing of products, wholesale trade, foundries, and textile mills and mills products as uses only allowed or permitted by conditional use in the City's MX-B and I Districts.

Nyenatee Davis, Pastor of Trinity International Fellowship, introduced himself.

Councilmember Jerzak asked what tax status the church plans to seek out. Mr. Davis explained they are working with an attorney to determine their tax status.

Mayor Graves asked how long Trinity has been operating and how many attendees it has. Mr. Davis stated Trinity has been operating for five years, and they have around 128 regular attendees.

Mayor Graves asked which building they were discussing. Ms. McIntosh showed an image of the building being considered. There is one user, MinMor Industries, but they have shifted their employees to primarily remote work. At most, there are about 20 employees on-site.

Mayor Graves asked if Trinity had any employees. Mr. Davis stated there are four employees.

Mayor Graves explained it is difficult to make decisions regarding conditional use permits, especially when a property isn't owned by the City. The City needs a larger tax base and they need to be careful about how existing properties are redeveloped. However, they don't want buildings to sit unused.

Councilmember Jerzak moved to deny the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (Allowed Use Table) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

The motion failed for lack of a second.

Mayor Graves asked if there has been other interest in the building, specifically for uses that would employ people or generate taxes for the City. Ms. McIntosh stated other interests cannot be used in the decision-making process. In general, the B-MU and I Districts have been at a disadvantage for business and industrial uses because the buildings are older and don't meet modern building standards for such uses. Many of the properties will need to be redeveloped, but there are some larger uses such as MedTronic that have found value in the area. There are limitations for assembly uses in office buildings along Earle Brown Drive because City Code will not allow for use above the third floor for assembly. There is great visibility for the area because of the bricks and its proximity to the highway.

Councilmember Jerzak asked if taxes are currently being paid by the owner. Ms. McIntosh stated the current use is not exempt.

Councilmember Jerzak suggested the item be tabled to allow for more information gathering. He requested information on the tax status of the proposed use. Ultimately, he doesn't want to set a precedent or ignore Staff's recommendation.

Mayor Graves stated there could be a use similar to Resurrecting Faith World Ministries. Ms. McIntosh noted a caveat of the Tax Increment Financing (TIF) funds for Resurrecting Faith World Ministries was to create a for-profit arm because the City's Economic Development Authority owned the property.

Councilmember Jerzak moved and Councilmember Butler seconded to table consideration of the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (Allowed Use Table) of the City Code of Ordinances, and as outlined under Planning

Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

Motion passed unanimously.

Dr. Edwards asked for the Council to notify Staff of information they would like presented on the item. Mayor Graves stated she would like more information regarding the new Bill regarding "sacred settlements" or "sacred communities."

Councilmember Jerzak stated he would like information on the current tax status of the building, the tax status of the proposed use, details on why Staff recommended the denial, and any implications from setting a precedent through allowing the application.

10. COUNCIL CONSIDERATION ITEMS

10a. RESOLUTION NO. 2024-93; APPROVING THE PRELIMINARY 2025 PROPERTY TAX LEVY AND RESOLUTION NO. 2024-94; PRELIMINARY BUDGET

City Manager Reggie Edwards introduced the item and provided a presentation. He thanked Staff for their work on the budget and levy. He explained the purpose of the presentation is to present the 2025 preliminary levy and budget, provide insight into the factors that guided the development of the 2025 preliminary and levy budget, provide budget highlights, note fiscal analysis and impacts, and explain next steps.

Dr. Edwards noted on May 6, 2024, there was a Joint Work Session for the City Council and Finance Commission to discuss Capital Improvement Plan and Capital Funds. August 19, 2024, there was another Joint Work Session which included budget request presentations by Department leaders, debt service, and the Central Garage.

Dr. Edwards pointed out that on November 18, 2024, the City Council and Finance Commission will have a Joint Work Session to cover budget request presentations on EDA, utilities, Enterprise Funds, and Grant Funds. Finally, on December 2, 2024, there will be a meeting to adopt the 2025 budget and levy.

Dr. Edwards explained the mission of Brooklyn Center is to actively provide a safe, welcoming, and inclusive community. In pursuit of the vision of one Brooklyn Center, the City will provide high-quality, equitable city services that demonstrate we are inclusive and welcoming. Through its actions, the City will establish an engaged relationship with the community. This includes increasing the safety and well-being of residents, City employees, businesses, and visitors while adding a wide range of economic development improvements. All this leads to a renewed sense of pride in the City, its physical condition, and its aesthetics.

Dr. Edwards noted guiding factors for the budget include recognizing unprecedented events and challenges faced by residents and staff over the past few years, the economic condition and the tax

capacity of residents, and an intent to balance the needs for economic growth, health, and well-being of people, longer-term fiscal stability, pursuit of City Council direction, and providing City services at an affordable cost for residents.

Dr. Edwards stated the initial request from Departments would require a 14.22 percent levy. However, the budget was pared down to a proposed 8.96 percent. The basic costs such as debt service, salary and benefit increases, and other inflation considerations, would require a levy higher than 8.96 percent. Staff was asked to be creative about cutting funds in their Departments to lower the levy further.

Dr. Edwards explained a $2.2 million investment includes $1 million for a three percent wages and benefits increase, $161,440 for a gap fill, $239,000 for a 24-hour Fire Duty Crew, $40,000 for service performance analysis, $100,00 for salary wage competitiveness, $515,000 for capital infrastructure bonding, then $136,000 for other costs.

Dr. Edwards noted there were $1.3 million in reductions and adjustments. Administrative transfers accounted for $291,000, one-time funding provided $106,000, there was $35,000 from Entertainment in the Park and the Juneteenth celebration, $9,400 from interns and seasonal workers, $50,000 from a reduction in salary competitiveness, $64,000 from overtime limits, $112,000 from freezing Parks and Recreation outreach efforts, reducing prevention and intervention efforts by $25,000, City-wide landscaping for $75,000, redirecting reserve contributions by $231,000, $55,000 for maintenance on Brooklyn Boulevard, $84,000 for a shared administrative assistant, and an additional $177,600 of miscellaneous reductions.

Dr. Edwards pointed out the 8.96 percent levy equates to $2,189,494 including the bonding. Staff is looking for new revenue streams and overall economic growth of the City.

Director of Fiscal and Support Services Angela Holm explained the City's current budget policies provide a basic framework and assist in the decision-making process. Policies include a balanced budget, current revenue should pay for current expenses, contingency of up to five percent of the budget, providing adequate funding for capital replacement and maintenance, the budget should describe goals, services and programs, and a targeted unassigned General Fund balance of 50 to 52 percent of the next year's General Fund budget.

Ms. Holm noted there are also revenue policies that direct how the City maintains the ability to pay for services it provides its customers. The policies include maintaining a diversified and stable revenue system, an annual revenue estimates completed through an objective conservative analytical process, user fees should be reviewed and revised on an annual basis, fees and user charges for Enterprise Funds should fully support total direct and indirect costs, and user fees for City services will generally be established at a level which will recover the full cost of providing the service.

Ms. Holm showed a graph of the median value homes in the City over the years. The value has been steadily increasing since 2014. The median home value in 2024 is $272,100, which is a slight increase from 2023's median home value. She also showed a list of median home values

in comparison to other cities. Brooklyn Center has a lower median home value than Golden Valley, New Hope, Richfield, Crystal, and Robbinsdale. The median home values in nearby neighborhoods in Minneapolis are slightly lower than in Brooklyn Center.

Ms. Holm showed a table with taxable market value estimates. Overall, there is a 0.6 percent increase from 2024 to 2025. Industrial has somewhat increased, which allowed the residential tax capacity to decrease and carry less of the burden.

Ms. Holm pointed out a property tax levy increase or decrease of one percent is approximately $244,000 in revenue. The total payable levy from 2024 was around $24.4 million. The estimated total levy for 2024 is $26,625,814, which is an 8.96 percent increase. The numbers would be recalculated should the Council move forward with the proposed levy.

Ms. Holm also showed a pie chart for the annual cost of government in Brooklyn Center for the median home. For example, the Police Department costs the median household $612 and the Fire Department costs $150.

Ms. Holm then showed a slide with projected property tax impacts for 2025. With an 8.96 percent levy, the median single-family household would see an increase of $97 in the City portion of taxes for the year. Each percent of the levy would add or decrease $14 for the average single-family household.

Ms. Holm reiterated on November 18, 2024, the City Council and Finance Commission will have a Joint Work Session to cover budget request presentations on EDA, utilities, Enterprise Funds, and Grant Funds. Finally, on December 2, 2024, there will be a meeting to adopt the 2025 budget and levy.

Dr. Edwards noted there are a number of scenarios that could impact the levy. First, if the City were to receive the SAFER (Staffing for Adequate Fire and Emergency Response) Grant, the levy could be reduced to 7.96 percent. If Brooklyn Center received the Grant and restored some cuts that are reoccurring costs, then the levy could stay at 8.96 percent. If the City doesn't receive the SAFER Grant, they could reduce the levy to 7.96 percent by postponing the 24-hour Fire Duty Crew or freeze other personnel. Alternatively, the budget and levy could stay as presented at 8.96 percent without the Grant.

Councilmember Kragness asked how much the SAFER Grant would be for. Fire Chief Berg stated the grant would be $1.3 million for three years.

Councilmember Butler asked what impacts Brooklyn Center would see should the Duty Crew be postponed. Dr. Edwards stated they would seek out the SAFER Grant again and wait until a future budget cycle to implement a Duty Crew. In 2024, two positions were budgeted for. The Duty Crew requires five personnel, so the Crew couldn't be implemented without additional funds. The two positions have not been hired for.

Fire Chief Berg pointed out that 8,790 hours need to be covered by the Duty Crew throughout the year.

Councilmember Kragness stated the Grant would be for $1.3 million for three years. If the levy were to go down one percent, there would be a decrease in the budget by $244,000. However, the Grant is much higher than a one percent change. Ms. Holm stated the SAFER Grant would cover three additional personnel. The levy could go down by at least one percent because the SAFER Grant would provide $433,000 per year. Staff would need to determine if the three years could be lengthened to use the funds to create more gradual funding for the program.

Councilmember Jerzak noted Staff is in a hard position to make a lot of cuts while they have interest in growing their programs. Employees are also unsure if their positions will remain funded. The Council must consider the tax impacts and rent impacts of a steep levy along with the population in Brooklyn Center. In an ideal scenario, there would be no levy.

Councilmember Jerzak stated Brooklyn Center has been promising a Duty Crew to its residents. The overtime and on-call efforts for employees is unsustainable.

Councilmember Jerzak pointed out that the increase for taxpayers would be more than 8.96 percent considering the County taxes, schools, and the potential referendum. There is a comment in the budget that alludes to an increase in utility costs as well.

Councilmember Jerzak added another concern is the lack of money in the Emergency Fund, and there isn't enough being put into it with the proposed budget. He would like to see any excess funds from underspending or frozen positions be attributed to the Emergency Fund.

Dr. Edwards explained the Emergency Fund is to address issues such as a bridge collapse. However, there are other reserves. The City is somewhat short of its six months of reserves, but that is a guiding tenet rather than a requirement.

Councilmember Jerzak noted on page 95, there was a transfer to the Economic Development Authority (EDA) budget. He asked why the transfer was made. Dr. Edwards stated the transfer was to promote balance. It is a top priority to grow the economy and maintain Staff, but they also hope to keep the levy low. The permit fees were decreased for development. They hope to grow their resources within the EDA.

Councilmember Jerzak stated he tries to understand the budget in a way he can easily explain to neighbors. The monthly cost for public safety is less than $10 for the average household, and people can get behind that.

Councilmember Kragness asked why Common Sense was moved from professional services to other services. Ms. Holm explained the State has identified a number of services that are considered professional services. Previously, Staff would put miscellaneous services under professional services. Now miscellaneous services are categorized under other services. The goal

is to align their finances more closely to the State's chart of accounts. It is a painful transition, but it will even out over the years.

Councilmember Kragness noted she didn't realize there was an 80 percent increase. There may have been a typo due to a discrepancy. She asked what else is included in an 80 percent increase in the contract. Ms. Holm stated she would need to review the contract again to provide the most accurate answer.

Mayor Graves stated her preferred scenario would be to keep the levy at 8.96 percent even if the SAFER Grant were received. The City's work around economic development is under-resourced. Brooklyn Center needs to bring in more money to offset the tax burden on the residents. Community Development funds only represent a small percentage of the services, but it needs to have a higher priority because it would help to fund the other services.

Councilmember Jerzak noted his agreement with Mayor Graves. The permit revenues tend to offset Community Development's costs. He added Council previously had a consensus to fund a Duty Crew.

Councilmember Kragness stated she would like to reduce the levy to 7.96 percent if possible. She thanked Staff for their work on the budget and pointed out the process is much clearer than in previous years.

Councilmember Butler agreed the process was more efficient this year. She stated she would support the scenario with 8.96 percent and the SAFER Grant. A lower levy would require a more burdensome increase in future budget cycles.

Councilmember Jerzak stated he would like any restored funds to go toward the Emergency Fund. In that scenario, he could support a levy of 8.96 percent with the SAFER Grant.

Mayor Graves moved and Councilmember Butler seconded to adopt RESOLUTION NO. 2024-93 approving a preliminary tax capacity levy for the General Fund and Debt Service Fund and a market value levy for the Housing and Redevelopment Authority for property taxes payable in 2025 and to adopt RESOLUTION NO. 2024-94 approving a preliminary budget for the 2025 Fiscal Year.

Motion passed unanimously.

11. COUNCIL REPORT

Councilmember Butler reported on her attendance at the following and provided information on the following upcoming events:

- Participated in a ride-along with CEAP for meal delivery. She recommended the experience.

Councilmember Kragness reported on her attendance at the following and provided information on the following upcoming events:

- Participated in a ride-along with CEAP for meal delivery. She recommended the experience. She provided details on the routes and scope of services. There are opportunities to volunteer for deliveries.
- Attended a trip to Albuquerque to learn about an extended response model. There was a lot of collaboration in the model and focused on the specific needs of the community. Services were even expanded to provide clothes for community members.
- Pointed out that the deadline for Random Acts of Kindness is October 18, 2024.

Councilmember Jerzak reported on his attendance at the following and provided information on the following upcoming events:

- Attended the Fire Department 75th Anniversary and thanked Staff for their work on the event.
- Noted he has a one-to-one meeting set up with the Hwy 252 Task Force.
- Met with community members regarding the budget.

Mayor Graves reported on her attendance at the following and provided information on the following upcoming events:

- Attended the Fire Department 75th Anniversary.
- Recorded a Mayor's Minutes video.
- Attended an event at the Brooklyn Park Small Business Center.
- Participated in an interview regarding Hwy 252.
- Completed administrative work related to the Tourism Board.
- Attended the Crime Prevention Federal Advocacy Committee through the National League of Cities.
- Met with Dr. Edwards.
- Met with the various community residents.

12. ADJOURNMENT

Mayor Graves moved and Councilmember Jerzak seconded adjournment of the City Council meeting at 9:20 p.m.

Motion passed unanimously.

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Barb Suciu, Assistant City Manager/City Clerk
BY: Shannon Pettit, Deputy City Clerk

SUBJECT: Approval of Licenses

Requested Council Action:

- *Motion to approve the licenses as presented.*

Background:

The following businesses/persons have applied for City licenses as noted. Each business/person has fulfilled the requirements of the City Ordinance governing respective licenses, submitted appropriate applications, and paid proper fees. Applicants for rental dwelling licenses are in compliance with Chapter 12 of the City Code of Ordinances, unless comments are noted below the property address on the attached rental report.

Mechanical

Drew Can Do! LLC
3322 277th Ave NW, Isanti 55040
Glowing Hearth and Home
5391 12th Ave. E., Shakopee 55379
Hap E Homes
409 6th St W, Hastings 55033
Riccar Heating & A/C
2387 Station Parkway NW, Andover 55304
Sayler Heating & Air Conditioning, Inc.
6520 West Lake St, St. Louis Park 55426
Total Refrigeration
949 So Concord Street, South St. Paul, 55075

Sign

Kaufman Sign Company
2714 East 33rd Street, Minneapolis 55406

Budget Issues:

- None

Inclusive Community Engagement:

- None

Antiracist/Equity Policy Effect:

- None

ATTACHMENTS:

Description	Upload Date	Type
Rental Criteria	6/20/2023	Backup Material
Rentals	10/8/2024	Backup Material

Property Code and Nuisance Violations Criteria		
License Category (Based on Property Code Only)	**Number of Units**	**Property Code Violations per Inspected Unit**
Type I – 3 Year	1-2 units	0-2
	3+ units	0-0.75
Type II – 2 Year	1-2 units	Greater than 2 but not more than 5
	3+ units	Greater than 0.75 but not more than 1.5
Type III – 1 Year	1-2 units	Greater than 5 but not more than 9
	3+ units	Greater than 1.5 but not more than 3
Type IV – 6 Months	1-2 units	Greater than 9
	3+ units	Greater than 3

b. Police Service Calls.

Police call rates will be based on the average number of valid police calls per unit per year. Police incidences for purposes of determining licensing categories shall include disorderly activities and nuisances as defined in Section 12-911, and events categorized as Part I crimes in the Uniform Crime Reporting System including homicide, rape, robbery, aggravated assault, burglary, theft, auto theft and arson.

Calls will not be counted for purposes of determining licensing categories where the victim and suspect are "Family or household members" as defined in the Domestic Abuse Act, Minnesota Statutes, Section 518B.01, Subd. 2 (b) and where there is a report of "Domestic Abuse" as defined in the Domestic Abuse Act, Minnesota Statutes, Section 518B.01, Subd. 2 (a).

License Category	**Number of Units**	**Validated Calls for Disorderly Conduct Service & Part I Crimes** (Calls Per Unit/Year)
No Category Impact	1-2	0-1
	3-4 units	0-0.25
	5 or more units	0-0.35
Decrease 1 Category	1-2	Greater than 1 but not more than 3
	3-4 units	Greater than 0.25 but not more than 1
	5 or more units	Greater than 0.35 but not more than 0.50
Decrease 2 Categories	1-2	Greater than 3
	3-4 units	Greater than 1
	5 or more units	Greater than 0.50

Rental Licenses for Council Approval 10.14.24

Location Address	License Subtype	Renewal/Initial	Owner	Property Code Violations	License Type	Police CFS*	Final License Type**	Previous License Type***	Consecutive Type IV's
5300 Colfax Ave N	Single	Initial	Thao Pha	12	Type IV	N/A	Type IV	N/A	0
6015 Dupont Ave N	Single	Initial	HOME TRS LLC	2	Type I	N/A	Type II	N/A	N/A
7130 France Ave N	Single	Initial	FAYSAL SAID/ZAM ZAM ALI	16	Type IV	0	Type IV	N/A	0
3407 65th Ave N	Multiple Family 6 Bldg 163 Units	Renewal	Soderberg Investments Llc Met Requirements	115 = 1.42 per unit	Type II	0	Type II	Type III	N/A
6101 Beard Ave N	Multiple Family 1 Bldg 81 Units	Renewal	6939 Baird Llc Et Al C/o Rtg Met Requirements	60 = 0.74 per unit	Type I	0	Type I	Type III	N/A
6109 Beard Ave N	Multiple Family 1 Bldg 3 Units	Renewal	SIMONS REVOCABLE TRUST Met Requirements	3 = 1 per unit	Type II	0	Type II	Type IV	N/A
7015 Brooklyn Blvd	Multiple Family 2 Bldgs 58 Units	Renewal	Willow Lane Estates Llc Met Requirements	86 = 1.45 per unit	Type II	0	Type II	Type III	N/A
7200 Camden Ave N	Multiple Family 5 Bldgs 80 Units	Renewal	Namaka Evergreen, LLC Met Requirements	180 = 2.25 per unit	Type III	0	Type III	Type IV	N/A
700 58th Ave N	Single	Renewal	WILBUR HUBBARD Did not meet requirements	0	Type I	0	Type IV	Type IV	2
707 69th Ave N	Single	Renewal	SFR Borrower 2021-2 LLC Met Requirements	1	Type I	0	Type I	Type IV	N/A
1513 Humboldt Pl N	Single	Renewal	Johnson Organization Inc	0	Type I	0	Type I	Type II	N/A
2113 55th Ave N	Single	Renewal	Ih3 Property Minnesota Lp Met Requirements	0	Type I	0	Type I	Type IV	N/A
2606 65th Ave N	Single	Renewal	Hpa Ii Borrower 2020-2 Llc Did not meet requirements	1	Type I	0	Type IV	Type IV	2
3141 49th Ave N	Single	Renewal	Ccf3 Llc Met Requirements	2	Type I	0	Type I	Type IV	N/A
5112 70th Ave N	Single	Renewal	Ih3 Property Minnesota Lp Met Requirements	3	Type II	0	Type II	Type IV	N/A
5250 Great View Ave N	Single	Renewal	Cosco Property 5 Llc Met Requirements	1	Type I	0	Type I	Type III	N/A

5412 1/2 Fremont Ave N	Single	Renewal	Larry Johnson Did not meet requirements	3	Type II	0	Type III	Type III	N/A
5535 Bryant Ave N	Single	Renewal	E H Mendoza & E C Coto Mejia Met Requirements	4	Type II	0	Type II	Type III	N/A
5636 Humboldt Ave N	Single	Renewal	Gao Qiang Liu Met Requirements	1	Type I	0	Type I	Type III	N/A
5713 Humboldt Ave N	Single	Renewal	Janice Biorn	22	Type IV	0	Type IV	Type I	0
5857 Colfax Ave N	Single	Renewal	Cel Monton Llc Did not meet requirements	2	Type I	0	Type IV	Type IV	2
5936 Zenith Ave N	Single	Renewal	S Banks & D J Banks	0	Type I	0	Type I	Type II	N/A
6349 Halifax Dr	Single	Renewal	Qiang Kevin Fang Met Requirements	2	Type I	0	Type I	Type III	N/A
6712 Beard Ave N	Single	Renewal	Mlmjr Properties & Invst Llc Did not meet requirements	4	Type II	0	Type IV	Type IV	4
7018 Irving Ave N	Single	Renewal	Omar A & Ayanna Adams Did not meet requirements	31	Type IV	0	Type IV	Type IV	2
7018 Irving Ave N	Single	Renewal	Omar A & Ayanna Adams Did not meet requirements	2	Type II	0	Type IV	Type IV	3
7222 Dallas Rd	Single	Renewal	HERMAN CAP PARTNERS VIILLC	2	Type I	0	Type I	Type II	N/A

*CFS = Calls for service for renewal licenses only (Initial licenses are not applicable to CFS and will be listed as N/A)

**License type being issued

***Intial licenses will not show a Type I = 3 year, Type II = 2 year, Type III = 1 year, Type IV = 6 months

All properties are current on City utilities and property taxes

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: N/A
BY: Barb Suciu, Assistant City Manager/City Clerk

SUBJECT: Resolution Appointing Election Judges for the 2024 General Election

Requested Council Action:

- *Motion to approve a resolution appointing election judges for the November 5, 2024, General Election.*

Background:

Minnesota Statutes, Section 204B.21, subdivision 2, requires election judges to be appointed by the governing body at least 25 days before the election at which the election judges will serve. T

Minnesota Statutes, Section 203B.121, provides that the absentee ballot board may include staff trained as election judges. Because the absentee ballot board accepts or rejects absentee ballots in such a timely manner, it is imperative that City Staff be appointed to the absentee ballot board.

Budget Issues:

- none

Inclusive Community Engagement:

- none

Antiracist/Equity Policy Effect:

- none

Strategic Priorities and Values:

Provide quality services with fair and equitable treatment

ATTACHMENTS:

Description	Upload Date	Type
Resolution	9/19/2024	Backup Material
Exhibit A	9/19/2024	Backup Material

Member introduced the following resolution and moved its adoption:

RESOLUTION NO.

RESOLUTION APPOINTING ELECTION JUDGES FOR THE 2024 GENERAL ELECTION ON NOVEMBER 5, 2024

WHEREAS, the Primary Election is November 5, 2024; and

WHEREAS, *Minn. Stat. 204B.21, subd. 2,* requires that persons serving as election judges be appointed by the Council at least 25 days before the election at which the election judges will serve.

BE IT RESOLVED by the City Council of the City of Brooklyn Center that the individuals named on the attached exhibit A and on file in the office of the City Clerk are appointed to perform the duties of election judge and/or be appointed as the Brooklyn Center Absentee Ballot Board election judges.

BE IT RESOLVED the City Council also appoints other individuals and all members appointed to the Hennepin County Absentee Ballot Board as authorized under *Minn. Stat. 204B.21, subd. 2*, under the direction of the Assistant City Manager/City Clerk, to serve as members of the Brooklyn Center Absentee Ballot Board.

BE IT FURTHER RESOLVED that the Assistant City Manager/City Clerk is with this, authorized to make any substitutions or additions as deemed necessary.

September 23, 2024
Date

_____
Mayor

ATTEST:_____
Assistant City Manager/City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereupon said resolution was declared duly passed and adopted.

EXHIBIT A
Election Judges

Arneson, Susan
Beard, Walter
Bennethum, Lynn
Bennethum, Ted
Bentrud, Andrea
Berg, Susie
Betzler, William
Bittmann, Daryl
Bueckers, Kenneth
Bumgarner, Don
Byron Barfknecht, Tricia
Carr, Margaret
Cary, Mary
Castonguay, Daniel
Christians, Carol
Cooper, Pat
Cramer, Thomas
Crest, Dale
Dagner, Ryan
Danek, Cathy
DeRosier, Jon
Donkers, William
Einberger McDonough, Wendi
Ellgren, Kathryn
Epps, Myra
Esele, Chidiebere
Fikes, Lillian
Gersetich, Mary
Gilyard, Leslie
Green, Carolyn
Hancock, Allan
Hanna, Melody
Henrichs, Philip
Higgins, Sherry
Holmes-Morris, Quincia
Huot, Lori
Hurley, Charles
Ishola, Taofeek
Johnson, Charlene
Johnson, Kirk
Jones, Christina
Jones, Stephanie
Juul, Laura
Khan, Nahid
Knudsen, Marilyn
Koenig, Patricia
Lalim, Jeremy
Landt, Emma
LeNeau, Peter
Leonard, Owen
Long, Stephen
Merritt, Gayle
Mesenbrink, Patty
Miller, Sheteea
Mitlyng, Deborah
Mudek, Todd
Nelson, Kathleen
Paine, Debbie
Parnjan, Justin
Pelkey, Bruce
Perreault, Dale
Peterson, Vanissa
Pettit, Shannon
Phillips, Marie
Piekarczyk, Gary
Saathoff, Holly
Scherber, Kevin
Shallenberger, Jane
Sharpe, Elizabeth
Shepard, Devon
Shibley, Paulette
Shold, Stephanie
Smith, Deborah
Smuk, Melanie
Steinhaus, Charles
Stethem, Beverly
Suciu, Barb
Sullivan, Molly
Sullivan, Timothy
Thomas, Julius
Truran, Beverly
Turner, Yvonne
Varhol, Cole
Varhol, Paula
Weaver, Thomas
Wilks, Sarah

Kallio, Julie

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: N/A
BY: Todd Berg - Fire Chief/Emergency Manager

SUBJECT: Resolution Requesting Adopting of the Hennepin County All-County Mitigation Plan

Requested Council Action:

- *Motion to adopt the Hennepin County All-Hazard Mitigation Plan.*

Background:

Hazard mitigation can be defined as, “to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster through both long and short-term strategies”. It involves strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards. The responsibility for hazard mitigation lies with many, including private property owners; business and industry; and local, state, and federal government.

The purpose of this plan is to identify the County’s major hazards, assess the vulnerability, and to reduce risk using a variety of data and best practice measures to implement mitigation projects. This plan identifies goals, objectives, recommended actions, and costs by reviewing and working on initiatives with each county jurisdiction or partner to reduce and/prevent injury and damage from hazardous events. The intent of the Plan is to provide unified guidance for coordinating mitigation efforts prior to or following a major emergency/disaster by implementing an on-going comprehensive county hazard mitigation strategy intended to reduce the impact of loss of life and property due to effects of natural hazards. Through continued collaboration with each jurisdiction by providing staff expertise, support, training and education opportunities, Hennepin County Emergency Management will continue to increase its resiliency to minimize the effects of natural hazards.

Budget Issues:

By approving this plan, it would make us eligible for federal dollars in mitigating hazards as well as, financial assistance following emergency declarations of such hazards that effect Brooklyn Center.

Inclusive Community Engagement:

Antiracist/Equity Policy Effect:

Strategic Priorities and Values:

Maintain and enhance public places, Improve community and employee safety, Be an effective partner with other public entities

ATTACHMENTS:

Description	Upload Date	Type
Resolution	10/4/2024	Cover Memo
Plan section 1	10/4/2024	Cover Memo
Plan section 2	10/4/2024	Cover Memo
Plan section 3	10/4/2024	Cover Memo

Member introduced the following resolution and moved its adoption:

RESOLUTION NO._____

RESOLUTION REQUESTING ADOPTING THE HENNEPIN COUNTY ALL-HAZARD MITIGATION PLAN

WHEREAS, the City of Brooklyn Center has participated in the hazard mitigation planning process as established under the Disaster Mitigation Act of 2000, and

WHEREAS, the Act establishes a framework for the development of a multi-jurisdictional County 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 Hennepin County Plan includes a risk assessment including past hazards, hazards that threaten the County, an estimate of structures at risk, a general description of land uses and development trends; and

WHEREAS, the Hennepin County Plan includes a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs; and

WHEREAS, the Hennepin County Plan includes a maintenance or implementation process including plan updates, integration of the plan into other planning documents and how Hennepin County will maintain public participation and coordination; and

WHEREAS, the Plan has been shared with the Minnesota Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency for review and comment; and

WHEREAS, the Hennepin County All-Hazard Mitigation Plan will make the county and participating jurisdictions eligible to receive FEMA hazard mitigation assistance grants; and

WHEREAS, this is a multi-jurisdictional Plan and cities that participated in the planning process may choose to also adopt the County Plan.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota, that the City of Brooklyn Center supports the hazard mitigation planning effort and wishes to adopt the Hennepin County All-Hazard Mitigation Plan.

RESOLUTION NO. _____

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereupon said resolution was declared duly passed and adopted.

HENNEPIN COUNTY
MINNESOTA

2024 HENNEPIN COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

VOLUME 1
Background and County Profile

01 February 2024

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HENNEPIN COUNTY EMERGENCY MANAGEMENT
1600 Prairie Drive, Medina, Minnesota 55304

February 1, 2024

On behalf of Hennepin County Emergency Management (HCEM), we are pleased to present the 2024 Hennepin County Multi-Jurisdictional Hazard Mitigation Plan.

The purpose of this plan is to identify the Counties major hazards, assess the vulnerability, and to reduce risk using a variety of data and best practice measures to implement mitigation projects. This plan identifies goals, objectives, recommended actions, and costs by reviewing and working on initiatives with each county jurisdiction or partner to reduce and/prevent injury and damage from hazardous events. The intent of the Plan is to provide unified guidance for coordinating mitigation efforts prior to or following a major emergency/disaster by implementing an on-going comprehensive county hazard mitigation strategy intended to reduce the impact of loss of life and property due to effects of natural hazards.

Through continued collaboration with each jurisdiction by providing staff expertise, support, training and education opportunities, Hennepin County Emergency Management will continue to increase its resiliency to minimize the effects of natural hazards.

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SECTION 1	INTRODUCTION

Across the United States, natural and manmade disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on families and individuals can be immense and damages to businesses can result in regional economic consequences. The time, money, and effort to respond to and recover from these disasters divert public resources and attention from other important programs and problems.

Hennepin County is vulnerable to a variety of potential hazards. With seven Presidential Disaster Declarations since 2010, Hennepin County recognizes the consequences of disasters and the need to reduce the impacts of natural and manmade hazards. This HMP focuses primarily on natural hazard.

The elected and appointed officials of the County also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost-effective means for reducing the impact of natural and manmade hazards.

The 2024 *Hennepin County Multi-Jurisdictional Hazard Mitigation Plan* (HMP or the Plan) *for Hennepin County, Minnesota*, was prepared with input from the Mitigation Planning Regional Review Committee, the Hennepin County Emergency Management (HCEM) Planning cell, county residents, responsible officials, other HCEM department members, the state hazard mitigation officer, and in accordance with Federal Emergency Management Agency (FEMA).

The process to develop the HMP included a year of coordination and collaboration with representatives from all the jurisdictions in Hennepin County. The HMP will guide the County toward paying down risk, greater disaster resistance in harmony with the character, and needs of the community.

This section of the HMP includes an overview of the Plan, a discussion of the Plan's purpose and authority, and a description of the 45 incorporated cities, the Minneapolis/St. Paul Airport, and the Fort Snelling unincorporated portion of the County.

1.1.1. PLAN DESCRIPTION AND REQUIREMENTS

Federal legislation has historically provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation to improve this planning process (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, DMA 2000 establishes a pre-disaster hazard mitigation program and requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP).

Section 322 of DMA 2000 specifically addresses mitigation planning at the state and local levels. It identifies requirements that allow HMGP funds to be used for planning activities and increases the amount of HMGP funds available to states that have developed a comprehensive, enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving post-disaster HMGP funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities. State governments have certain responsibilities for

implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan.
- Reviewing and updating the state mitigation plan every three years.
- Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and
- Reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network is intended to enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

FEMA prepared an Interim Final Rule (IFR), published in the Federal Register on February 26, 2002 (44 CFR Parts 201 and 206), which establishes planning and funding criteria for states and local communities. The Plan has been prepared to meet Homeland Security Emergency Management (HSEM) and FEMA requirements thus making the County eligible for funding and technical assistance from state and federal hazard mitigation programs.

FEMA also requires that this plan meet the Local Mitigation Planning Policy Guide FP 206-21-0002, released April 19, 2022, and went into effect on April 19, 2023. This policy provides 8 planning elements that address 51 standards/requirements that must be addressed for FEMA Hazard Mitigation Plan approval.

SECTION 2	PLAN PURPOSE, AUTHORITY AND ADOPTION

2.1. AUTHORITY C1

This updated HMP complies with all requirements set forth by HSEM and the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation of 2000. In addition, it complies with all of FEMA's Final Rule 44 CFR 201.6 (c)(3), which outlines criteria for approval of mitigation plans.

2.2. SCOPE

The HMP identifies 19 natural hazards that pose a threat to this county, including both incorporated and unincorporated areas, and provides goals, objectives, and a plan of action for mitigating these hazards. This plan addresses and addresses natural hazards affecting Hennepin County as determined by frequency of event, economic impact, deaths, and injuries. The plan addresses hazard risk, reviews current state and local hazard mitigation capabilities, develops mitigation strategies and identifies partner agency and other interagency working group's actions to address mitigation needs. The plan, as agreed upon by all participating jurisdictions, assists in collaborating local mitigation plans or projects. Mitigation recommendations are provided through various federal, state, and local agency discussion and research. The HMP identifies a variety of existing literature and resources that will be used to assist participants in this plan, to succeed in their mitigation project application efforts. This is accomplished by establishing countywide mitigation strategies, providing technical resources through state, county and local agency staff expertise and support, to include, providing financial assistance through various grant programs, declarations, training and education and other jurisdiction initiatives for example partnering within community capital improvement.

2.3. PURPOSE

FEMA defines Hazard Mitigation as any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards for example, but not all-inclusive, flooding, storms, high winds, wildfires, earthquakes, etc. Mitigation efforts undertaken by communities will help reduce or eliminate damages to buildings and infrastructure, such as water supplies, sewers, and utility transmission lines, as well as natural, cultural, and historic resources.

The objective of the HMP is to rationalize the process of determining appropriate mitigation actions in protecting citizens, critical facilities, infrastructure, private property, and the surrounding environment from natural hazards. This objective can be achieved by identifying potential hazards in the jurisdiction, share information, discuss options, determine funding availability, and submit applications for qualified projects that would mitigate the effects of those hazards identified. This plan provides a framework for planning against all natural hazards in the county. The HMP can be used as a foundation beyond local mitigation plans in identifying additional collaborative partnerships in the county who wish to participate in paying down risk within their communities.

2.4. ADOPTION F1a, F2a

In 2010, the incorporated cities and Hennepin County formed an agreement which established the unification in the development of writing this plan. The Hennepin County Board of Commissioners and City Councils from each participating municipality were required to adopt the plan prior to its submittal to HSEM and FEMA for final adoption.

The Plan is intended to serve many purposes, including:

- *Enhance Public Awareness and Understanding* – to help residents of the County better understand the natural and manmade hazards that threaten public health, safety, and welfare; economic vitality; and the operational capability of important institutions.

- *Create a Decision Tool for Leadership, supervisors, or management* – to provide information that key decision makers of local government, business and industry, community associations, and other key institutions and organizations that need to take steps or actions by addressing vulnerabilities in reducing loss of life, prevent injury, and critical infrastructure damage with unforeseen future disasters.

- *Promote compliance with State and Federal Program Requirements*- to ensure that Hennepin County and its incorporated cities can take full advantage of state and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans.

- *Enhance Local Policies for Hazard Mitigation Capability*- to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster resistant future.

- *Provide Inter-Jurisdictional Coordination of Mitigation-Related Programming*- to ensure that proposals for mitigation initiatives are reviewed and coordinated among participating jurisdictions within the county; and

- *Achieve Regulatory Compliance* - To qualify for certain forms of federal aid for pre and post disaster funding, local jurisdictions must comply with the federal DMA 2000 and its implementing regulations (44CFR Section 201.6). DMA 2000 intends for hazard mitigation plans to remain relevant and current. Therefore, it requires that state hazard mitigation plans are updated every three years and local plans, including Hennepin County's every five years. This means that the HMP for Hennepin County uses a "five-year planning horizon". It is designed to carry the County through a five-year term, after which its goals, objectives, and actions will be reviewed with revisions being submitted to the County Board for adoption and approval.

SECTION 3	PLANNING PROCESS A

This section provides an overview of the planning process used to update the 2023 Hennepin County HMP. It includes who was involved in preparing the plan, how the public and stakeholders were involved, and the review and incorporation of existing plans and studies.

3.1. Why Prepare This Plan – The Big Picture

Hazard mitigation can be defined as, "to reduce or alleviate the loss of life, personal injury, and property damage that can result from a disaster through both long and short-term strategies". It involves strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards. The responsibility for hazard mitigation lies with many, including private property owners; business and industry; and local, state, and federal government.

Types of hazard mitigation measures include the following (not all-inclusive):

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

The benefits of hazard mitigation include the following (not all-inclusive):

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

The Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390) required state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. Prior to 2000, Federal disaster funding focused on disaster relief and recovery with limited funding for hazard mitigation planning. The DMA increased the emphasis on planning for disasters before they occur.

The DMA encourages state and local authorities to work together on pre-disaster planning, and it promote sustainability for disaster resistance. "Sustainable hazard mitigation" includes the sound management of natural resources and the recognition that hazards, and mitigation must be understood in the largest possible social and economic context. The enhanced planning network called for by the DMA helps local government's articulate accurate needs for mitigation, resulting in faster allocation of funding and more cost-effective risk reduction projects.

3.2.1. Hennepin County's Response to the DMA

In 2005, Hennepin County Emergency Management (HCEM) and municipalities agreed to work together to establish a framework for hazard mitigation planning that would meet the local mitigation planning requirements of Title 44 of the Code of Federal Regulations (CFR 44). The result was a HMP that included Hennepin County Departments, municipalities, and special jurisdictions. The plan provided local governments with the tools to complete individual mitigation objectives and actions, as well as completing a vulnerability assessment to meet their needs, while pooling resources and eliminating redundant planning activities.

3.2.2. Purpose for Planning

HCEM and its planning partners have a long-standing history of collaboration, proactive planning, and program implementation by developing and adopting a multi-jurisdiction all hazard mitigation plan. Strategies in this plan were selected because they meet element requirements, provide eligibility for project funding, and because they meet the needs of the planning partners for their residents. This HMP will identify strategies, goals, objectives, projects, costs, and safety information, to reduce risk from natural hazards. This HMP will help guide and coordinate mitigation activities throughout Hennepin County. The plan has been developed to meet the following objectives:

- Meet or exceed requirements of the DMA.
- Enable all HMP participating partners to apply for federal grant funding to reduce risk through mitigation.
- Meet the needs of each planning partner as well as state and federal requirements.
- Create a risk assessment that focuses on Hennepin County's nineteen (19) identified hazards.
- Create a single planning document that integrates all planning partners into a framework that supports partnerships within the County and puts all partners on the same planning cycle for future updates.
- Create opportunity for local governments in the County not included in the previous plan to gain DMA compliance.
- Meet the planning requirements of FEMA's Community Rating System (CRS), allowing planning partners that participate in the CRS program to maintain or enhance their CRS classifications.
- Coordinate existing plans and programs so that high-priority initiatives and projects to mitigate possible disaster impacts have an opportunity to funded and implemented.

3.2.3. Who Will Benefit from this Plan?

All communities, businesses, and residents of Hennepin County are the ultimate beneficiaries of this HMP. The plan reduces risk for those who live in, work in, and visit Hennepin County. It provides a viable planning framework for all natural hazards that may impact the County. Participation in development of the plan by key stakeholders in the County help reduce risk and ensure that outcomes will be mutually beneficial. The resources and background information in the plan are applicable countywide, and the plan's goals and recommendations can lay the groundwork for the development and implementation of local mitigation projects, open discussions or share information across multiple jurisdictions wanting to participate in the same mitigation project and develop or build relationships.

3.2.4. Plan Update – The Planning Process A1A A1B

Hennepin County Emergency Management assumes the position of lead agency in preparing the HMP for the county and participating jurisdictions. The HMP revision process took one year and six months to complete, beginning in August 2022 with plan adoption in February 2024. Forty-two municipalities, three cities that share boundaries with adjacent counties, Fort Snelling, and MSP Airport were considered in this plan. County Departments are also covered under the 2023 Hennepin County HMP. The planning process used to develop this Plan is as follows:

A. A Regional Review Working Group (RRWG) was created to assess the plan. The RRWG consisted of one Hennepin County Emergency Management staff member and the regional chair of each of the four planning groups. The RRWG reviewed this plan mitigation goals and objectives, determined that using the existing 2018 plan was reasonable to follow the framework for revision, reviewed various county plans, and used the Local Mitigation Planning Policy Guide, FP 206-21-0002, Released April 19, 2022, Effective April 19, 2023, OMB Collection #1660-0062.

B. The RRWG met five times throughout 2022-2023. (See TABLE 3.16A for schedule)

C. The plan established and carried over many of the FEMA elements from 2018 but placed an emphasis primarily on those FEMA elements that were added in 2022 to include, critical infrastructure, underserved populations, and climate change.

D. Hennepin County continued with the Hazard Mitigation Plan "Combination Model" for their planning and review process. Using this model, Hennepin County's four Area Planning Groups: Minneapolis Group (5), Lake Minnetonka Regional Planning Group (21), North Suburban Regional Planning Group (14) and South Planning Group (7) appointed one representative to serve on the Hennepin County Mitigation Planning and Review Team to act on behalf of their regional group. This model assisted several smaller municipalities that had limited resources to participate in the overall early planning stages but were able to meet regionally or specifically with HCEM to work through their supporting documentation for local plan adoption. (See section 3.13)

E. Public Participation was established using a community survey using a similar template from 2018 but made changes to meet the FEMA elemental requirements as recommended in 2022. The survey was created by HCEM and disseminated through the county social media sites and several city websites. See Section 7: appendix C)

TABLE 3.5A below is a summary of the 2024 HMP Update Process:

Task	Date	Action
Task 1: *Notification and FEMA guidelines review*	August 2022	State notification was received in preparation to resubmit the next 5-year plan. A review of the 2018 Hennepin County HMP was conducted by HCEM. It was determined that the plan needed some revision so that it was consistent with the new 2022 FEMA Local Mitigation Planning Policy Guide. All meetings were documented and included in this revision (see **TABLE 3.16A**)
Task 2: *Building working groups and planning teams*	August 2022-June 2023	A Regional Review Working Group and Mitigation Planning Teams were formed to reflect county, local jurisdiction, and partner organization interests. Only

Task	Date	Action
		one member of the former 2018 steering committee was involved in this update. Each participating jurisdiction had at least one representative as a member of a planning team
Task 3: *Create an Outreach Strategy*	May 2023-November 2023	The county engaged the public and its participating jurisdictions through surveys, regional, and quarterly meetings. Stakeholder meetings were also conducted by meeting independently with all 42 cities. Public and stakeholder involvement is described below.
Task 4: *Review Community Capabilities*	May 2023-January 2024	Capabilities were assessed by each jurisdiction's emergency manager with additional support from HCEM, from open-source information, local agency updates and resource list compiling
Task 5: *Risk Assessment*	2010-2024	The current overall hazard risk assessment was reviewed. All 7 federal declarations with natural hazard implication in Hennepin County since 2010, were considered. Each participant also reviewed risk against their priority 1- critical infrastructure. Hennepin County's Regional Emergency Management Reference Collection was also available as a reference to assess risk.
Task 6: *Mitigation Strategies*	May 2023-November 2023	Ten goals were used to make decisions for paying down risk. Participants built strategies by assessing gaps and vulnerabilities within their jurisdictional boundaries against those goals. Each participating jurisdiction reviewed past projects that were completed or yet to be completed and were carried over to this HMP. Participants also submitted new mitigation projects for future projects.
Task 7: *Plan Maintenance Procedure*	2024-2029	Covid-19 limited a normal review cycle during this revision period. The 2018 base plan, nineteen natural hazards, and all community qualifying documentation products were reviewed, updated, crossed over, or deleted for this 2024 plan. A cyclic review schedule will occur routinely with a local mitigation strategies (LMS) group.
Task 8: *Review and Adopt the Plan*	January 2024	A draft of the plan was reviewed by HCEM, participating jurisdictions of the plan, Hennepin County Board of Commissioners, the HSEM state hazard mitigation officer, and the Regional Review Working Group. The adopted plan (with some redaction) will be made available to the public via the county website and for participating agencies who wish to upload a redacted version to their city websites. The plan will be sent to HSEM/FEMA for approval February 2024. Each participating jurisdiction will also adopt this plan through resolution in QTR 1 2024

Task	Date	Action
Task 9: *Final Plan Delivery*	February 2024	Hennepin County Emergency Management will upload a redacted and unredacted version for State, County, local jurisdictions, and partner organization receipt.

3.2.5. Plan Organizational Changes E1

TABLE 3.6A below highlights key changes. Organizational changes were minimal to this HMP document.

2018 Plan	2024 Plan
Volume 1- Background and County Profile **Section 1**: Introduction **Section 2**: Plan Purpose, Authority and Adoption **Section 3**: Planning Process **Section 4**: County Profile **Section 5**: Community Capability Assessment **Section 6**: Hazard Mitigation Plan Maintenance **Section 7**: Appendices	All 7 sections remain as in 2018. Removed outdated information where appropriate. Removed redundant information and rearranged subsections for easier transitions. Updated where appropriate
Volume 2- Hazard Inventory **Section 1:** Hazard Categories and Inclusions **Section 2:** Disaster Declaration History and Recent Trends **Section 3:** Climate Adaptation Considerations **Section 4:** Comprehensive Natural Hazard Assessment Profiles **Section 5:** Vulnerability Assessment **Section 6:** Cultural Resource Inventory **Section 7:** Critical Infrastructure Key Resources (CIKR)	The 2018 plan had 10 sections. Sections 5, 6, and 7 were removed due to their focus on human caused incidents. The CIKR inventory was expanded to include more facilities and assess hazard vulnerability
Volume 3- Community and Mitigation Strategies **Section 1:** Mitigation Strategy, Goals and Objectives **Section 2**: Mitigation Action Plan **Section 3**: Mitigation Actions and Projects **Section 4**: Minnesota Mitigation Crosswalk **Section 5**: Acronyms and Abbreviations **Section 6:** Glossary **Section 7**: Appendices	Section 3 was revised to further detail the progress of projects from 2018 and reformatted to condense its size. The appendices also received updates to the regulatory crosswalk and jurisdiction participation sheet.

3.2.6. Why Update

44 CFR stipulates that hazard mitigation plans must present a schedule for monitoring, evaluating, and updating project status of the plan. Updates provide an opportunity to reevaluate goals and objectives and assess if impacts of those determined actions are currently being or have been accomplished. If the intent is not being met the mitigation strategy may need to be reviewed or modified. Should this plan reach its expiration date, participants will not be able to pursue elements of federal funding under the Robert T. Stafford Act for which this adopted hazard mitigation plan is a prerequisite.

3.2.7. The Updated Plan – What is Different E2a

There are only a few changes to this 2024 plan which includes a change in the overall number of participating agencies involved in the plan update process. So, while this plan is an update for several participants, it is also the initial plan for new emergency managers who have been hired, selected, or appointed since 2018. Therefore, it was important to establish a planning process that was consistent for returning or new participants. The updated plan differs from the 2018 plan as described below:

- The current risk assessment (VOL 1) continues to reflect the nineteen natural hazards identified in this HMP. The updates cover the period between 2018-2023 and will providing new information regarding significant events within this new 5-year timeline.
- The update (VOL 3) creates an opportunity for the County and participants to review the plan in whole and engage citizens directly through community outreach involvement, social media, and surveys in a coordinated approach to gage their perception of risk and support of the concept of risk reduction through mitigation.
- The plan (VOL 3) identifies new mitigation strategies, goals, ideas, or recommendations for all participants to review and consider.
- The critical infrastructure risk assessment (VOL 3) was prepared to be informative to local emergency managers and what facilities were critical in continuity and their daily operations. Identifying infrastructure with risk assessment should better support future grant applications by providing risk and vulnerability information that will directly support the measurement of “cost-effectiveness” required under FEMA mitigation grant programs.
- An additional capability accountability tool (VOL 1) was created to identify ordinance and regulation.
- The dashboards (VOL 3) were modified to reflect references, social media, city websites, and any updates as described by the jurisdiction’s emergency manager.

Given the extent of changes in this update, readers should consider this to be a simple revised or modified plan. Previous or prior plan versions are used as references in identifying where relevant change and correlations are required through discussion and cyclic review. Federal or state data or information becomes relevant where new content is required to add to the next iteration in hazard mitigation planning.

3.3. Summary of Previous Planning Efforts

HCEM developed its first HMP in 2005, which was led by then named Hennepin County Emergency Preparedness. A Local Mitigation Planning Team was created and served as the planning team. The plan included three generalized goals:

Protect life and Property.

- Execute activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from hazards.
- Improve hazard assessment information to make recommendations for new and for existing developments in areas vulnerable to hazards.

Public Awareness

- Increase public awareness of the risks associated with hazards in the county.
- Provide information on tools, partnerships, opportunities, and funding resources to assist in implementing mitigation activities.

Partnerships and Implementation

- Strengthen communication and coordinate participation among and within public agencies, citizens, nonprofit organizations, business, and industry to gain a vested interest in implementation.
- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.

In 2010, HCEM re-wrote the plan for the update due to several changes in the County's risk assessment as well as new technology (HAZUS-MH) to estimate losses to critical infrastructure. A Steering Committee was made up of HCEM personnel as well as the City of Minneapolis's then Emergency Preparedness Department.

In 2015, the HMP expired. Between 2015-2018, HCEM took an additional 26 months to do a complete review and overhaul to meet the FEMA elemental requirements. The steering committee provided seven goals and each participating community was deeply involved in the planning process. The final adoption of the plan took place in 2018.

The 2018 HMP expired in August 2023.

3.10 Organization of the Plan

The 2024 update to the HMP has undergone small changes from the 2018 version. Updates were made using FEMA policy guidance, mitigation planning teams, federal hazard mitigation strategies, and Hennepin County Emergency Management Director directive. The plan was organized to reflect current practice and recommended guidance. However, content from the previous versions will continue to be included. The HMP consists of and maintains three components, each are broken down in the following volumes:

Volume 1: Background and County Profile (103 pages)

Section 1: Introduction
Section 2: Plan Purpose, Authority and Adoption
Section 3: Planning Process
Section 4: County Profile
Section 5: Community Capability Assessment

Section 6: Hazard Mitigation Plan Maintenance
Section 7: Appendices

Volume 2: Hazard Inventory (359 pages)

Section 1: Hazard Categories and Inclusions
Section 2: Disaster Declaration History and Recent Trends
Section 3: Climate Adaptation Considerations
Section 4: Comprehensive Natural Hazard Assessment Profiles
Section 5: Vulnerability Assessment
Section 6: Cultural Resource Inventory
Section 7: Critical Infrastructure Key Resources (CIKR)

Volume 3: Community and Mitigation Strategies (291 Pages)

Section 1: Mitigation Strategy, Goals and Objectives
Section 2: Mitigation Action Plan
Section 3: Mitigation Actions and Projects
Section 4: Minnesota Mitigation Crosswalk
Section 5: Acronyms and Abbreviations
Section 6: Glossary
Section 7: Appendices

3.11 Planning Objectives

To develop the Hennepin County HMP update, the County followed a process that had the following primary objectives:

- Establish a Regional Review Working Group.
- Form a mitigation planning teams by jurisdiction.
- Coordinate planning sessions with each participating jurisdiction (42).
- Reviewing existing goals, objectives, actions, and past projects.
- Develop a hazard risk assessment addressing critical infrastructure and the nineteen natural hazards.
- Engage the Public through social media with an opportunity to participate in a survey.
- Add ordinance and regulations capability assessment.

3.12 Establish a Regional Review Working Group

Hazard mitigation planning invites collaboration and support among participating jurisdictions whose communities can be affected by hazard losses. Participating jurisdictions can create partnerships that pool resources to achieve a common vision for the community. A Regional Review Working Group was formed to provide review, observations, and recommendations for plan updates. The members of this committee included the four chairs of the regional planning groups and a staff member from Hennepin County Emergency Management. Several meetings took place in 2022- 2023. Regional Review Working Group meeting minutes are provided in **Section 7: Appendix A (page 59-62)**

3.13 Forming a Mitigation Planning Team A2a

To assist with the development and implantation of this HMP update, the Regional Review Working Group agreed that the Mitigation Planning Team (MPT) would consist of at least one lead representative from each jurisdiction. HCEM's Plans & Systems Integration Coordinator assumed the role as lead administrator for review and training, scheduling a 2-hour block of instruction for each jurisdiction. Each jurisdiction could have as many representatives attend their mitigation document development training session. Additional meetings were available should a jurisdiction need additional support. A PowerPoint tutorial was created, and a SharePoint password was created to give and allow jurisdictions additional support to review guidance and document updates, if needed. The MPT leads are listed for each jurisdiction and their primary affiliation:

Lakes Region

• Corcoran	Matt Gottschalk	Police
• Deephaven	Cory Johnson	Police
• Excelsior	Brian Tholen	Police
• Greenfield	Margaret Webb	City Admin
• Greenwood	Brian Tholen	Police
• Independence	Gary Kroells	Police
• Long Lake	Marc Schultz	Police
• Loretto	Jason Nelson	Police
• Maple Plain	Gary Kroells	Police
• Medina	Jason Nelson	Police
• Minnetonka Beach	Corey Farniok	Police
• Minnetrista	Paul Falls	Police
• Mound	Greg Pederson	Fire
• Orono	Corey Farniok	Police
• Rockford and Hanover		Wright County
• St. Bonifacious	Paul Falls	Police
• Shorewood	Brian Tholen	Police
• Spring Park	Corey Farniok	Police
• Tonka Bay	Brian Tholen	Police
• Wayzata	Marc Schultz	Police
• Woodland	Cory Johnson	Police

North Region

• Brooklyn Center	Todd Berg	Fire
• Brooklyn Park	Shawn Conway	Fire
• Champlain	Glen Schneider	Police
• Crystal	Mark Ray	Public Works
• Dayton	Paul Enga	Police
• Golden Valley		Fire
• Maple Grove	Tim Bush	Fire
• Medicine lake	Joshua Hauble	Emergency Management
• New Hope	Sarah Larson	Fire
• Osseo	Shane Mikkelson	Police
• Plymouth	Erik Fadden	Police
• Robbinsdale	Patrick Foley	Police

• Rogers	Patrick Farrens	Fire
• St. Anthony	Zach Lundberg	Public Works

South Region

• Bloomington	Ulyssess Seal	Fire
• Chanhassen		Carver County
• Eden Prairie	Scott Gerber	Fire
• Edina	Andrew Slama	Fire
• Hopkins	Dale Specken	Fire
• Minnetonka	Aaron Morris	Fire
• Richfield	Jay Henthorne	Fire
• St. Louis Park	Steve Koering	Fire

East Region

• Minneapolis	Eric Gustafson	Emergency Manager

3.14 Coordinate with other Agencies A2a

44CFR requires that opportunities for involvement in the planning process be provided to neighboring communities, local and regional agencies involved in hazard mitigation, agencies with authority to regulate development, business, academia, agencies that represent socially vulnerable communities, and other private and non-profit interests. The Mitigation Planning Team Representatives invited additional agencies that fall under those classifications from within their jurisdictions, as well as watershed and school districts. This effort resulted in the steering committee described below:

- All 43 municipalities in Hennepin County (EM's, PW, School districts, Watersheds)
- Hennepin County Departments (GIS and Public Health)
- Xcel Energy
- University of Minnesota

3.15 Review of Existing Programs

44 CFR states that hazard mitigation planning must include review and incorporation, if appropriate, of existing plans, studies, reports, and technical information. In addition, the following programs can affect mitigation within the planning area:

- Hennepin County Emergency Operations Plan
- Emergency Operations Plans (Regional North, Regional Lakes, Independent South, and the City of Minneapolis)
- 2019 Minnesota State Hazard Mitigation Plan
- 2019 Anoka County Mitigation Plan
- 2019 Carver County Mitigation Plan
- 2022 Dakota County Mitigation Plan
- 2019 Ramsey County Mitigation Plan
- 2021 Scott County Mitigation Plan
- 2023 Washington County Mitigation Plan
- 2023 Wright-County Mitigation Plan

One of the Review Committee's actions was to review the 2019 Minnesota State Hazard Mitigation Plan (SHMP). The Review Committee identified hazards listed in the state plan (pg. 56) to which the Hennepin County planning area is susceptible and to determine if there was a need to expand the scope of the current Natural Hazard Risk Assessment. The SHMP includes 15/22 natural hazards which are currently identified in this HMP, the other seven being industrial or manmade hazards, which are not included in this plan. The Committee also reviewed the 2022 FEMA Local Mitigation Planning Policy Guide determining that three additional goals were required to meet the new guidance.

3.16 Plan Development Chronology/Milestones A1a

TABLE 3.16A summarizes important milestones in the development of the plan update.

Plan Development Calendar of Events			
Date	**Event**	**Milestone**	**Attendance**
2022			
10/10/2022 10/26/2022 10/27/2022	HCEM Mtgs for community outreach	Survey Questionnaire discussion, timeline, and buildout	2-5
11/10/2022	Regional Review Working Group Mtg 1	Info sharing, establishing HMP timeline	7
11/16/2022	FEMA webinar Steven Green	Hazard Mitigation planning guidance	5
12/01/2022	Community Outreach Survey	Survey questionnaire launched	43
12/05/2022	Community Outreach Survey	HMP email: QRC created and disseminated to provide survey link	42
12/07/2022	Community Outreach Survey	HMP email: Provide update and additional survey information	42
2023			
1/18/2023	Community Outreach Survey	City Websites advertise survey opportunity and announce HMP revision	UNK
1/30/2023	HCEM Staff Mtg	Check on progress discussion, accept recommendations	2
2/22/2023	Community Outreach HEMC Quarterly mtg	HMP progress, documents, and timeline update	82
4/20/2023	Regional Review Working Group Mtg 2	Plan completion timeline, 44 CFR element review, Natural Hazard review	5
5/18/2023	Regional Review Working Group Mtg 3	Progress updates, community planning visits, product checklist, timeline update	5
5/18/2023	Community Outreach HEMC Quarterly mtg	HMP progress report	65
5/25/23	Community Outreach	Lakes Group HMP information update	15
5/26/2023- 12/15/2023	Participating jurisdiction planning	1 on 1 city visits commence to plan HM. Two-hour blocks are scheduled with each jurisdiction	75
6/22/2023	Regional Review Working Group Mtg 4	Progress updates, community visit completions, product checklist, timeline update	5
7/13/2023	Community Outreach	South Group HMP information update	20
8/03/2023	Community Outreach	North Group HMP information update	15
8/16/2023	Community Outreach HEMC Quarterly mtg	HMP progress report	65
8/24/2023	Regional Review Working Group Mtg 5	Progress updates, community visit completions, product checklist, timeline update	5
9/07/23	Community Outreach	North Group HMP information update	15

Plan Development Calendar of Events			
Date	**Event**	**Milestone**	**Attendance**
10/05/23	Community Outreach	North Group HMP information update	15
10/12/23	Community Outreach	South Group HMP information update	20
11/15/23	Community Outreach HEMC Quarterly mtg	HMP progress report	45
2024			
1/16/24	County Review	Board Action Request submitted	4
1/19/24	State Review	FEMA elements review	1
1/23/24	County Adoption	Hennepin County Board approves HMP	10
2/01/24	City Resolutions	Cities begin adopting plan	42

3.17 Develop a New Risk Assessment

HCEM continued to use the same methodology of historic hazard data collection as it did in the 2018 plan. State, Federal, and local information sources were used to identify any new data that has occurred over the past five-year period. In addition, HCEM continues to use the Hennepin County Regional Emergency Management Reference Library and web-based historical open-source collection as a primary means in data gathering.

3.18 HCEM Regional Emergency Management Planning Reference Collection A4

The purpose of Hennepin County Emergency Managements Regional Emergency Management Planning Reference Collection (REMPRC) is intended to assist emergency managers and others involved in emergency mitigation, preparation, response, and recovery. The collection is oriented toward historical disasters, after actions, theory, emergency management strategic, operational, and tactical planning; training and exercise design; as well as education, professional development and the evolution of emergency management systems and processes. The reference material collected in the REMPRC was created in 2010 and is categorized into very specific subject matter areas as it relates to disaster.

The priority is given to references related to the doctrine, organization, and professional practice of emergency management, including theory, assessments, strategies, plans, and after-action reviews. Also collected are analysis and accounts of hazards or threats of a level that could require emergency management employment (natural, technological, and adversarial).

The second priority is to gather references that are useful for understanding the present and future environment that may have applications for strategic assessment and planning (demographics, economic forecasts, technology assessments, etc.).

Last, the REMPRC gathers materials related to emergency practices within the disciplines that make up the emergency management community (police, fire, emergency medical services, public works, public

health, etc.). Works dealing with technologies used in emergency management is assembled (communications, data management, logistics, etc.).

The types of material collected is as follows, much of which was used to assist in the overall Risk Assessment section of this plan.

A4a

- **Government documents**, including formal doctrine, frameworks and other broad federal and state level strategy and references. Also includes tactical references such as incident management handbooks and other National Incident Management System (NIMS) and Incident Command System (ICS) planning tools.

- **Mitigation plans**, including state, county, and municipal plans to mitigate the impacts of hazards.

- **Emergency operations plans**, including standing contingency plans for operations during an emergency at all levels of government as well as non-government and private entities.

- **Incident action plans**, including specific operational period plans utilized at incident sites for upcoming operational periods. Also includes incident support plans developed at an Emergency Operations Centers that focus on upcoming operational phases.

- **Continuity of operations plans**, includes reference material related to government, industry, or organizational plans to continue.

- **After action reviews**, including hot-wash notes, interviews, and other materials related to the lessons learned from emergency management responses, training, exercises, and allied activity. Such reports include, but are not limited to National Fire Academy reports, National Transportation Safety Board reports, Congressional commissions, and inquiries.

- **Training and exercise materials**, including materials related to capability assessment, training strategy, training and exercise development, scenario development and the conduct and evaluation of training and exercises.

- **Technical documents**, including but not restricted to census and demographic data, soil surveys, geological survey reports, USGS water supply papers, climate data, NOAA assessments and related materials. Also includes materials related to technical specialties and their employment in emergencies including Geographic Information Systems (GIS), Hazardous Materials (HAZMAT), radio communications, information systems, and social media/public affairs.

- **Legal reference material**, including references for the main tenants of emergency planning and management at the federal, state, and local levels, such as Public Laws, US Codes, Minnesota Statutes and County Board Resolutions.

- **Maps and atlases**, includes depictions of natural data in space and through time such as geology, soils, hydrology, topography, vegetation, and climate. Specific geological threats such as seismicity maps, flood plains, karst, and slope failure are also collected. The collection also includes human and cultural depictions such as population density, land use,

transportation, population density, critical infrastructure, income distribution, age demographics, key emergency facilities, and related information.

- **Textbooks**, including works on comparative emergency management, crisis leadership, emergency management organization, planning processes and tools, and specialized emergency planning as it relates to hospitals, public health, public works, libraries, utilities, schools, corporations, special events and other sectors. Also includes references on scientific data that is crucial for emergency management such as meteorology, hazardous materials, radiation, chemistry, microbiology, and other fields.

- **Books**, includes non-fiction case studies on specific disasters, emergencies, and critical situations. Also includes projections and forecasts of the future natural, social, economic, and security environment.

- **Historical materials**, includes resources that describe historic emergencies, disasters and crisis and their underlying threats and hazards. Also traces the evolution of emergency planning, organization, response, and recovery.

- **Photographs and imagery**, includes still and moving photography and images on various formats including film and digital media involving all aspects of emergency management.

- **Audio** includes recordings of public warning messages, news reports, and radio transmissions involving disasters and emergency response.

- **White Papers** includes academic literature or articles pertaining to professional development, current practices, new theory, or forecasting trends in emergency management. Many times, this literature is available through search engines on the web (i.e., google scholar)

3.19 Public Involvement/ Engage the Public A3

Broad public participation in the planning process helps ensure that diverse points of view about the planning area's needs are considered and addressed. 44CFR requires that the public have opportunities to comment on disaster mitigation and during the drafting stages and prior to plan approval.

3.20 Strategies to inform the public.

Since this planning process involved an update for some planning partners and first-time planning for others, HCEM continued to use a comprehensive outreach approach, using multiple media sources already established in participating jurisdictions and the County. The strategy for involving the public in this plan update emphasized the following elements:

- Use of social media (Facebook, X-Twitter, Instagram, Nextdoor, and city websites) to provide information and seek input on the plan.
- Use a questionnaire to determine and identify the public's perception of risk.
- Attempt to reach as many planning area residents using multiple media sources.
- Partner with Hennepin County's Communication Division for a consistent message regarding the update to the HMP.
- Identify and involve planning area stakeholders to take part in wide dissemination.

The following graphic (**GRAPHIC 3.20**) is the initial invitation that was provided to all jurisdictions after doing a one-week beta test with three communities.

HCEM Hazard Mitigation Community Survey

Who: Hennepin County Residents

What: All Hazard Multi-Jurisdictional Community Survey

When: Launched December 1st, 2022, scheduled to end January 31st, 2023, May be extended

Why: To provide a whole community option in mitigation participation through community websites and social media outlets

Currently Launched: Links posted to HCEM Social Media (Facebook, Instagram, Twitter, Nextdoor) and on the HCEM website

Responses as of Today: 64

Total Questions and Average Completion Time: 47 questions, about 23 minutes on average to complete

Top three cities with the most participants: Crystal (15), Minneapolis (12), St. Louis Park (8)

IMPORTANT: Our goal is to reach as many residents as possible in Hennepin County. To that end, we are asking cities and regional partners to push this survey out to the community. This can be done by posting the survey information to:

1. Your city webpage
2. Your EM Web pages
3. Your social media sites
4. Local Newspapers
5. Partners in areas of law enforcement, fire, EMS, public works, schools, parks and recreation, transportation, equity, and any other partners you can cast a net over
6. Attaching to utility bills

We want to get the word out about this survey as much as we can! If you are interested in helping us accomplish this, contact Bruce Kelii (bruce.kelii@hennepin.us) for information, including templates for posting on websites and social media, a hard copy of the survey, and a link and QR code for the survey to distribute.

GRAPHIC 3.20

3.21 Social Media and Digital Media Press Release

Social media was used to engage the public for input and feedback on the 2024 HMP. With Hennepin County and our communities' ability to pass this information through their city websites, both Facebook and X (Twitter) were used to direct residents of Hennepin County to take part in this update by completing the survey questionnaire described below. It was determined to provide a link and QR code options to participate. We asked residents about their experiences about past disasters and their perception of hazard risks to Hennepin County. Residents were able to respond through an open survey period beginning December 1, 2022, and closed on March 31, 2023. To keep the messages consistent, the following social media messages were provided to all participating jurisdictions of this plan to provide wide dissemination during the open period.

Digital media was the primary mechanism for the HMP release of information. A variety of press releases were provided through county and local community websites. The information provided included that an update was being conducted, that a survey was available, and links to the 2018 plan for review. For example, The University of Minnesota produced a mass e-mail to their staff and student body describing what a HMP is, and asked students and staff to consider to participation. There were a variety of cities who also placed this information on their city websites. **See Section 7: Annex B (pages 63-68)**

- **Twitter / social media:**

  As we prepare for the five-year update cycle of the All-Hazard Mitigation Plan, we want to give you, the public, the opportunity to be a part of the planning process! Follow the link below to provide your input! (Link) (Add QR code image)

- **Facebook:**

  It's time for mitigation planning! Hennepin County Emergency Management is preparing for the five-year update of the All-Hazards Mitigation Plan, and we want your input! Hazard Mitigation is a whole community process, and community involvement is an important part of that. We created this survey, so you and the community can participate in the planning process.

  If you live and/or work in Hennepin County, follow the link below to take the survey. We are interested in your thoughts and what you have to say, so we sincerely appreciate you taking the time to do this. Please share this survey with your friends and family too. The more responses we get, the better! (Link)

  What is Hazard Mitigation?

  Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards such as flooding, storms, high winds, wildfires, earthquakes, etc. (Provide QR Code) (Multiple languages if possible)

- **Website Post:**

  Hennepin County is updating the All-Hazard Mitigation Plan, as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Local jurisdictions are required to update the plan every five years to remain eligible for pre-disaster and post-disaster mitigation grant

programs.

Community involvement and feedback are vital to the success of the plan. The information you provide by completing the survey below will help us better understand your hazard concerns and can lead to mitigation activities to help lessen the impact of future hazard events. (Link, QR Code, embed)

The following graphic (**GRAPHIC 3.21**) was used by Hennepin County and its participating jurisdictions as part of the press release campaign during the open survey period.

Provide feedback on Hennepin County's All-Hazard Mitigation Plan

Hennepin County Emergency Management is updating the All-Hazard Mitigation Plan, as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Local jurisdictions are required to update the plan every five years to remain eligible for pre-disaster and post-disaster mitigation grant programs.

Community involvement and feedback are vital to the success of the plan. The information you provide by completing the survey below will help us better understand your hazard concerns and can lead to mitigation activities that can help lessen the impact of future hazard events.

Click here to take the survey

What is Hazard Mitigation?

Hazard Mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards, such as flooding, storms, high winds, wildfires, etc. Some examples include:

- Retrofitting water supply systems
- Stabilizing erosion hazard areas
- Elevating or retrofitting structures and utilities
- Building public safe rooms

Mitigation efforts undertaken by communities help to minimize damage to buildings and infrastructure, as well as natural, cultural, and historic resources.

Why Plan?

Hazard Mitigation planning helps emergency management planners to identify the types of hazards that could affect Hennepin County. Hazard Mitigation planning also helps emergency managers and communities to identify actions that can help to reduce losses from those hazards. Ultimately, hazard mitigation planning helps to protect the residents of Hennepin County.

Planning also helps to identify vulnerabilities and develop strategies to reduce the potential impacts of hazards. Building partnerships and reducing duplication of effort among organizations with similar goals is also a benefit of mitigation planning.

In the end, Hazard Mitigation planning helps to build communities that are more resilient to disaster and increases public awareness of local hazards and disaster preparedness.

For more about Hennepin County Emergency Management or to view a public copy of the 2018 All-Hazards Mitigation Plan, click the link below:

Emergency Management | Hennepin County

More information about hazard mitigation:

Minnesota Homeland Security and Emergency Management

Federal Emergency Management Agency

The Disaster Mitigation Act of 2000

44 CFR 201

42 U.S.C. 5165 (Stafford Act, Section 322)

42 U.S.C. 4104c (National Flood Insurance Act, Section 1366)

GRAPHIC 3.21

3.22 Survey Questionnaire A3a

This HMP survey questionnaire was developed by the staff at HCEM to mimic the 2018 whole community approach. It also considered the 2022 FEMA guidance in creating questions to meet that criterion. The questionnaire was used to gauge household preparedness for natural hazards and the level of knowledge that residents have of hazards affecting Hennepin County. This questionnaire was hosted on several Hennepin County municipal social media and websites as well as posted to the Hennepin County Emergency Management Facebook and Twitter pages. The QR code and Link was also presented at monthly regional meetings and quarterly meetings as a reminder to point out the survey was "live". Mitigation Planning Team members distributed the survey within their communities, with their local partners, and with their local vulnerable populations. A summary of the questionnaire results can be found below (3.24) under Public Involvement Results. The full questionnaire and results can be found in **Section 7: Appendix C (page 69-88)**

3.23 Public involvement results

From the questionnaire and feedback on social media posts, we found that the public is not aware that the county has a hazard mitigation plan but are aware of several natural hazards that affect them and the communities in Hennepin County. Major topics include Climate change, severe weather, and hail.

3.24 Stakeholder and Public Involvement Plan

HCEM is committed to engaging stakeholders and the public in mitigation planning activities. To accomplish this, a *Stakeholder and Public Involvement Plan* was developed in 2015 which describes the approach, activities to engage stakeholders and the public in the development of the HMP.

Based on current Federal requirements, a Mitigation Plan must include adequate and reasonable notice and opportunity for comment and other input from a variety of stakeholders, including the public, local governments, and other interested parties. HCEM has sought comment and the involvement of these stakeholders and the public through planning forums and questionnaires, interviews, as well as an online survey.

Outreach activities were conducted as part of the 2024 HMP. These activities sought input and comments on the overall vision and direction for Hennepin County Emergency Management to meet the federal and state requirements, as well as consider local level development and participation in planning.

This HMP determines both short and long-range mitigation needs in community improvement and integrates within the scope of long-range planning with HSEM- State of Minnesota.

3.25 Goals for Stakeholder and Public Involvement:

The goals for stakeholder and public involvement for this HMP:

- Gain an understanding of the need, the potential impacts of and opportunities for this HMP to improve the overall efficiency and sustainability of our communities
- Solicit input relative to mitigation policies, projects, and programs to better meet the needs of communities while also making Hennepin County a more attractive location to conduct business and a better place to live; and
- Provide input for developing a strategy for making investment decisions to mitigate risk.

3.26 Outreach Activities and Participation

A. Open Houses/Regional Meetings/Quarterly Meetings

HCEM held five plan review teams meetings. At each, a short presentation was given providing community visits, completion timelines, and survey results. Following each presentation was a discussion period and a brief question and answer period.

HCEM attended all monthly regional planning group meetings (North, South, Lakes, and Minneapolis) to provide updates, instruction and receive feedback from these groups. HCEM would also meet with individual communities throughout this process.

B. Survey Questionnaire

The public through each of the 42 municipalities were given the opportunity to complete the HMP survey. Invitations were sent by email, social media, presented in county and local meetings, and available through local and the HCEM websites. Multiple reminders were sent to local emergency managers to promote wide dissemination. The survey was posted through survey monkey. The survey not only had questions about overall needs improve, but also questions about specific demographic information. Local jurisdictions ensured that this survey was available to underserved and socially vulnerable populations within their geographic area.

SECTION 4	COUNTY PROFILE

4.1. Hennepin County General Information

Location:
Hennepin County is in east-central Minnesota, in the north central United States.
GEOREF: UKDA30000000
LAT-LONG: 45.0 N latitude, 93.0 W longitude
Maidenhead: NN65SA00A00
MGRS: 46TEQ3940783071
USNG: 15T WK 00000 82950
UTM: 46T 539407mE 4983071mN

Approximate magnetic declination is 3 degrees east.

Time zones:
Central Time Zone (- 6 hours from Universal Coordinated Time – UTC)
Central Standard Time (CST): UTC - 6 hours
Central Daylight Time (CDT): UTC - 5 hours
Military Time Zone: Sierra (-6 hours from Zulu (UTC))

Hennepin County is the largest of Minnesota's 87 counties. With more than 1.2 million residents, it supports almost a quarter of the state's population. Minneapolis, the county seat, is the largest of its 41 cities. Its population is projected to grow to 1,394,660 by 2030, an increase of approximately 2 percent.

Population:
The estimated population of Hennepin County is 1,260,121 (2022) +9.2% from 2010.
Housing units: 513,414 (2012), 571,408 (2022)
Households: 529,029 with an average 2.35 persons per household (2018-2022)
Median household income: $63,559 (2012), 92,595 (2022)
Percentage of population below the poverty level: 12.6% (2012) 10.8% (2022)
Percentage of population under age 18: 22.5% (2012) 21.3% (2022)
Percentage of population over age 65: 11.9% (2012) 15.8% (2022)
Percentage of foreign-born persons: 12.7% (2012) 13.7% (2018-2022)
Non-English language spoken at home: 16.6% (2012) 18% (2022)
Households with a computer 96% (2018-2022)
Households with broadband internet subscription 91.5% (2018-2022)

Governmental units in Hennepin County:
Number of incorporated cities: 45
Number of unincorporated areas: 1 (Fort Snelling)
Special jurisdictions or districts with own police and/or fire services: 5
Fire departments or districts: 30
Law enforcement agencies and police departments: 33
School districts: 22

4.2. Physical Features

Hennepin County landforms were formed in the recent geological past by the action of glaciers that receded from the area about 10,000 years ago. The surface of the county may be classed into three broad types. Smooth plains of outwash and river terraces are found especially in the northeast. Belts of hills and gently rolling plains are interspersed throughout the rest of the county. Drainage is dominated by the Mississippi River into which all other Hennepin County streams empty, either directly or indirectly. The next major river is the Minnesota which forms the southern boundary of the County. The Crow River forms the northwest boundary of the County. Seven other important streams course through the county. The southwest portion of Hennepin County is dominated by Lake Minnetonka, a 14,528-acre (59 square kilometer) body of water.

Area:
Hennepin County has an area of 607 square miles (1,572 square kilometers)
Land area: 554 square miles (1,435 square kilometers) or 91%
Water area: 53 square miles (137 square kilometers) or 9%

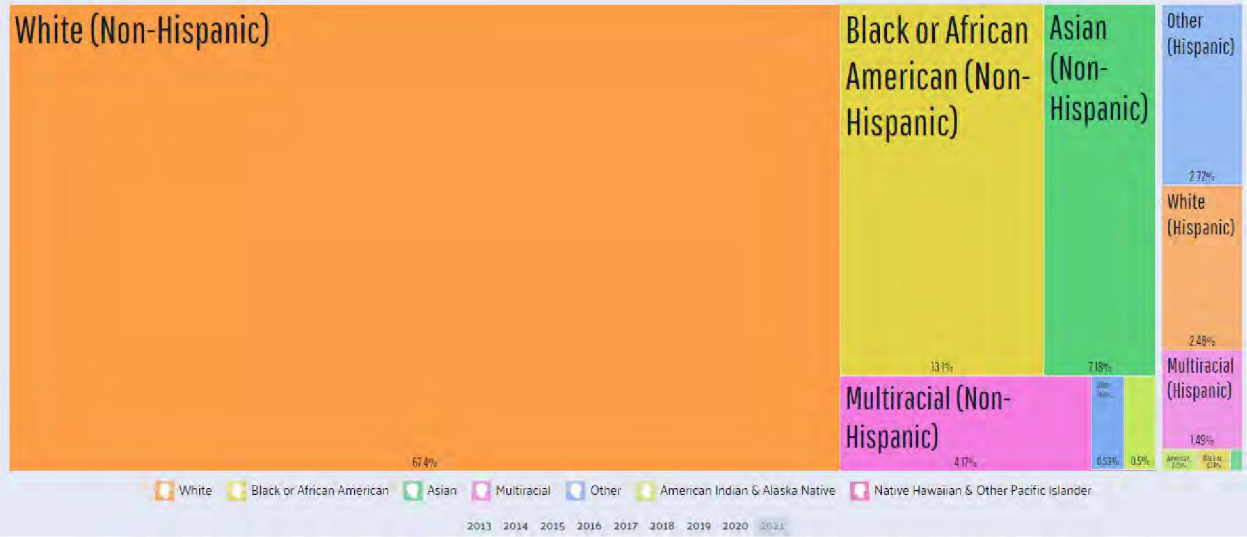
Physical features:
Mean elevation is 925 feet (282 meters) above sea level.
Highest elevation: 1120 feet (341 meters) above sea level Minnetonka: 44.919 N, -93.459 W
Lowest elevation: 686 feet (209 meters) above sea level Fort Snelling: 44.893 N, -93.177 W
Vertical Relief: 434 feet (132 meters)

Hennepin County Geographical Space 2024



4.3. **Diversity** (see Section 7, Appendix 6- Community Map Series, Population)

In 2021, there were 5.14 times more White (Non-Hispanic) residents (856k people) in Hennepin County, MN than any other race or ethnicity. There were 167k Black or African American (Non-Hispanic) and 91.2k Asian (Non-Hispanic) residents, the second and third most common ethnic groups. 7.03% of the people in Hennepin County, MN are Hispanic (89.3k people).



4.4. **Income** (see Section 7, Appendix 6- Community Map Series, Income and Poverty)

Hennepin County remains one of the wealthiest counties in Minnesota with an average per capita income of $55,199 and median family income of $92,595 compared to a statewide median family income of $84,313.

From Data USA, in 2022, 9.88% of the population for whom poverty status is determined in Hennepin County, MN (123k out of 1.25M people) live below the poverty line, a number that is lower than the national average of 12.6%. The largest demographic living in poverty are Females 18 - 24, followed by Females 25 - 34 and then Males 18 - 24.

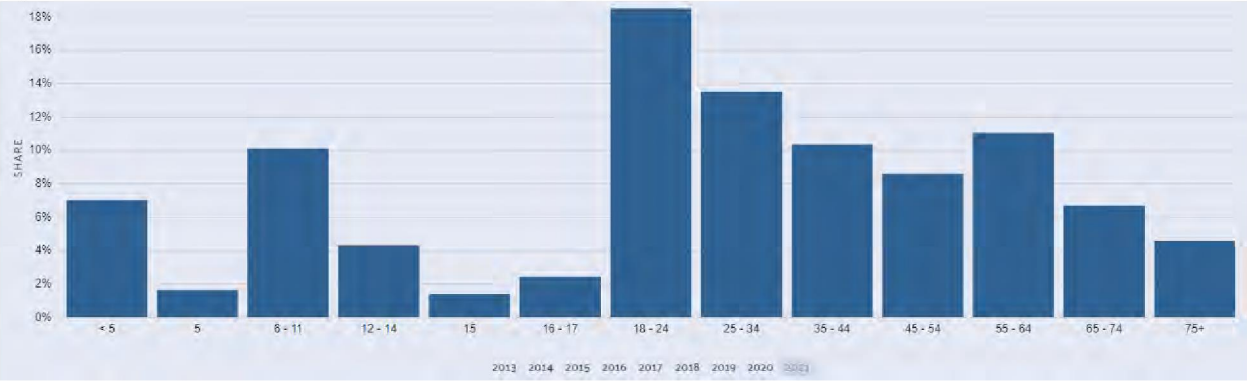
The most common racial or ethnic group living below the poverty line in Hennepin County, MN is White, followed by Black and Hispanic. 15.7% of the population was living with severe housing problems in Hennepin County, MN. From 2014 to 2022, the indicator did decline 1.47%. The following graphics are based on 2021 demographics.

Racial disparities in poverty and per capita income can be partially explained by racial/ethnic differences with factors such as family types, income distribution, and families with more than one child. While not an exhaustive list, a recent example from Hennepin County that would affect poverty status or per capita income across racial/ethnic groups include: a higher proportion of Hennepin County's American Indian and Black/African American families where single females are the head of household.

Race or Ethnicity



Age



Gender, Race, and Ethnicity



4.5. Employment

From 2020 to 2021, employment in Hennepin County, MN grew at a rate of 1.2%, from 696k employees to 705k employees.

The most common employment sectors for those who live in Hennepin County, MN, are Health Care & Social Assistance (104,452 people), Manufacturing (85,227 people), and Professional, Scientific, & Technical Services (79,671 people).



4.6. Infrastructure

Hennepin County has a well-developed highway system. The Hennepin County Highway System consists of approximately 571 miles of roadway. The Highway System is divided into two categories: County State Aid Highways and County Roads. The County Road system consists of approximately 80 miles of roadway.

Metro Transit in Minneapolis recorded more than 42 million rides across all light rail, bus, and paratransit services in 2022, up 17% compared with total ridership in 2021. Light-rail ridership increased 16% year over year with more than 12 million riders.

Xcel Energy, Wright-Hennepin Electric and Minnesota Valley Electric are public utility companies that provide natural gas and electric service to over 1 million residents in Hennepin County.

Maintaining an adequate supply of safe drinking water requires attention, investment, and responses to new and ongoing challenges. Sustainable water resources are critical to personal and public health as well as our economy. Protecting water sources, treating water, and testing water after it is treated are part of the multi-barrier approach to assuring an adequate supply of water that is safe to drink. The Minnesota Department of Health protects our drinking water.

4.7. Land Cover (see Section 7, Appendix 6- Community Map Series, Geography)

Hennepin County consist of 388,100 acres of land that is divided into the following land cover:

- Artificial Surfaces and Associated Areas
- Planted or Cultivated Vegetation
- Forests
- Woodlands
- Shrublands
- Herbaceous
- Nonvascular Vegetation
- Sparse Vegetation
- Water

4.8. Watersheds (see Section 7, Appendix 6- Community Map Series, Bodies of Water)

Watersheds are managed by either a Watershed Management Organization or a Watershed District. Both are considered a separate unit of government and are governed by a Board of Commissioners. Watershed District board members are appointed by the Hennepin County Commissioners, while Watershed Management Organization board members are appointed by individual city councils.

Metro watershed management plans address:

- protection, preservation, and use natural surface and groundwater storage and retention systems.
- minimize public capital expenditures needed to correct flooding and water quality problems.
- identify and plan for means to effectively protect and improve surface and groundwater quality.
- establish more uniform local policies and official controls for surface and groundwater management.
- prevent erosion of soil into surface water systems.
- promote groundwater recharge.
- protect and enhance fish and wildlife habitat and water recreational facilities; and
- secure the other benefits associated with the proper management of surface and groundwater.

Watershed organizations in Hennepin County are:

- Bassett Creek Watershed Management Commission
- Elm Creek Watershed Management Commission
- Lower Minnesota River Watershed District
- Minnehaha Creek Watershed District
- Mississippi Watershed Management Organization
- Nine Mile Creek Watershed District
- Pioneer-Sarah Creek Watershed Management Commission
- Richfield-Bloomington Watershed Management Organization
- Riley Purgatory Bluff Creek Watershed District
- Shingle Creek Watershed Management Commission
- West Mississippi River Watershed Management Commission

4.9. School Districts (see Section 7, Appendix 6- Community Map Series, School Districts)

There are 22 independent school districts in Hennepin County, two of which were part of the Mitigation Planning Team. The following is a table of those Districts.

Hennepin County Independent School Districts	
Special ISD 1 - Minneapolis	ISD 279 – Osseo
ISD 011 - Anoka-Hennepin	ISD 280 – Richfield
ISD 110 – Waconia	ISD 281 – Robbinsdale
ISD 111 – Watertown-Mayer	ISD 282 – St. Anthony
ISD 270 – Hopkins	ISD 283 – St. Louis Park
ISD 271 – Bloomington	ISD 284 - Wayzata
ISD 272 – Eden Prairie	ISD 286 – Brooklyn Center

ISD 273 – Edina	ISD 728 – Elk River
ISD 276 – Minnetonka	ISD 877 – Buffalo
ISD 277 - Westonka	ISD 879 – Delano
ISD 278 - Orono	ISD 883 - Rockford

4.10. Future Community Trends for 2040

Hennepin County is facing many changes from shifts in travel behavior, demographics, technology, and the environment. These shifts will affect how people, goods, and information move in the future. It is important that we proactively plan to address these changes to achieve our transportation vision.

In anticipation of how community comprehensive plans will be structured for business development, residential infrastructure, and improvement to transportation corridors It is expected that partnerships will provide information at to the changes that will affect future hazard mitigation planning. Those city officials and planners involved in this work tend to share or extrapolate existing community development patterns providing information required in identifying areas of concern. Generally, the short-term five-to-ten-year period has built in predictability with routine accuracy since change is often smaller and the lead-time of most large-scale projects require that planning preparations are scheduled well in advance. Longer-term projections or immediate disaster impact planning are much more difficult since land use policy, lifestyle shifts/attitudes, economic patterns and other actions affecting society are hard to foresee.

Strategic investments and partnerships that leverage geographic diversity, infrastructure, the strength of the local economy, and increasingly diverse human capital are essential to the continued success and wellbeing of Hennepin County and its residents.

Socio-economic

- Population growth will continue with an increase of 100K new residents.
- Countywide will see an increase in 50K households.

Acknowledging Disparity

People of color in Minnesota and Hennepin County are more likely to use public transportation and are also more likely to spend 30+ minutes commuting to work compared to their white counterparts.

Challenge: Provide a multimodal transportation system that is affordable and accessible to reduce the cost of transportation for cost-burdened households. We also must ensure that shared mobility and other technological advances are available to all residents regardless of economic status.

- The County will continue to grow more racially and ethnically diverse. Migration and birth rates continue to move the county toward a less homogeneous people. This will bring different expectations of the county and the region.

Aging Population

Meeting the needs of an older population will require adjusting our services and infrastructure. In 1990, 1 in 10 Hennepin County residents were aged 65 or older. By 2040, it is estimated this will increase to 1 in 3 residents.

Challenge: Create a transportation system that provides safe, accessible, and affordable transportation options to enable our growing senior population to age in place and remain healthy, active, and socially connected.

- We will experience an aging population. Meeting the needs of an older population will require adjusting our services and infrastructure. An older population may work less overall but also has more time and expertise to share.

Climate Change

Increased temperature variation, precipitation levels, and the frequency of extreme weather events are impacting design, construction, maintenance, and operations of our transportation system resulting in increased lifecycle costs.

Challenge: We will need to explore emerging technologies and employ innovative practices to reduce the impact of the transportation system on the air we breathe, the water we drink, and the natural resources we enjoy.

- Weather pattern change will force adaptation in our infrastructure, services, and society. The county will also face pressure to reduce its contribution to climate change.

Economy

Economic growth in Hennepin County depends on an efficient, reliable, and affordable transportation system to maintain competitive commute times, retain, and attract businesses, and support efficient movement of freight.

Challenge: Use technology and innovation to support economic growth and personal and freight mobility by making more efficient use of the transportation system and preserving and maintaining our aging infrastructure.

- Technology is enabling the rise of a sharing economy and is redefining what work is. No longer will we build one thing for everyone, and many products won't be physical. The workforce is becoming highly connected and mobile.

Infrastructure

More than 30% of our roads are more than 50 years old and are nearing the end of their useful life. Ongoing maintenance, rehab and replacement is estimated to cost $2 billion.

Challenge: As we rehab and replace infrastructure, we need to explore new ways to incorporate new technologies, innovations, and adaptations.

Technology

Technology is enabling the rise of a sharing economy and is redefining how, where, and when we work, travel, and communicate. The transportation sector is relying on data to drive decisions, and on technology to reimagine how we move people and goods. Mobile access to everything from traffic data to transit schedules informs our travel choices. Technological advances are changing residents' lives and how the county does business and the services we provide.

Challenge: While technological advancements have the potential to improve safety, mobility, and efficiency, we must recognize that without proactive planning and policy interventions, the technologies could result in increasing sprawl, vehicle miles traveled (VMT), and greenhouse gas (GHG) emissions, and limiting access for disadvantaged communities. Artificial Intelligence and Generative pre-trained transformers have opened avenues with deep learning and machine learning and have positive and negative implication in its use.

Transportation

Preferences are changing. In the region, people are driving less, using a variety of transportation modes, and showing a clear preference for living in walkable, transit-accessible neighborhoods.

Challenge: Hennepin County residents expect new and diverse mobility options that are affordable and available throughout the county.

- Mobility is rapidly evolving. Options for how we travel are expanding and our preferences are changing, too. The sharing economy, transit, and autonomous vehicles have the potential to profoundly and rapidly change how people get around. What we do today might not align with future mobility needs.
- Our infrastructure is aging. Many of our systems were built in the second half of the 20th century. That infrastructure needs maintenance, but society has not budgeted for it. There are opportunities to rethink these systems as we rebuild, incorporating new goals and technologies.

Local land use development patterns E1a

The principal guide in the forecasting of future land use development is with the comprehensive plans of the individual Hennepin County municipalities. All 45 municipalities provide future land development information on what types of land uses and the intensities of development they expect over the next twenty years.

Land use planning, designations, and zoning are vested in the authority of individual municipalities. Hennepin County will continue to collaborate with these agencies during activities such as development reviews, corridor studies, and project improvements to encourage increased development densities, expanded access to transit, transit corridor and station area planning. Hennepin County actively promotes specific types of land use and development, including TOD, affordable housing, and brownfield redevelopment through the incentive-based funding programs, Transit-Oriented Development, Affordable Housing Incentive Fund, and the Environmental Response Fund, respectively.

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SECTION 5	COMMUNITY CAPABILITY ASSESSMENT

5.1. Community Planning Tool Assessment C1a, C1b

Hennepin County Emergency Management (HCEM) uses a variety of hazard mitigation implements to assist local emergency managers identify additional capability that can be used to pay down risk. The capability tables are meant to be informative with an understanding to build or be aware of plan sets, programs, relationships, funding, training, and regulation. This capability assessment provides overall awareness and can leverage what a community could draw from in making decisions about mitigation actions or significant events. With respect to each community- each community determines their capability and should consider closing any gaps if they come across an area not identified as a capability. The capability listings in this section enables emergency managers a program to improve community resilience through actions taken before, during and after a significant event that is within local capabilities. For example, building codes, land use, development ordinances, and regulations are commonly used which control rate of growth and limit development into flood prone areas.

This 2024 Plan update includes Hennepin County's second HMP capability assessment. This assessment was conducted using responses to the City Capabilities Questionnaire that was distributed to all Hennepin County municipalities. Local emergency managers from each participating jurisdiction were directed to update the City Capabilities matrix. Capabilities were categorized into planning (**TABLE 5.1A**), administrative and technical (**TABLE 5.1B**), fiscal (**TABLE 5.1C**) and education and training (**TABLE 5.1D**). In addition, a new, Ordinance and Regulation section (**TABLE 5.1E**) was developed and added to this HMP revision.

The results of the capability assessment are presented in the following tables.

TABLE 5.1A Planning Capability

Planning Tools										
City	State Hazard Mitigation Plan	City Emergency Operation Plan	Continuity of Operations Plan	Post Disaster Recovery Plan	Capital Improvement Plan	Economic Development Plan	Transportation Plan	Flood Management Plan	Comprehensive Plan	Other
Bloomington	X	X	X		X	X	X	X	X	
Brooklyn Center	X	X			X	X	X		X	CCRP
Brooklyn Park	X	X	X		X	X	X			
Champlin	X	X	X		X	X	X	X	X	
Corcoran		X			X	X	X			
Crystal		X			X				X	
Dayton	X				X	X	X		X	
Deephaven	X	X			X				X	
Eden Prairie	X	X	X	X	X	X	X	X	X	
Edina		X			X	X	X	X	X	
Excelsior					X	X	X		X	
Golden Valley										
Greenfield		X							X	WMP
Greenwood	X	X			X				X	
Hopkins		X	X		X	X			X	
Independence	X	X	X		X	X		X	X	
Long Lake	X	X	X		X	X			X	
Loretto	X	X	X		X		X	X	X	
Maple Grove	X	X			X	X	X	X	X	
Maple Plain	X	X	X		X	X		X	X	
Medicine Lake		X	X		X				X	
Medina	X	X	X		X		X		X	CWS ERP
Minneapolis	X	X	X		X	X	X		X	
Minnetonka										
Minnetonka Beach		X	X		X				X	
Minnetrista		X			X	X		X	X	
Mound	X	X			X	X		X	X	
New Hope		X							X	
Orono		X			X			X	X	
Osseo		X			X	X			X	
Plymouth										
Richfield	X	X	X	X	X	X	X	X	X	
Robbinsdale		X			X	X			X	
Rockford										
Rogers	X	X	X		X		X		X	
Shorewood		X			X	X	X		X	
Spring Park		X			X			X	X	
St. Anthony	X	X	IP		X	X	X		X	
St. Bonifacius		X			X	X		X	X	
St. Louis Park										
Tonka Bay	X	X		X	X				X	
Wayzata	X	X	X	X	X	X			X	
Woodland	X	X			X			X	X	

CCRP: Community Crisis Response Plan
CWS ERP: Community Water System Emergency Response Plan
IP: In Progress
WMP: Water Management Plan

TABLE 5.1B Administrative and Technical Capability

Administrative and Technical Capabilities										
City	Planning Commission	Maintenance Program	Mutual Aid Agreements	Community Rating System Member	Emergency Manager	Community Planner	Civil Engineer	GIS Specialist	Building Inspector	Other
Bloomington	X	X	X	X	X	X	X	X	X	
Brooklyn Center	X	X	X		X	X	X	X	X	
Brooklyn Park	X	X	X	X	X	X	X	X	X	
Champlin	X	X	X	X	X	X	X	X	X	
Corcoran	X		X		X	X	X	X	X	
Crystal	X		X		X	X	X	X	X	
Dayton	X	X	X		X	X	X-C			
Deephaven	X	X	X		X		X		X	
Eden Prairie	X	X	X	X	X	X	X	X	X	
Edina	X	X	X		X	X	X	X	X	
Excelsior	X	X	X		X	X	X	X	X	
Golden Valley										
Greenfield	X	X	X		X	X-C	X-C	X-C	X-C	
Greenwood	X	X	X		X	X	X	X	X	
Hopkins	X	X	X		X	X	X	X	X	
Independence	X	X	X		X	X	X		X	
Long Lake	X	X-C	X-C		X	X-C	X-C	X-C	X-C	
Loretto	X	X	X		X		X			
Maple Grove	X	X	X	X	X	X	X	X	X	
Maple Plain	X	X	X		X	X			X	
Medicine Lake	X	X	X		X	X	X	X	X	
Medina	X	X	X		X	X	X		X	
Minneapolis	X	X	X	X	X	X	X	X	X	
Minnetonka										
Minnetonka Beach	X		X		X		X	X	X	
Minnetrista	X	X	X		X	X	X	X	X	
Mound	X	X	X		X	X	X	X	X	
New Hope	X	X	X		X	X	X		X	
Orono	X		X		X		X		X	
Osseo	X		X		X	X		X	X	
Plymouth										
Richfield	X	X	X		X	X	X	X	X	
Robbinsdale	X	X	X		X	X	X	X	X	
Rockford										
Rogers	X	X	X		X	X	X	X	X-C	
Shorewood	X	X	X		X	X	X	X	X	
Spring Park	X		X		X		X		X	
St. Anthony	X	X	X		X	X	X	X		
St. Bonifacius		X	X		X		X		X	
St. Louis Park										
Tonka Bay		X	X		X	X	X		X	
Wayzata	X	X	X		X	X	X		X	
Woodland			X		X				X	

X-C: Contracted

TABLE 5.1C Fiscal Capability

Fiscal Capabilities								
City	Capital Improvement Project Funding	Authority to Level Taxes for Specific Purposes	Utility Fees- Water, Storm, Sewer, Gas, Electric	Development Impact Fees	Community Developmental Block Grants	Federal/State Funding	Tax Incremental Financing (TIF)	Other
Bloomington	X	X	X	X	X	X	X	
Brooklyn Center	X	X	X	X	X	X	X	
Brooklyn Park	X	X	X	X	X	X	X	
Champlin	X	X	X	X	X	X	X	
Corcoran	X	X	X	X		X		
Crystal	X	X	X		X	X	X	
Dayton	X	X	X	X		X	X	
Deephaven	X	X	X			X		
Eden Prairie	X	X	X	X	X	X	X	
Edina	X	X	X		X	X	X	
Excelsior	X	X	X	X	X	X	X	
Golden Valley								
Greenfield	X	X	X	X		X		
Greenwood	X	X	X			X		
Hopkins	X	X	X	X	X	X	X	
Independence	X	X	X		X	X		
Long Lake	X	X	X	X		X	X	
Loretto	X	X	X		X	X	X	
Maple Grove	X	X	X	X	X	X	X	
Maple Plain	X	X	X		X	X		
Medicine Lake	X	X		X		X		
Medina	X	X	X		X	X		
Minneapolis	X	X	X		X	X	X	
Minnetonka								
Minnetonka Beach	X		X					
Minnetrista	X		X	X		X		
Mound	X	X	X		X	X	X	COPF
New Hope			X				X	
Orono	X		X					
Osseo	X	X	X		X	X	X	
Plymouth								
Richfield	X	X	X	X	X	X	X	
Robbinsdale	X	X	X		X	X	X	
Rockford								
Rogers	X	X	X	X		X	X	
Shorewood	X	X	X	X	X	X	X	
Spring Park	X		X					
St. Anthony	X	X	X	X	X	X	X	
St. Bonifacius	X		X					
St. Louis Park								
Tonka Bay	X	X	X	X	X	X	X	
Wayzata	X	X	X	X		X	X	
Woodland	X	X	X			X		

COPF: Co-Operative Fire

TABLE 5.1D Education and Training Capability

Education and Training										
City	CERT Team	Regular Training	Exercises (Tabletop to Full-Scale)	Hazard Education in Schools	Citizens Group or Non-Profit Focused on EM	Public/Private Partnerships	Storm Ready	Fire Wise	WebEOC	Other
Bloomington		X		X					X	
Brooklyn Center		X							X	HSC
Brooklyn Park		X		X		X				
Champlin		X	X			X			X	
Corcoran		X	X			X			X	
Crystal		X	X			X			X	
Dayton		X							X	
Deephaven		X							X	
Eden Prairie	X	X	X	X	X	X	X		X	HSEM
Edina			X	X		X			X	
Excelsior						X				
Golden Valley										
Greenfield		X	X						X	
Greenwood		X								
Hopkins	X	X	X	X		X	X		X	
Independence		X	X			X		X	X	
Long Lake	X	X	N/A						X	
Loretto		X	X		X	X		X	X	
Maple Grove		X	X			X			X	
Maple Plain		X	X			X		X	X	
Medicine Lake	X					X			X	
Medina		X	X			X		X	X	
Minneapolis		X	X		X	X			X	
Minnetonka										
Minnetonka Beach		X	X						X	
Minnetrista		X	X	X					X	
Mound		X	X	X		X	X		X	RAVE
New Hope		X	X			X			X	
Orono		X	X						X	
Osseo									X	
Plymouth										
Richfield	X	X	X	X	X	X	X		X	
Robbinsdale									X	
Rockford										
Rogers		X	X	X		X			X	
Shorewood		X	X			X				
Spring Park		X	X						X	
St. Anthony		X	X	X					X	
St. Bonifacius		X	X	X					X	
St. Louis Park										
Tonka Bay		X	X			X			X	
Wayzata		X	X			X			X	
Woodland		X							X	

HSC: Heart Safe City
HSEM: Homeland Security and Emergency Management
RAVE: RAVE Mass Notification System

TABLE 5.1E Regulations and Ordinances Capability

Regulations and Ordinances										
City	Building Codes	Growth Control Ordinance	Hazard Setback Regulations	Hillside Ordinance	Historic Ordinance	Shoreline Ordinance	Wildfire Ordinance	Zoning Ordinance	Floodplain Regulations	Other
Bloomington	X		X					X	X	
Brooklyn Center	X		X			X		X	X	
Brooklyn Park	X	X	X					X	X	
Champlin	X	X	X					X	X	BLF
Corcoran	X	X				X		X	X	
Crystal	X					X		X	X	
Dayton	X				X	X		X	X	
Deephaven	X	X	X			X	X	X	X	
Eden Prairie	X	X	X	X	X	X	X	X	X	
Edina	X		X	X	X	X		X	X	
Excelsior	X				X	X		X	X	
Golden Valley										
Greenfield	X	X	X			X		X	X	BLF
Greenwood	X		X	X		X		X	X	
Hopkins	X		X					X		
Independence	X	X	X			X		X	X	
Long Lake	X		X		X	X		X		
Loretto	X							X	X	
Maple Grove	X	X	X	X	X	X	X	X	X	
Maple Plain	X	X	X			X		X	X	
Medicine Lake	X	X	X	X		X	X	X	X	
Medina	X	X	X			X		X	X	
Minneapolis	X		X		X	X		X	X	
Minnetonka										
Minnetonka Beach	X			X	X	X		X	X	
Minnetrista	X					X		X	X	
Mound	X		X	X		X		X	X	
New Hope	X				X	X		X	X	
Orono	X		X			X		X	X	
Osseo	X							X		
Plymouth										
Richfield	X	X	X					X	X	
Robbinsdale	X							X	X	
Rockford										
Rogers	X-C	X				X		X	X	
Shorewood	X					X		X	X	
Spring Park	X		X			X		X	X	
St. Anthony	X	X	X			X		X		
St. Bonifacius	X							X	X	
St. Louis Park										
Tonka Bay	X		X	X		X		X	X	
Wayzata	X		X		X	X		X		
Woodland										

BLF: Bluff Regulation

5.2. Participation in the National Flood Insurance Program C2a

Flooding is the most common natural hazard. 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 Federal Emergency Management Agency (FEMA) manages the NFIP and oversees the floodplain management and mapping components of the Program.

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities.

The National Flood Insurance Program aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. These efforts help mitigate the effects of flooding on new and improved structures. Overall, the program reduces the socio-economic impact of disasters by promoting the purchase and retention of general risk insurance, but also of flood insurance, specifically.

5.3 National Flood Insurance Program in Minnesota C2a

The Minnesota Department of Natural Resources (DNR) is the state administration agent for the NFIP in Minnesota. The HSEM Hazard Mitigation branch works with the DNR, FEMA other agencies to help communities develop effective local flood hazard mitigation plans and projects which includes adopting required ordnances and mitigation plans necessary for the community to be eligible to participate in the NFIP.

TABLE 5.3: Hennepin County community's participation in the National Flood Program (as of 2-01-2024)
Community status book report for state MN (fema.gov)

Community Name	CID	Current Eff Map Date
Bloomington	274230B	11/04/16
Brooklyn Center	270151B	11/04/16
Brooklyn Park	270152B	11/04/16
Champlin	270153B	11/04/16
Chanhassen (Hennepin, Carver)	270051B	12/21/18
Corcoran	270155B	11/04/16
Crystal	270156B	11/04/16
Dayton	270157B	11/04/16
Deephaven	270158B	11/04/16
Eden Prairie	270159B	11/04/16
Edina	270160B	11/04/16
Excelsior	270161B	11/04/16
Golden Valley	270162B	11/04/16
Greenfield	270673B	11/04/16
Greenwood	270164B	11/04/16
Hanover (Hennepin, Wright)	270540B	11/04/16
Hopkins	270166B	11/04/16

Community Name	CID	Current Eff Map Date
Independence	270167B	11/04/16
Long Lake	270168B	11/04/16
Loretto	270659B	11/04/16
Maple Grove	270169B	11/04/16
Maple Plain	270170B	11/04/16
Medicine Lake	270690B	11/04/16
Medina	270171B	11/04/16
Minneapolis	270172B	11/04/16
Minnetonka	270173B	11/04/16
Minnetonka Beach	270174B	11/04/16
Minnetrista	270175B	11/04/16
Mound	270176B	11/04/16
New Hope	270177B	11/04/16
Orono	270178B	11/04/16
Osseo	270658B	NSFHA
Plymouth	270179B	11/04/16
Richfield	270180B	11/04/16
Robbinsdale	270181B	11/04/16
Rockford (Wright, Hennepin)	270182B	11/04/16
Rogers	270775B	11/04/16
Shorewood	270185B	11/04/16
Spring Park	270168B	11/04/16
St. Anthony (Ramsey, Hennepin)	270716#	02/16/12
St. Bonifacius	270183B	11/04/16
St. Louis Park	270184B	11/04/16
Tonka Bay	270187B	11/04/16
Wayzata	270188B	11/04/16
Woodland	270189B	11/04/16

NSFHA- No special flood hazard area- All Zone C

TABLE 5.3

TABLE 5.4: Local Implementation of National Flood Insurance Program requirements as of March, 2024.
C2a

Local Implementation of National Flood Insurance Program Requirements					
Municipality	Has adopted NFIP minimum floodplain management criteria via Local Regulation.	Has implemented and enforce Local Floodplain Management Regulations for Special Flood Hazard Areas.	Has partnered with another agency to enforce Local Floodplain Management Regulations for Special Flood Hazard Areas.	Has appointed a local zoning department or building official to implement NFIP requirements.	Damaged structures are required to be repaired to current floodplain regulations.
Bloomington	Chapter 19, 21	Y	N	Y	Y
Brooklyn Center	Chapter 152, section 224	Y	N	Y	Y
Brooklyn Park	Section 152	Y	N	Y	Y
Champlin	Chapter 114	Y	N	Y	Y
Corcoran	Chapter 10	Y	N	Y	Y
Crystal	Section 515	Y	N	Y	Y
Dayton	Chapter 1000, 1001.09	Y	N	Y	Y
Deephaven	Section 1360	Y	N	Y	Y
Eden Prairie	Chapter 11, Section 11	Y	N	Y	Y
Edina	Chapter 36, Article 10	Y	N	Y	Y
Excelsior	Appendix E, Article 61	Y	N	Y	Y
Golden Valley	Chapter 11	Y	N	Y	Y
Greenfield	152.075	Y	N	Y	Y
Hanover	Chapter 10	Y	N	Y	Y
Hopkins	Article 12	Y	N	Y	Y
Independence	Chapter 5, Section 506	Y	N	Y	Y
Long Lake	Section 17B	Y	N	Y	Y
Loretto	Section 413:05	Y	N	Y	Y
Maple Grove	Article 7, Division 4	Y	N	Y	Y
Maple Plain	Chapter 10, Article 2	Y	N	Y	Y
Medicine Lake	Ordinance 86	Y	Y*	Y	Y
Medina	Section 826.74	Y	N	Y	Y
Minneapolis	Article 7	Y	N	Y	Y
Minnetonka	Section 300.24	Y	N	Y	Y
Minnetonka Beach	Section 512	Y	N	Y	Y
Minnetrista	Section 510.05	Y	N	Y	Y
Mound	Chapter 113	Y	N	Y	Y

Local Implementation of National Flood Insurance Program Requirements					
Municipality	Has adopted NFIP minimum floodplain management criteria via Local Regulation.	Has implemented and enforce Local Floodplain Management Regulations for Special Flood Hazard Areas.	Has partnered with another agency to enforce Local Floodplain Management Regulations for Special Flood Hazard Areas.	Has appointed a local zoning department or building official to implement NFIP requirements.	Damaged structures are required to be repaired to current floodplain regulations.
New Hope	Appendix D	Y	N	Y	Y
Orono	Article 8	Y	N	Y	Y
Osseo	Chapter 154	Y	N	Y	Y
Plymouth	Section 21660	Y	N	Y	Y
Richfield	Section 550	Y	N	Y	Y
Robbinsdale	Section 530	Y	N	Y	Y
Rockford	1001.22	Y	N	Y	Y
Rogers	Article 125-VI	Y	N	Y	Y
Saint Anthony Village	Chapter 154	Y	N	Y	Y
Saint Bonifacius	Chapter 154	Y	N	Y	Y
Saint Louis Park	Article 4, Div 11	Y	N	Y	Y
Shorewood	Chapter 1101	Y	N	Y	Y
Spring Park	Article 6	Y	N	Y	Y
Tonka Bay	Chapter 1040	Y	N	Y	Y
Wayzata	Chapter 806	Y	N	Y	Y
Woodland	Chapter 10	Y	N	Y	Y

5.4 Repetitive Loss Properties B2c

A Repetitive Loss property is any insurance building for which two or more claims of more than $1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A Repetitive loss property may or may not be currently insurance by the NFIP.

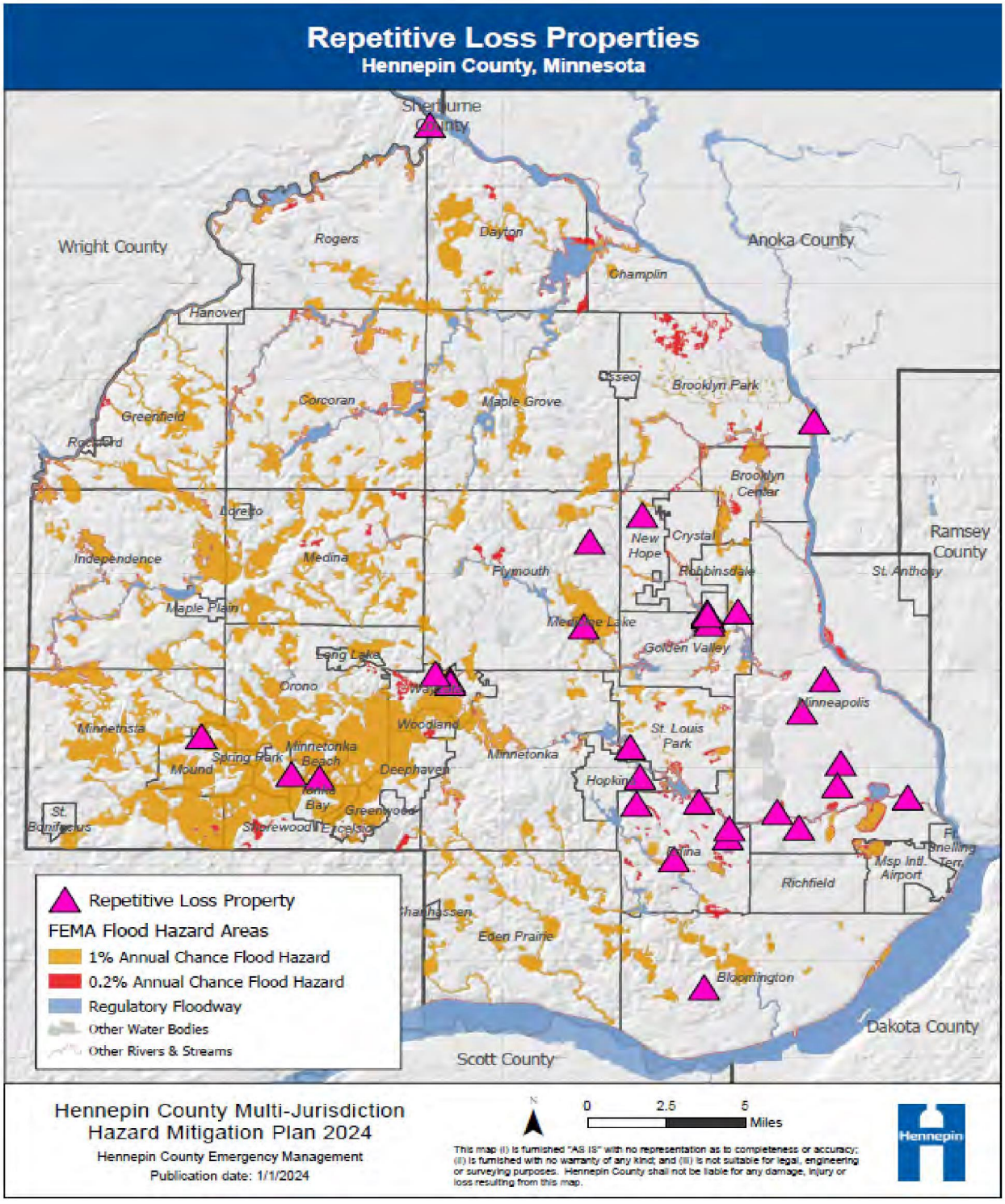

TABLE 5.4: Hennepin County Repetitive Loss Properties by Jurisdiction

Jurisdiction	Number of Repetitive Loss Properties	Type of Property
Bloomington	1	Residential
Brooklyn Park	1	Residential
Dayton	1	Residential
Edina	5	Residential
Golden Valley	2	Residential
Hopkins	1	Residential
Medicine Lake	1	Residential
Minneapolis	7	Residential
Mound	1	Residential
New Hope	1	Residential
Orono	1	Residential
Plymouth	1	Residential
Robbinsdale	1	Residential
Saint Louis Park	1	Residential
Tonka Bay	1	Residential
Wayzata	2	Residential

5.5 Community Rating System (CRS)

There are currently 0 Hennepin County municipalities that participate in the Community Rating System (CRS).

The Community Rating System (CRS) recognizes and encourages community floodplain management activities that exceed the minimum NFIP standards. Depending upon the level of participation, flood insurance premium rates for policyholders can be reduced up to 45%. Besides the benefit of reduced insurance rates, CRS floodplain management activities enhance public safety, reduce damages to property and public infrastructure, avoid economic disruption and losses, reduce human suffering, and protect the environment. Technical assistance on designing and implementing some activities is available at no charge. Participating in the CRS provides an incentive to maintaining and improving a community's floodplain management program over the years. Implementing some CRS activities can help projects qualify for certain other Federal assistance programs.

In exchange for a community's proactive efforts to reduce flood risk, policyholders can receive reduced flood insurance premiums for buildings in the community. These reduced premiums reflect the reduced flood risk resulting from community efforts toward achieving the three CRS goals:

1. Reduce flood damage to insurable property.
2. Strengthen and support the insurance aspects of the NFIP.
3. Encourage a comprehensive approach to floodplain management.

Participation in the Community Rating System (CRS) is voluntary. By participating, communities earn credit points that determine classifications. There are 10 CRS Classes: Class 1 requires the most credit points and provides the largest flood insurance premium reduction (45 percent), while Class 10 means the community does not participate in the CRS or has not earned the minimum required credit points, and

residents receive no premium reduction. The CRS Classes are based on completion of 19 creditable activities organized into 4 categories:

1. Public Information
2. Mapping and Regulations
3. Flood Damage Reduction
4. Warning and Response

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SECTION 6	HAZARD MITIGATION PLAN MAINTENANCE D

This section describes the system that Hennepin County and participating jurisdictions have established to monitor, evaluate, and update the HMP; implement the mitigation plan through existing programs; and solicit continued public involvement with plan maintenance.

6.1. Monitoring, Evaluating, and Updating the Plan D1, D2

This section of the plan describes the ongoing methods to keep the plan current. It describes how the plan will be reviewed annually, how the public will be kept involved, and how the plan will be integrated into other planning mechanisms. It details the formal process that will ensure that this HMP remains an active and relevant document. The plan maintenance process includes a schedule for monitoring and evaluating the plan annually, as well as revising it every five years. This section also describes how the county will integrate public participation throughout the plan maintenance process.

Minimum changes have been made to these processes since the 2018 plan adoption. However, COVID-19 did change the way meetings were conducted. Many meetings were put on hold. Remote and hybrid work were eventually developed which still delayed much of the maintenance work as minimal representation attended these annual review meetings. Additional information will be presented at the Hennepin Emergency Managers Community quarterly meeting.

6.1.1. Monitoring D2a, D2b

HCEM is tasked with the overall responsibility of monitoring this HMP. HCEM will develop a Local Mitigation Strategy Working Group (LMS). The HMP project will continually be under review as FEMA guidance is always evolving. This guidance will inform participants of funding sources, current project considerations for application, and assist in prioritizing funding availability for participating jurisdictions. By monitoring the implementation of the plan, HCEM and the LMS will be able to assess which projects are moving forward, which projects we be delayed, which have been completed, and which are no longer feasible or require additional planning as they no longer meet federal or state criteria. Finally, the LMS will periodically inform the public about the progress and success of its efforts through various community website or social media platforms.

The LMS will continue to meet regularly and communicate via email. As part of the monitoring, evaluation and enhancement process, a participating jurisdiction meeting will be held in the 3rd Quarter (Jul, Aug, Sept) annually, to create a best practice program. The LMS will be able to address the following: FEMA updates, State updates, grant updates, and the application process. Attendance and minutes must be kept supporting this HMP update in future revisions.

6.1.2. Evaluation D2b

Plan recommendations will be reviewed at the annual LMS meeting. The meeting will be used to determine the effectiveness of mitigation plan programs and make changes that may affect mitigation projects, priorities, or funding sources. As part of the evaluation process, responsible agencies will be invited to share any updates on their mitigation projects at the meeting.

In addition, the following questions will be asked:

- Are there any new hazards developed not addressed in the plan?

- Have any communities experienced natural disasters that will need to be added in the plan?
- Have any unanticipated developments occurred that is vulnerable to hazards (CIKR, zoning, land use)?
- Are there any additional mitigation ideas that need to be incorporated?
- What projects are being considered, been initiated, and or completed?
- What are the barriers to completing projects identified in the plan?
- Are our HMP goals still reflective of community priorities to reduce hazard vulnerabilities?
- Is there an open Presidential Disaster Declaration that has made mitigation monies available?

The purpose of these questions is to gauge community partners goals, objectives, and actions and if they are still current and what changes need to be made in the plan. An update will be required at the annual meeting and can be submitted any time to HCEM. The discussion will be documented so that when the plan is revised, findings can be considered or incorporated in the next five-year plan revision.

Finally, the LMS will also evaluate how overall strategies and policies that drive augmentation, revision, or implementation. Programs and policies for review may include but not limited to:

- Sustainability
- Critical Infrastructure
- Climate initiatives
- Underserved populations
- Economic Growth
- Growth Management
- Environmental Preservation
- Historic Preservation
- Redevelopment
- Health and/or safety
- Recreation
- Land use/zoning
- Public Education and Outreach
- Transportation
- Technology

6.1.3. Updating the Plan D2c

HCEM receives a one-year notification from Minnesota's Homeland Security Emergency Management- State Hazard Mitigation Officer. This notification indicates that the current adopted plan will expire in approximately one year. This is the official notice to begin modifying the HMP.

Any of the following situations could trigger a review and update of the plan:

- Occurrence of a major natural disaster in Hennepin County
- Five-year plan expiration
- Change in state of federal regulations which direct or guide compliance.

The HMP will be periodically reviewed and updated by HCEM every five years unless it has undergone a more recent revision (with associated FEMA approval). At the five-year mark, several

questions will be asked:

- Do the goals address current and expected conditions?
- Meet the FEMA guidance elements list.
- Has risk changed for participating jurisdictions?
- What additional hazard events have occurred or have been tracked between the five-year planning period?
- Have the community capabilities changed with planning, administrative and technical, fiscal, training and education, and regulation and ordinance?
- What progress has been made to complete mitigation actions?
- How has the public remained involved over the past five years?
- Have a participating jurisdictions critical infrastructure prioritization changed (CFI 1-5)

6.2. Five Year Revision Procedure

When a major natural disaster occurs in Hennepin County, the staff from HCEM and the LMS working group will meet following the recovery effort to review and determine if changes will be required to the HMP. In the absence of a major natural disaster, the five-year review will take place during the 12-month period preceding the State of Minnesota HSEM plan expiration notification letter. Following proper notification for record, the Hennepin County Emergency Management Plans & Systems Integration Coordinator will convene a review committee, and with their assistance, carry out the following tasks:

- Create a timeline for completion.
- Determine if current goals are still valid?
- Meet one on one with each jurisdiction.
- Review community capability data.
- Compare historical hazards against local critical infrastructure.
- Prioritize continuity by identifying priority 1 critical facilities.
- Develop a mitigation projects list that would bring value and pay down risk for participating jurisdictions.
- Prepare a final draft. Submit to HSEM for FEMA element crosswalk compliance.
- Present to County Board for Adoption and submit adoption to State and FEMA
- Complete the participating jurisdiction plan adoption/resolution process and submit those by city resolutions to State and FEMA
- Receive FEMA approval letters for all participating jurisdictions.

6.3. Public Involvement D1a

The public is encouraged to be involved in the continual updates of the HMP. The following methods of public involvement are options to ensure they are successful in having access. As technology or accessibility matures, additional methods of public involvement will be implemented. For the previous 2018 plan, a redacted plan was available on Hennepin County's website for the past 5 years. An unredacted copy was provided to participating jurisdictions, departments, elected officials, and partner agencies. HCEM will continue to be the lead agency to ensure the public remains involved over the next five years via the following methods:

- HCEM will use social media via Facebook and Twitter to inform the public as to the availability of information and draft plan documents for review. This platform will be used extensively going

forward in engaging the public in ongoing hazard mitigation planning for public awareness.

- Each jurisdiction having a dedicated website can post a redacted HMP as received from the Plans & Systems Integration Coordinator for public consumption. The HC link can also be shared on their city web page, or a redacted copy can be imported into a city web site.
- HCEM and LMS working group will lead efforts to prepare and disseminate an annual fact sheet on status of hazard mitigation planning and implementation to all stakeholders. These materials will be passed out at various community engagement activities, regional planning working group meetings, and at Hennepin Emergency Management Community quarterly meetings.
- HCEM will continue to create a survey for the public that asks for feedback regarding their understanding of hazard mitigation and various hazards in their communities. These survey forms will be shared with participating jurisdictions for their use as well. These surveys will be distributed at various community engagement activities.

6.4. Implementation of the HMP through Existing Programs and Plans A4a, D3

All participating jurisdictions will need to integrate this HMP into relevant government decision-making processes or mechanisms, where feasible. This includes integrating the recommendations or actions of this HMP into other local planning strategies, processes, or by using local comprehensive or capital improvement plans, as a project bridge, where funding may be allocated from multi sources. All jurisdictions must be cognizant of their objectives and actions in that they do not increase hazard vulnerability in Hennepin County.

Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning strategy, the development and maintenance of this stand-alone HMP is very effective and an appropriate method ensuring successful implementation of local hazard mitigation projects.

TABLE 6-4A below includes existing processes and programs through which the HMP could be implemented. These processes and programs can also integrate this plan into their planning mechanisms. **E2c**

TABLE 6.4A Integration of Plans D3a, D3b, D3c

Process	Action	Implementation of Plan
Administrative	Departmental or organizational work plans, policies, and procedural changes.	• 2019 State Hazard Mitigation Plan • HC Solid Waste Management Master Plan • HC Transportation Mobility 2040 Plan • HC 2021 Climate Action Plan • HC Natural Resources Strategic Plan 2015-2020 • HC 2040 Comprehensive Plan
Administrative	Other Organizations' Plans	• Three-Rivers Park District 2040 system Plan • Met Council's 2023-2028 Metro HRA and Regional Parks CIP • Minneapolis Parks and Recreation Board (MPRB) Land Policy • Minneapolis Resource Management Plan • 2017-2027 Nine Mile Creek Watershed District Water Management Plan

Process	Action	Implementation of Plan
		• 2015-2025 Bassett Creek Watershed Management Plan • 2018-2027 Lower Minnesota Watershed District Management Plan • 2018-2027 Richfield-Bloomington Watershed Management Plan • Three Rivers Park Sustainability Plan • Elm Creek Watershed Management Plan • Pioneer-Sarah Creek Watershed Third Generation Watershed Management Plan • West Mississippi Watershed Third Generation Water Management Plan • Shingle Creek Watershed – Third Generation Water Management Plan • Minnehaha Creek Watershed District Comprehensive Water Resources Management Plan and individual sub-water shed plans. • Municipality Surface Water Management Plans • Xcel Energy Upper Midwest Resources Plan 2016-2030 • Metropolitan Council 2040 Transportation Policy Plan • Metropolitan Council 2040 Water Resources Policy Plan • Metropolitan Council 2040 Regional Parks Policy Plan • Include reference to this plan in Area Planning Group Emergency Plans. • 2030 Regional Parks Capital Improvement Program • Municipality Comprehensive Plans • Municipality Storm Water Management Plans • Municipality Stream Bank Restoration/Stabilization Plans/Projects • Municipality Well Head Protection Plans • Include references in creation of ordinances/resolutions or public education campaigns. • Include reference in watershed district plans. • Include reference in County storm water management plan. • HC Emergency Operations Plan
Administrative	Job Descriptions	Unpaid internships/and or Paid On call staff to assist in HMP maintenance.
Budgetary	Capital and operational budgets	Review county and jurisdictional budgets to include line-item mitigation actions

Process	Action	Implementation of Plan
Regulatory	Ordinances and other directives	• Comprehensive planning - institutionalize hazards mitigation for new construction and land use. • Comprehensive Planning – institutionalize hazard mitigation techniques for new home construction (Windstorm Mitigation Manual) • Zoning and Ordinances • Building Codes - enforcement of codes or higher standard in hazard areas. • National Flood Insurance Program - Continue to participate in this program and increase participation throughout the county in the Community Rating System Program. • Continue to implement storm water management plans. • Municipality shoreline ordinances
Funding	Secure traditional sources of financing	• Apply for grants from federal or state government, nonprofit organizations, foundations, and private sources including Pre-Disaster Mitigation Program (PDM-DMA 2000), Flood Mitigation Assistance Program (FMA), and the Hazard Mitigation Grant Program (HMGP-Stafford Act, Section 404). • Research grant opportunities through U.S. Department of Housing and Urban Development's Community Development Block Grant (CDBG). • Other potential federal funding sources include: - Stafford Act, Section 406 – Public Assistance Program Mitigation Grants - Federal Highway Administration - Catalog of Federal Domestic Assistance - United States Fire Administration - United States Small Business Administration Pre and Post Disaster Mitigation Loans - United States Department of Economic Development Administration Grants - United States Army Corps of Engineers - United States Department of Interior, Bureau of Land Management - Other sources yet to be defined
Partnerships	Develop creative partnerships, funding, and incentives.	• Public-Private Partnerships • Community Emergency Response Team (CERT) • Community Volunteers • State Cooperation • Hennepin County Natural Resources Partnership • In-Kind resources

SECTION 7	APPENDICES

Appendix A	Regional Review Working Group Meeting Minutes		
Reference to:	Section 3	3.12	page 20-21

Regional Review Working Group Meeting Minutes #1	November 10, 2022

Hennepin County Memo

Emergency Management
1600 Prairie Drive
Medina, MN 55340-5421

Phone: 612-596-0250
Fax: 763-478-4001
TDD: 763-478-4030

DATE: 11/10/22

TO: Eric Waage

FROM: Bruce Kelii

SUBJECT: 2023 HMP Regional Review Working Group, Kick off, Meeting #1

The first meeting of the HMP Regional Review Working Group took place on November 10, 2022. The Working Group members present were:

- Bruce Kelii- Deputy Director- Hennepin County Emergency Management
- Scott Gerber- South Regional Chair- Eden Prairie Fire
- Mark Ray- North Regional Chair- Crystal Public Works
- Paul Falls- Lakes Regional Chair- Minnetrista Police
- Eric Gustafson- East Regional Chair- Office of Emergency Management- Minneapolis

The main agenda item for this kick-off meeting was for the Regional Review Working Group (RRWG) to receive notification that the Hazard Mitigation Plan is due for adoption. Review the 2018 HMP and to go over the FEMA Local Mitigation Handbook and review all 44 CFR 201.6 Local Mitigation Plan requirements. The RRWG has the overall responsibility of recommending plan revisions, while the Mitigation Planning Team, once determined, will be tasked with updating their jurisdiction mitigation project strategies, objectives and actions, risk assessment, prioritizing, and plan monitoring, evaluating and maintenance.

The next Regional Review Working Group Meeting is set for April 20, 2023.

Bruce Kelii
Deputy Director
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612-596-0249
bruce.kelii@hennepin.us

Regional Review Working Group Meeting Minutes #2	April 20, 2023

Hennepin County Memo

Emergency Management
1600 Prairie Drive
Medina, MN 55340-5421

Phone: 612-596-025o
Fax: 763-478-4001
TDD: 763-478-4030

DATE: 04/20/23

TO: Eric Waage

FROM: Bruce Kelii

SUBJECT: 2023 HMP Region Review Working Group, Meeting #2

The second meeting of the HMP Regional Review Working Group took place on April 20, 2023. The Working Group members present were:

- Bruce Kelii- Deputy Director- Hennepin County Emergency Management
- Scott Gerber- South Regional Chair- Eden Prairie Fire
- Mark Ray- North Regional Chair- Crystal Public Works
- Paul Falls- Lakes Regional Chair- Minnetrista Police
- Eric Gustafson- East Regional Chair- Office of Emergency Management- Minneapolis

The agenda

- Mitigation Planning Team makeup
- 44CFR Element Review
- 2020 Funding Distribution- all applications
- Hennepin County Natural Hazards
- Plan Vision/ Timeline
- Products and Documents
- Survey Completed
- Vision and Mission
- Next Steps

The bench of work discussion

1. Jurisdiction Participation
2. 2018 Mitigation Strategy Review, Updates, Progress reports
3. Critical Infrastructure Index (CF1-CF5 prioritizing)
4. Capability Assessments
5. Dashboards
6. Hazard Rankings

Next steps

1. Meet with Cities to prepare their plan portion.
2. Discuss assessments.
3. Strategy Reviews

4. CIKR updates
5. Capability Assessments
6. Dashboard Improvement
7. Historical Data

The next Regional Review Working Group Meeting is set for May 18, 2023.

Bruce Kelii
Deputy Director
Hennepin County Emergency Management
612-596-0249
bruce.kelii@hennepin.us

Regional Review Working Group Meeting Minutes #3	**May 18, 2023**

Hennepin County Memo

Emergency Management
1600 Prairie Drive
Medina, MN 55340-5421

Phone: 612-596-0250
Fax: 763-478-4001
TDD: 763-478-4030

DATE: 5/18/23

TO: Eric Waage

FROM: Bruce Kelii

SUBJECT: 2023 HMP Region Review Working Group, Meeting #1

The third meeting of the HMP Regional Review Working Group took place on May 18, 2023. The Working Group members present were:

- Bruce Kelii- Deputy Director- Hennepin County Emergency Management
- Scott Gerber- South Regional Chair- Eden Prairie Fire
- Mark Ray- North Regional Chair- Crystal Public Works
- Paul Falls- Lakes Regional Chair- Minnetrista Police
- Eric Gustafson- East Regional Chair- Office of Emergency Management- Minneapolis

The agenda
- Progress Timeline Update
- Cities Scheduled
- Tutorial created to assist Mitigation Planning Teams
- Checklist- Products and Documents

The bench of work discussion
Priority of Schedule: Regional Chairs, Minneapolis, South, Lakes, North

Once initial meeting takes place touch meetings and discussions can follow until jurisdiction is satisfied through any communication format: one on one, Team Meet virtual, emails, or phone conversations.

Hazard Mitigation Review Schedule 2023			
Date	Time	City	Notes
May 26 Fri	10a-12p	Crystal	10-11a Mark
May 26	1p-3p		
May 30 Tue	10a-12p	Minneapolis	Eric
May 30	1p-3p	[illegible]	Paul
June 6 Tue	10a-12p		
June 6	1p-3p	Bloomington	Jay Forster, Ulie
June 15 Thu	1p-3p	[illegible]	Scott
June 16 Fri	10a-12p	Edina	Andrew
June 16	1p-3p		
June 20 Tue	1p-3p	Minnetonka	Aaron
June 23 Fri	10a-12p		
June 23	1p-3p		
June 27 Tue	10a-12p		
June 27	1p-3p	Richfield	Jay, Charlie
June 30 Fri	10a-12p	Hopkins	Dale
June 30	1p-3p		
July 7 Fri	10a-12p		
July 11 Tue	10a-12p		
July 11	1p-3p		
July 13 Thu	10a-12p		
July 14 Fri	10a-12p		
July 18 Tue	10a-12p		
July 19 Wed	10a-12p		
23 Dates	46 Hours	10/42	

Provide a tutorial for jurisdictions to review after initial review meeting.

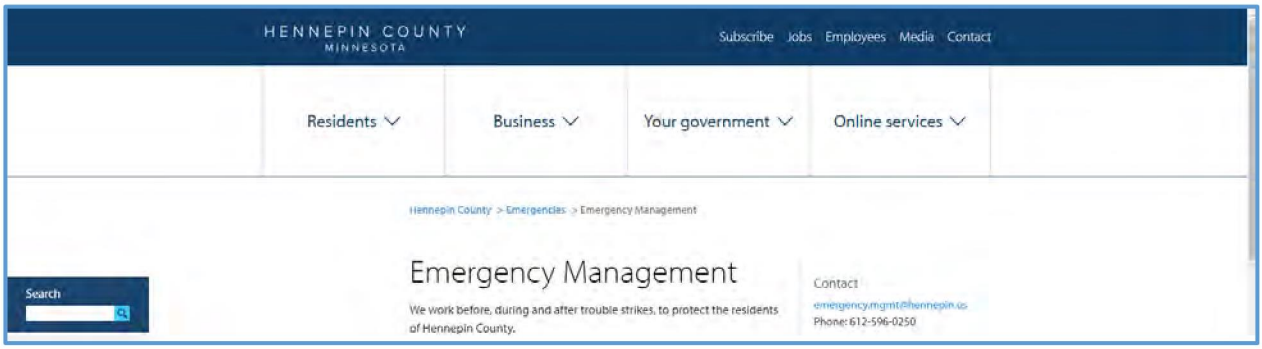


The next Regional Review Working Group Meeting is set for June 22, 2023.

Bruce Kelii
Deputy Director
Hennepin County Emergency Management
612-596-0249
bruce.kelii@hennepin.us

Appendix B	Social Media and Digital Media Press Release		
Reference to:	Section 3	3.21	page 29-30

Hennepin County Website Post	December 1, 2022



Hazard mitigation

Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards such as flooding, storms, high winds, wildfires, earthquakes, etc. Mitigation efforts undertaken by communities will help to minimize damages to buildings and infrastructure, such as water supplies, sewers, and utility transmission lines, as well as natural, cultural and historic resources.

Hennepin County All-Jurisdiction Hazard Mitigation Plan

We are updating the All-Hazard Mitigation Plan, as required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Local jurisdictions are required to update the plan every five years to remain eligible for pre-disaster and post-disaster mitigation grant programs. Community involvement and feedback are vital to the success of the plan.

Send us your feedback

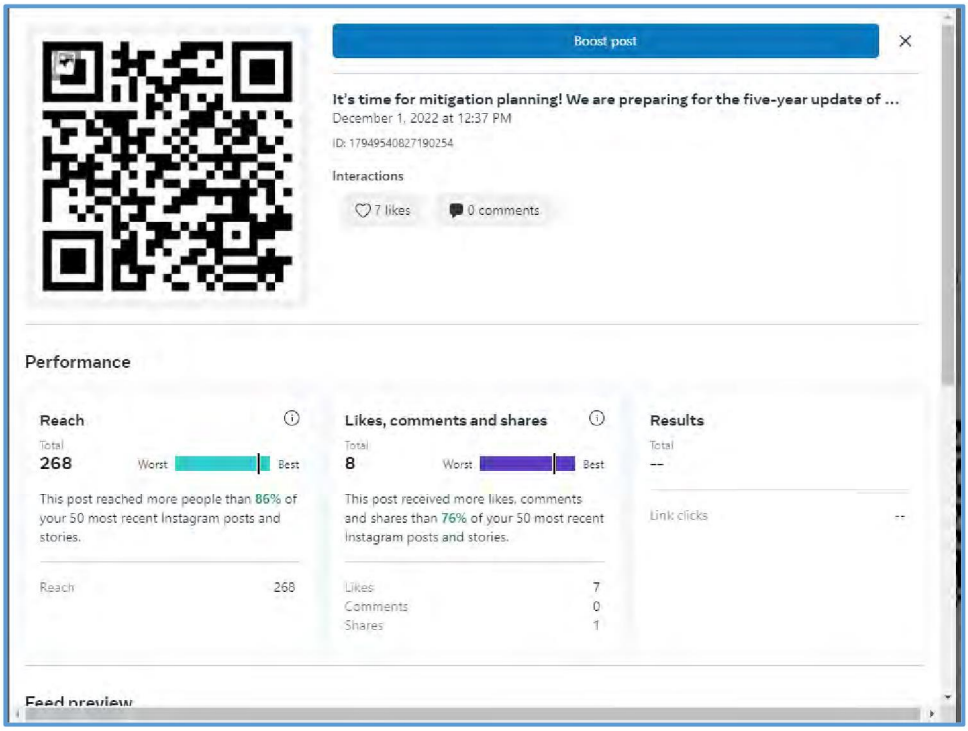
The information you provide by completing the survey below will help us better understand your hazard concerns and can lead to mitigation activities to help lessen the impact of future hazard events.

- Deadline: January 31, 2023
- Complete the survey

2018 Plan

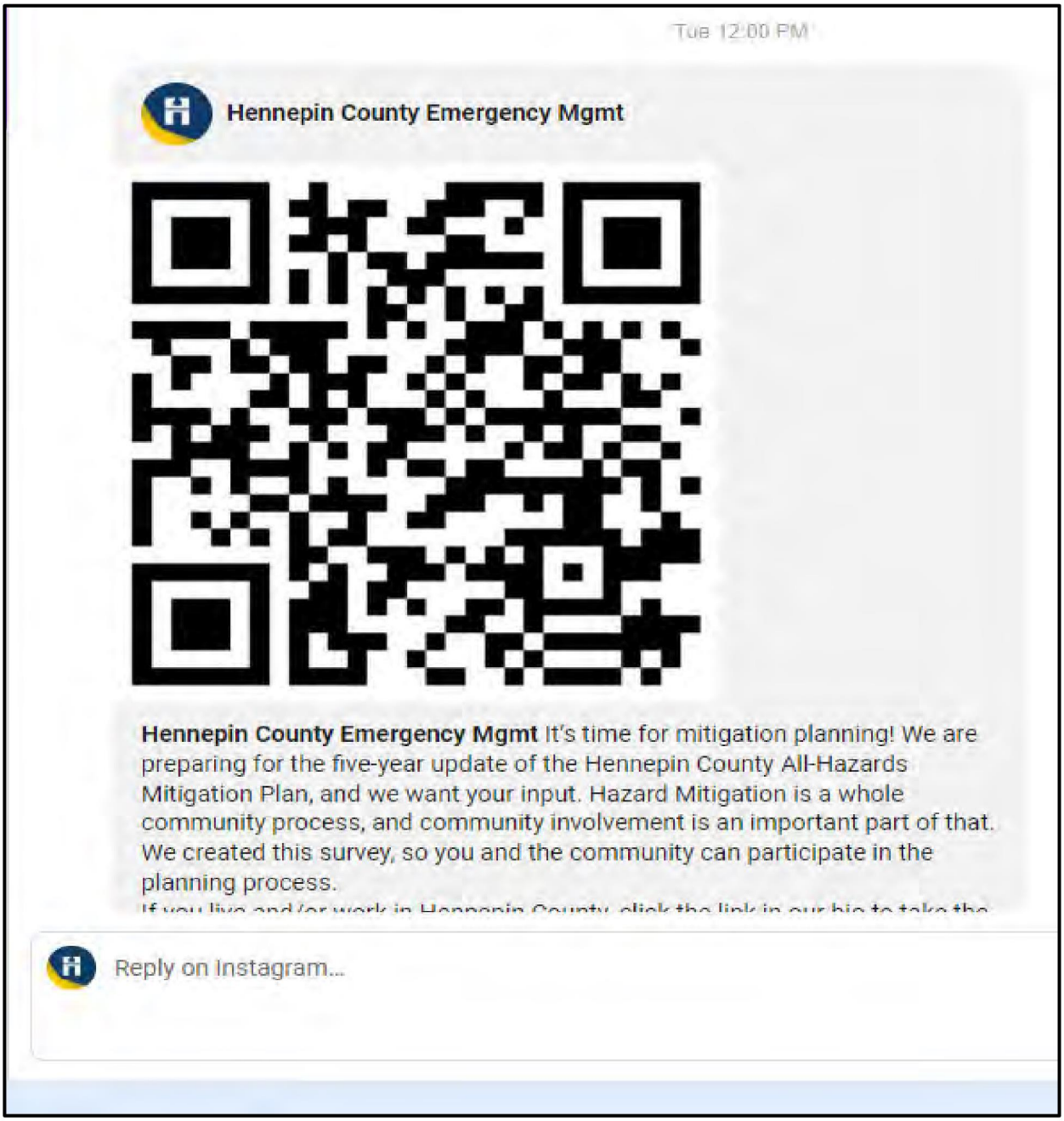
- Volume 1 – background and county profile (PDF)
- Volume 2 – hazard inventory (PDF)
- Volume 3 – community and mitigation strategies (PDF)

Facebook and Instagram Post	December 1, 2022





Instagram Post	December 5, 2022



Example support email	December 7, 2022

From: Mark Ray
Sent: Wednesday, December 7, 2022 4:55 PM
Cc: 'Harrison.Loebertmann@hennepin.us' <Harrison.Loebertmann@hennepin.us>
Subject: FW: HC Hazard Mitigation Survey is now LIVE

Hey All,

HCEM has asked that I share the attached and below information with you.

Short version: Please help publicize this survey that HCEM is doing.

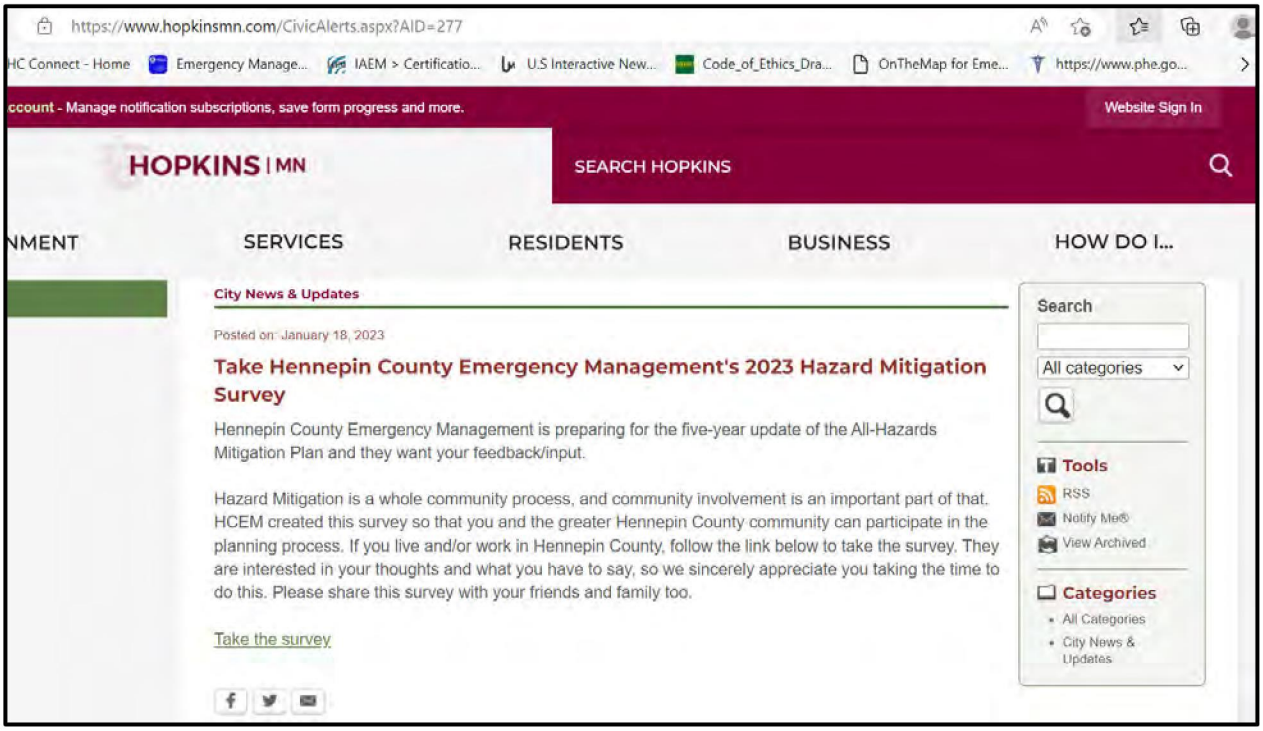
Hennepin County Emergency Management is preparing for the five-year update of the All-Hazards Mitigation Plan, and they want your input! Hazard Mitigation is a whole community process, and community involvement is an important part of that. HCEM created this survey, so you and the community can participate in the planning process. If you live and/or work in Hennepin County, follow the link below to take the survey. They are interested in your thoughts and what you have to say, so we sincerely appreciate you taking the time to do this. Please share this survey with your friends and family too. The more responses we get, the better! https://forms.office.com/g/C8RjibfnYa

Thank you,

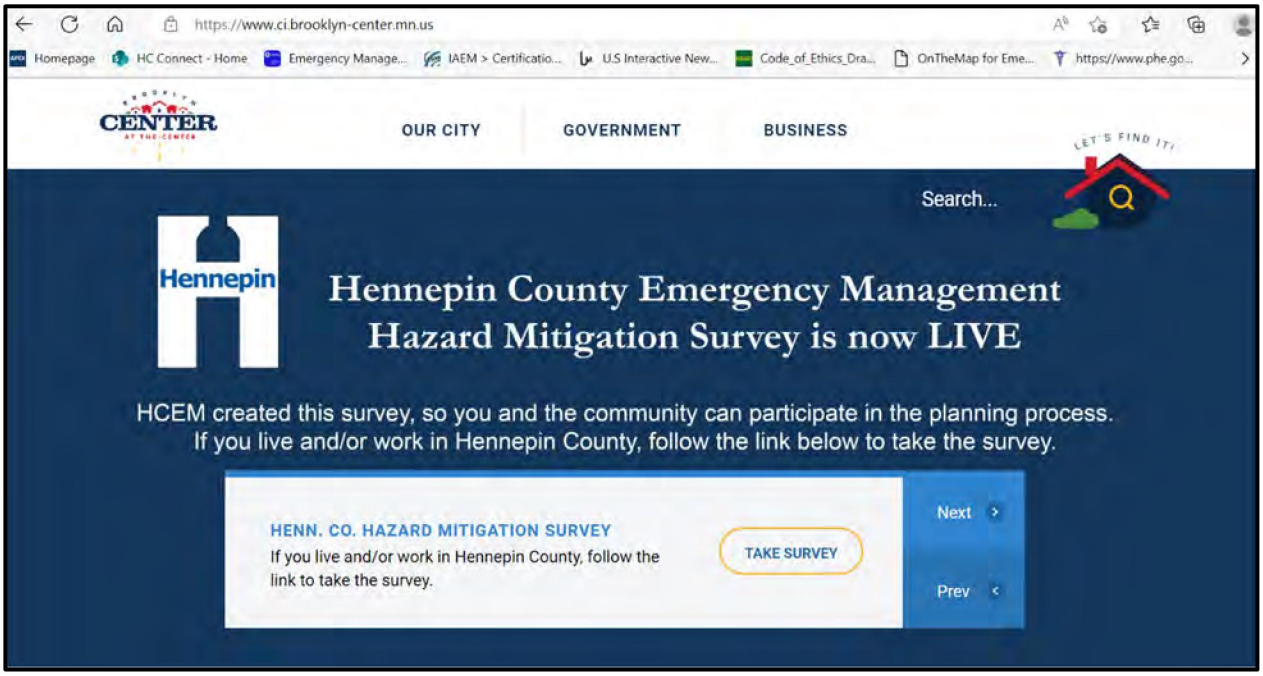
CITY of CRYSTAL

Mark Ray, PE
Director of Public Works/City Engineer, City of Crystal
763-531-1160 | Main: 763-531-1000 | www.crystalmn.gov
4141 Douglas Dr. N. | Crystal, MN 55422-1696

Hopkins Website Post	January 18, 2023



Brooklyn Center Website Post	January 18, 2023



Minnetrista Website Post	January 18, 2023

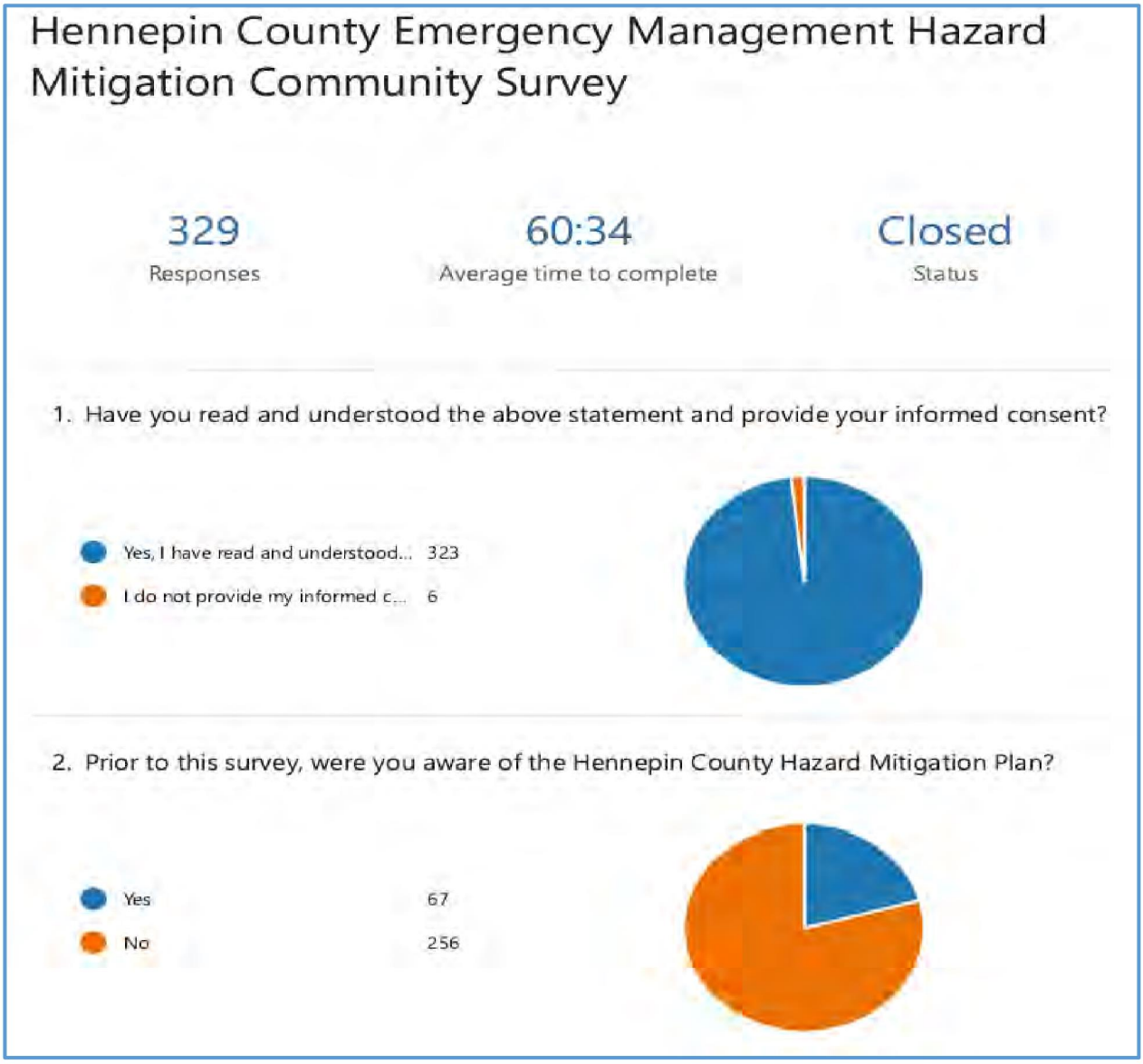


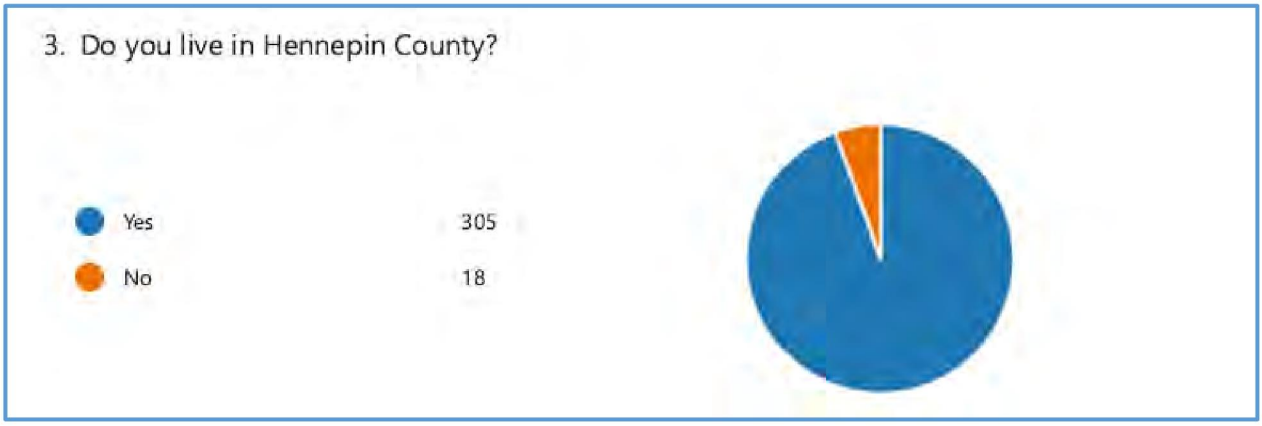
Appendix C	Survey Questionnaire		
Reference to:	Section 3	3.22	Page 31

PUBLIC INVOLVEMENT RESULTS

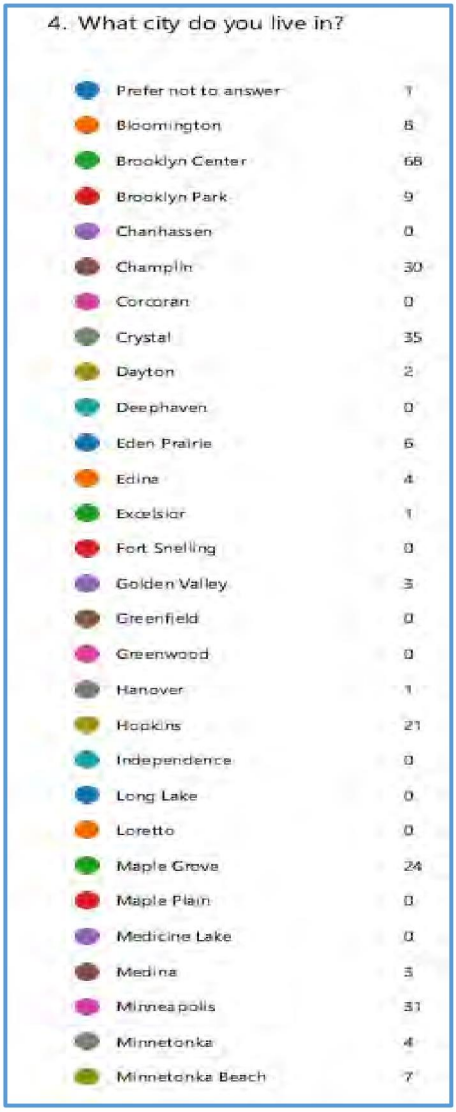
Questionnaire Analysis

329 people responded to the survey. To access the questionnaire, participants were provided an informed consent form letting them know that their information was voluntary, that any free response questions were optional, and that the results would be published as part of the 2024 HMP. We also wanted to know how many respondents knew that a Hazard Mitigation Plan existed. 78% of the respondents did not know the plan existed. This shows that just by participating in the questionnaire, people were learning about mitigation. The survey asked if they were residents of Hennepin County. Of the 329 responses, 18 indicated they did not reside in Hennepin County.



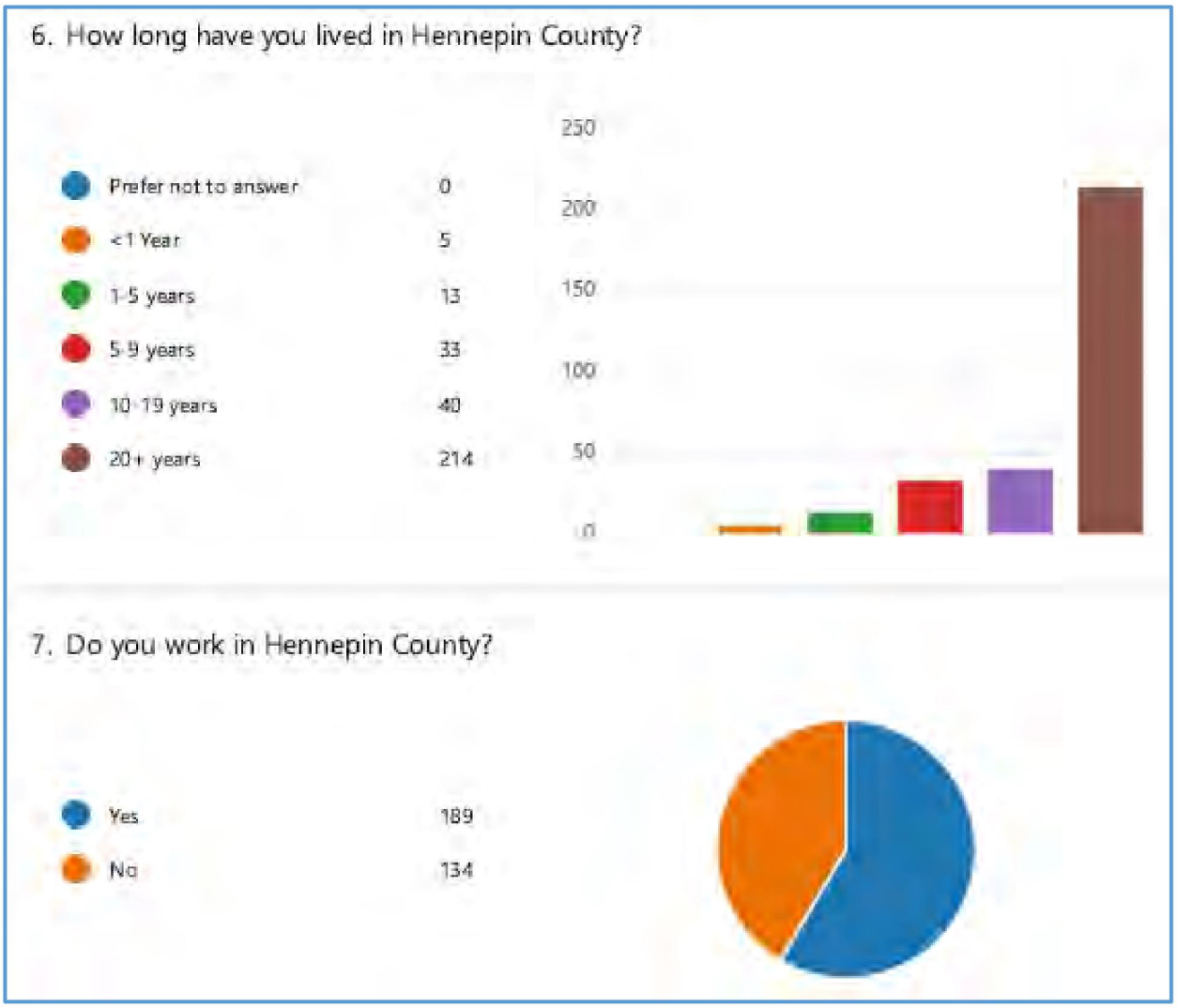


The next few questions pertained to residency, employment, and city of employment. The city with the highest participation was Brooklyn Center at 22 %, second was Crystal with 12%. We had participants from 30 of the 47 cities to include Fort Snelling and one choosing “prefer not to answer” in Hennepin County.





An overwhelming 65% of the respondents have lived in Hennepin County 20 or more years. 57% responded that they work within Hennepin County.

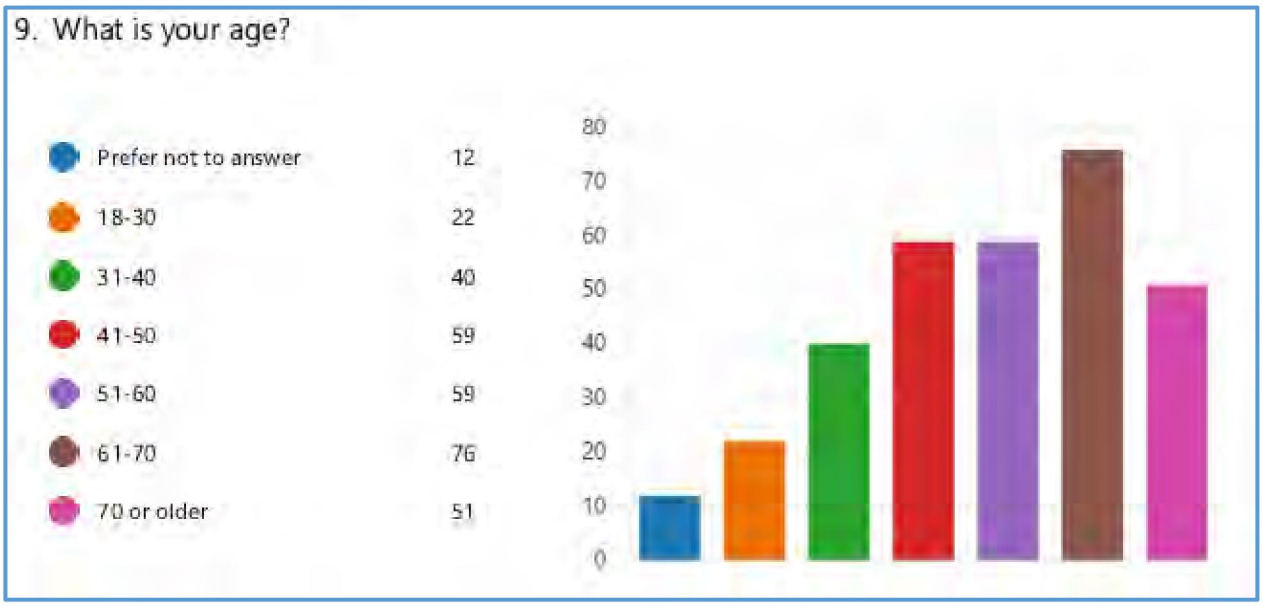


Survey participants worked in 29 different cities with 14% of the respondents working in Minneapolis.

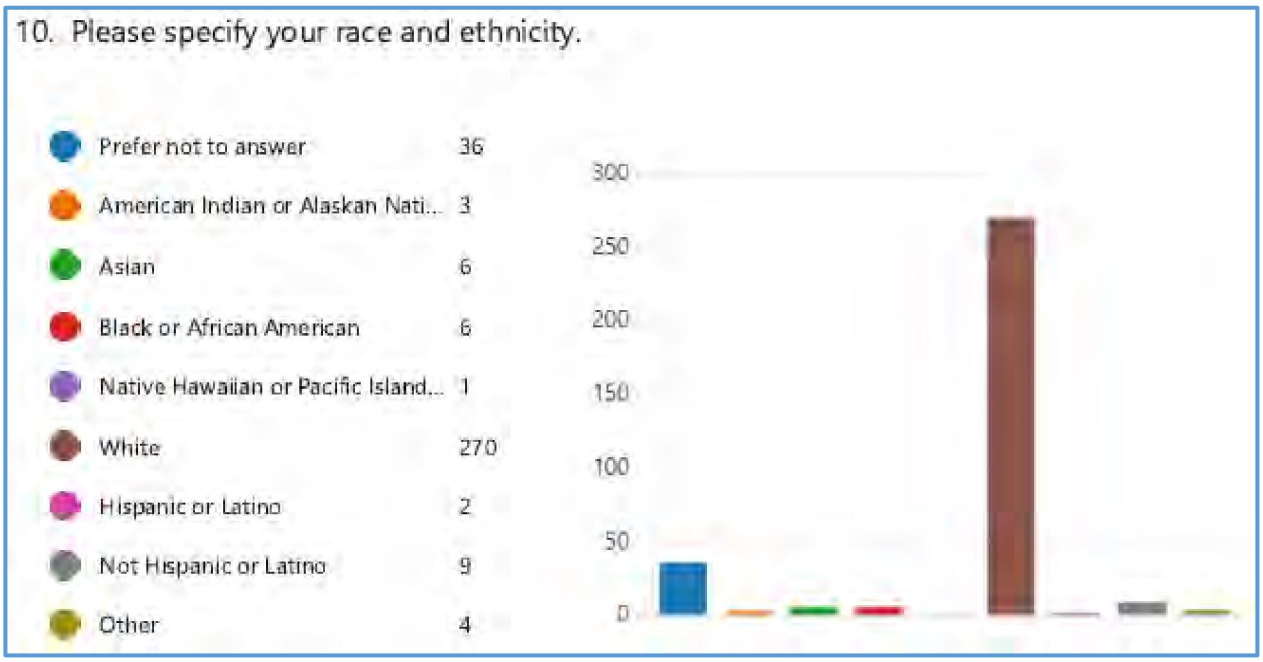
8. What city do you work in?

Prefer not to answer	5
Bloomington	5
Brooklyn Center	15
Brooklyn Park	5
Chanhassen	1
Champlin	5
Corcoran	0
Crystal	12
Dayton	1
Deephaven	0
Eden Prairie	6
Edina	5
Excelsior	1
Fort Snelling	0
Golden Valley	5
Greenfield	0
Greenwood	0
Hanover	0
Hopkins	5
Independence	0
Long Lake	0
Loretto	0
Maple Grove	11
Maple Plain	0
Medicine Lake	0
Medina	8
Minneapolis	46
Minnetonka	6
Minnetonka Beach	2
Minnetrista	0
Mound	1
New Hope	9
Orono	0
Osseo	2
Plymouth	10
Richfield	3
Robbinsdale	2
Rockford	1
Rogers	1
St. Anthony	1
St. Bonifacius	0
St. Louis Park	8
Shorewood	2
Spring Park	1
Tonka Bay	0
Wayzata	4
Woodland	0

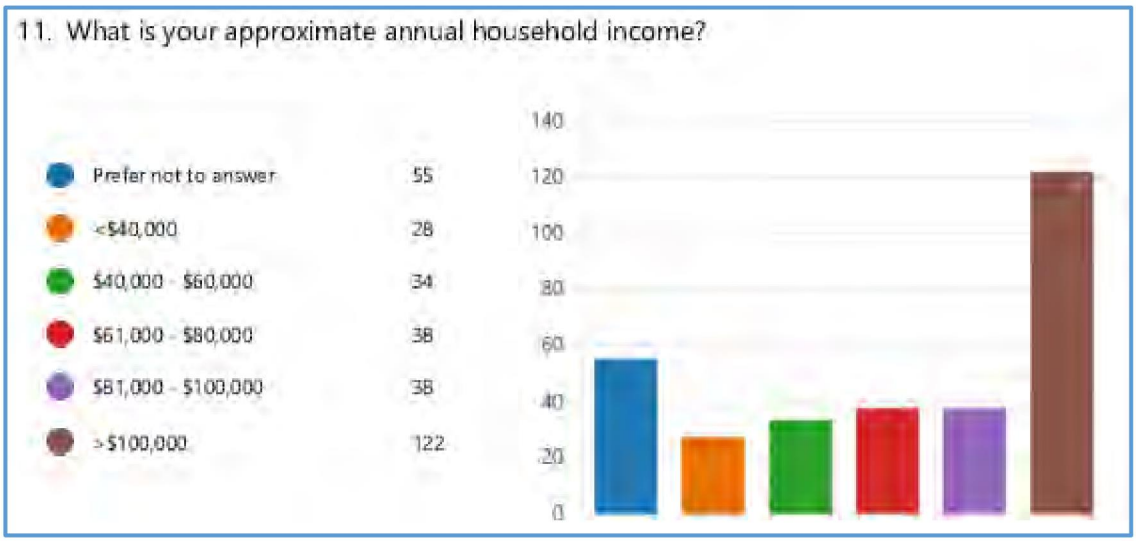
Some personal information was asked. The largest age demographic to respond was between the ages of 61-71 or 23%



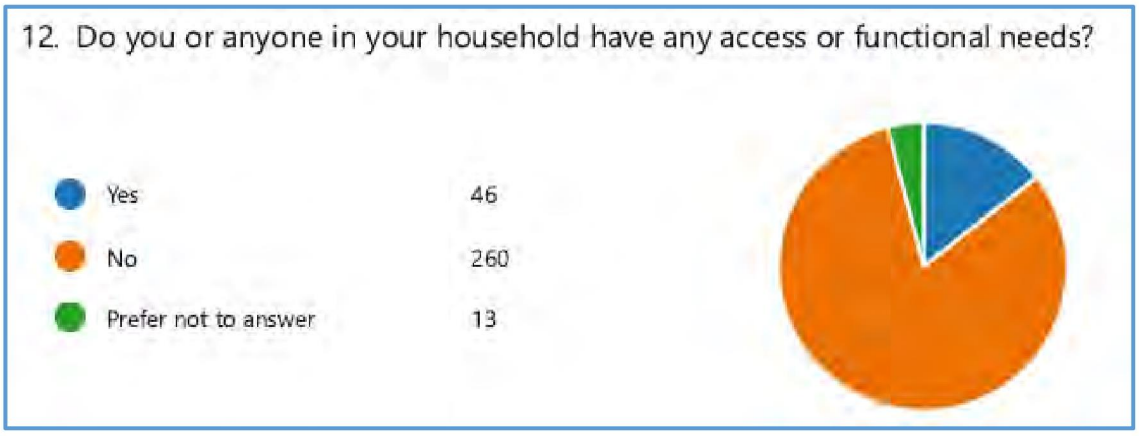
82% of the respondents were white, with 11% preferring not to answer.



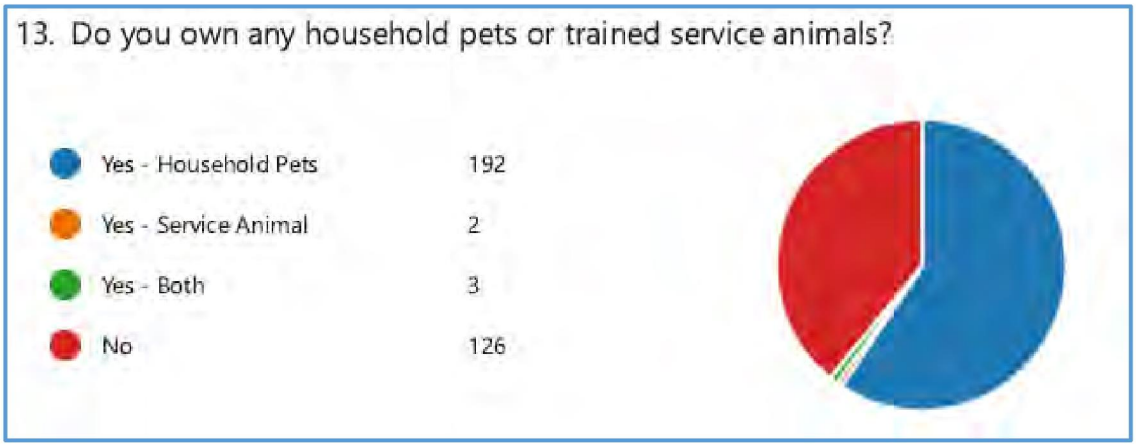
Household information was surveyed with questions about income, access and functional needs, and pets or service animals. 23% of the respondents replied as making less than $60K.

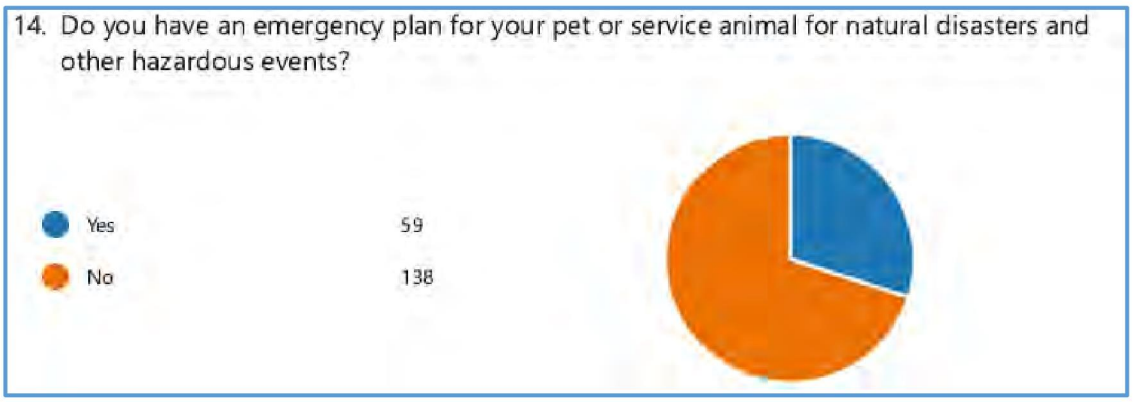


14% said “yes” they have access and functional needs.

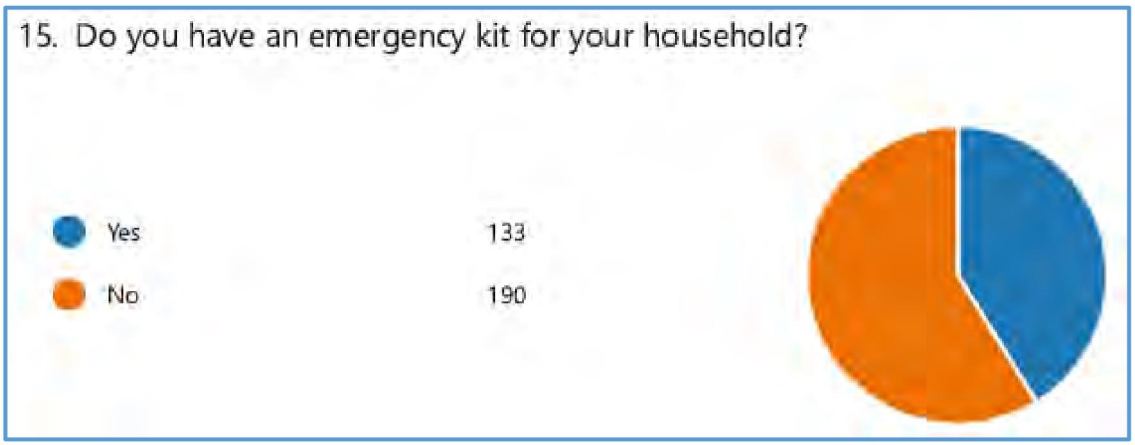


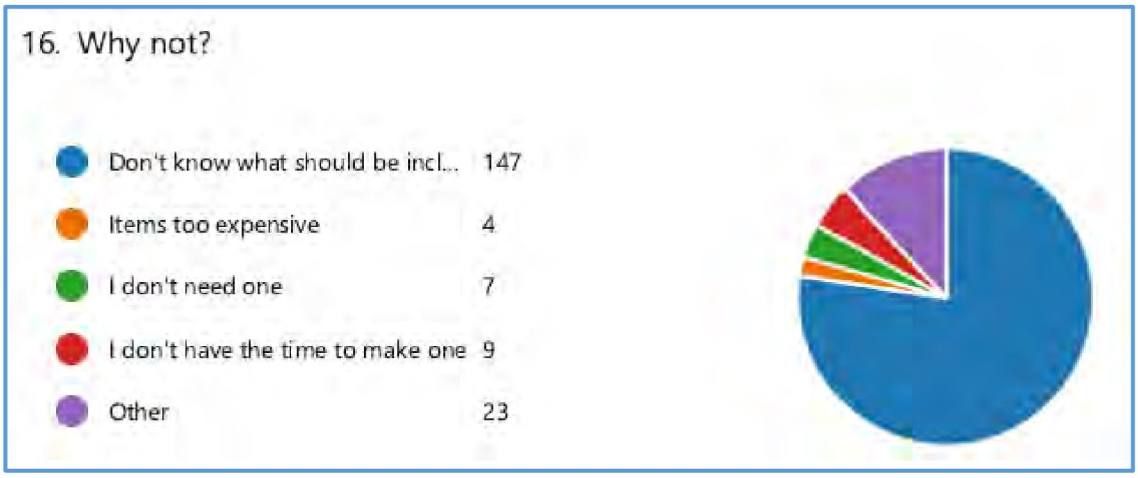
59% of respondents had pets and or service animals. With 70% not having an emergency plan for their animals.



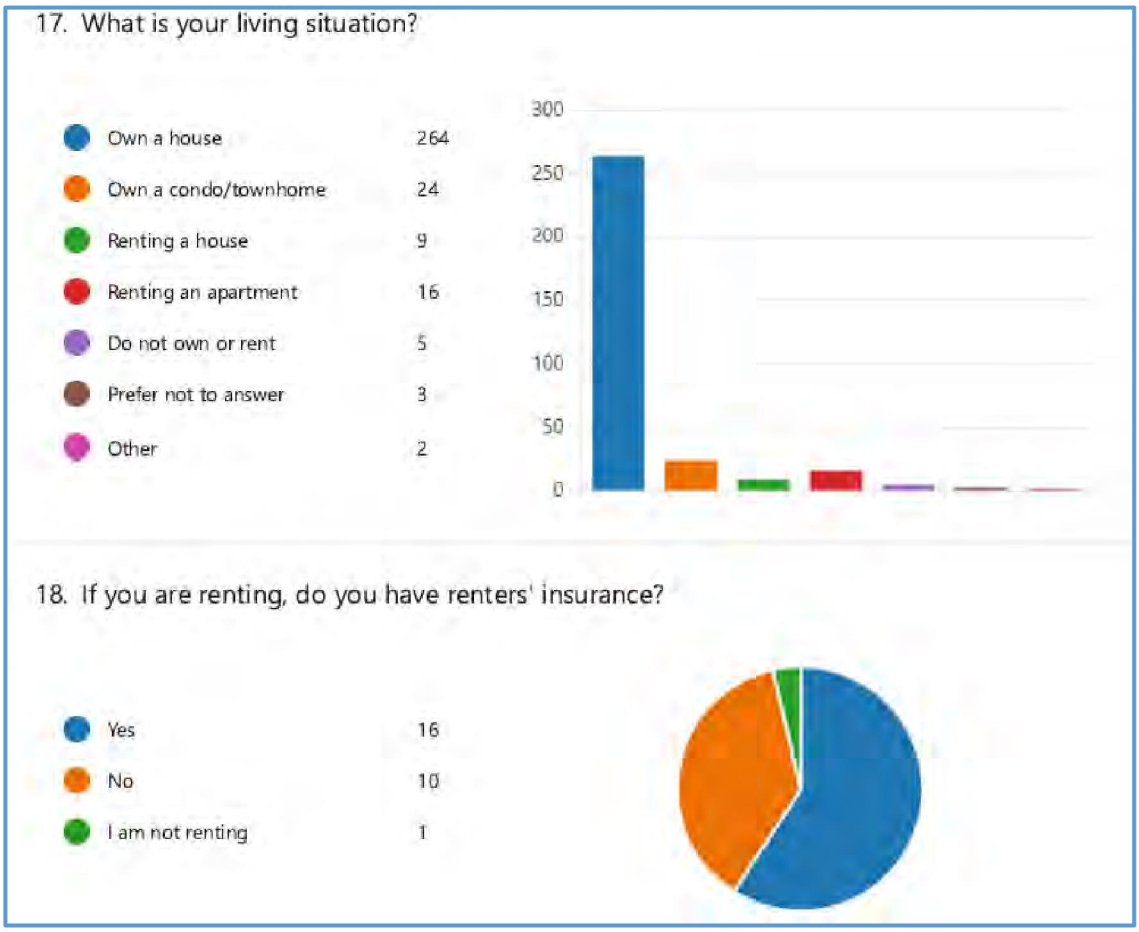


Two questions were asked about having emergency kits. 59% of those responses said that they "did not." The reason given by 77% of the respondents was that they did not know what is included in making one.

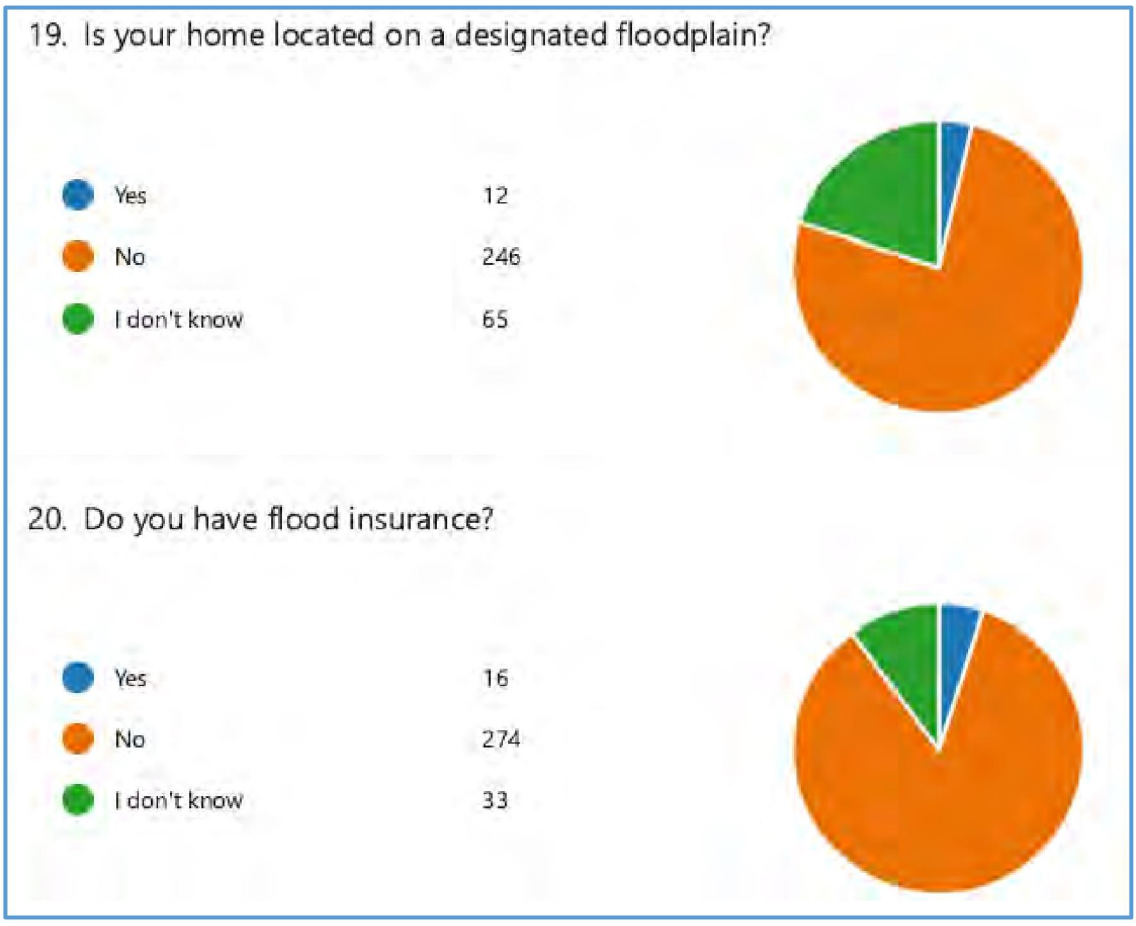




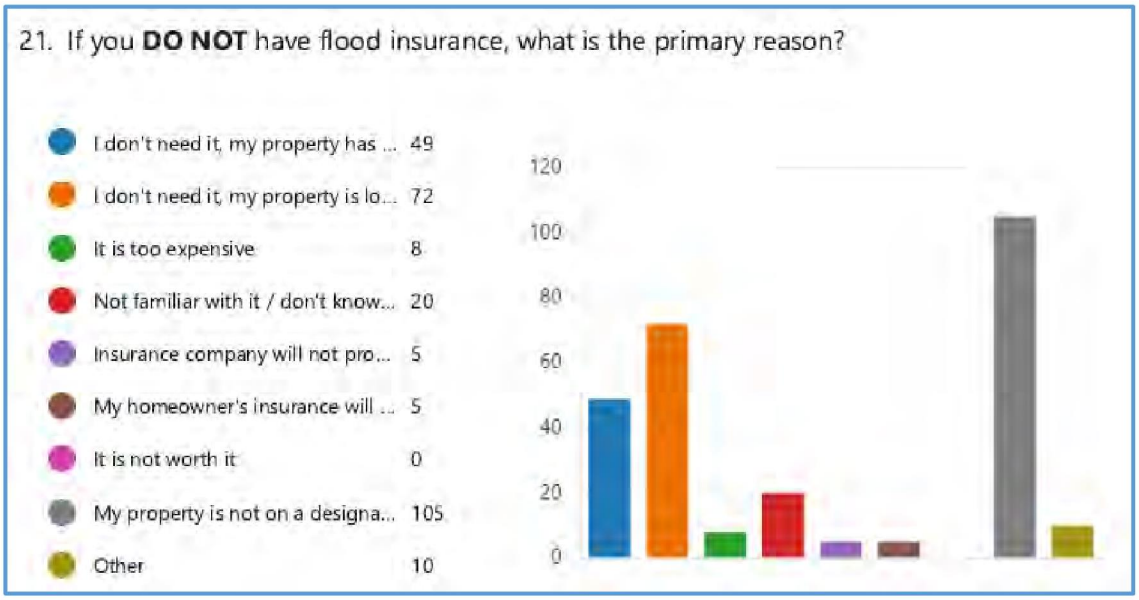
Two questions were asked about living situation and renters' insurance. 82% own their home. 59% of renters carry insurance.



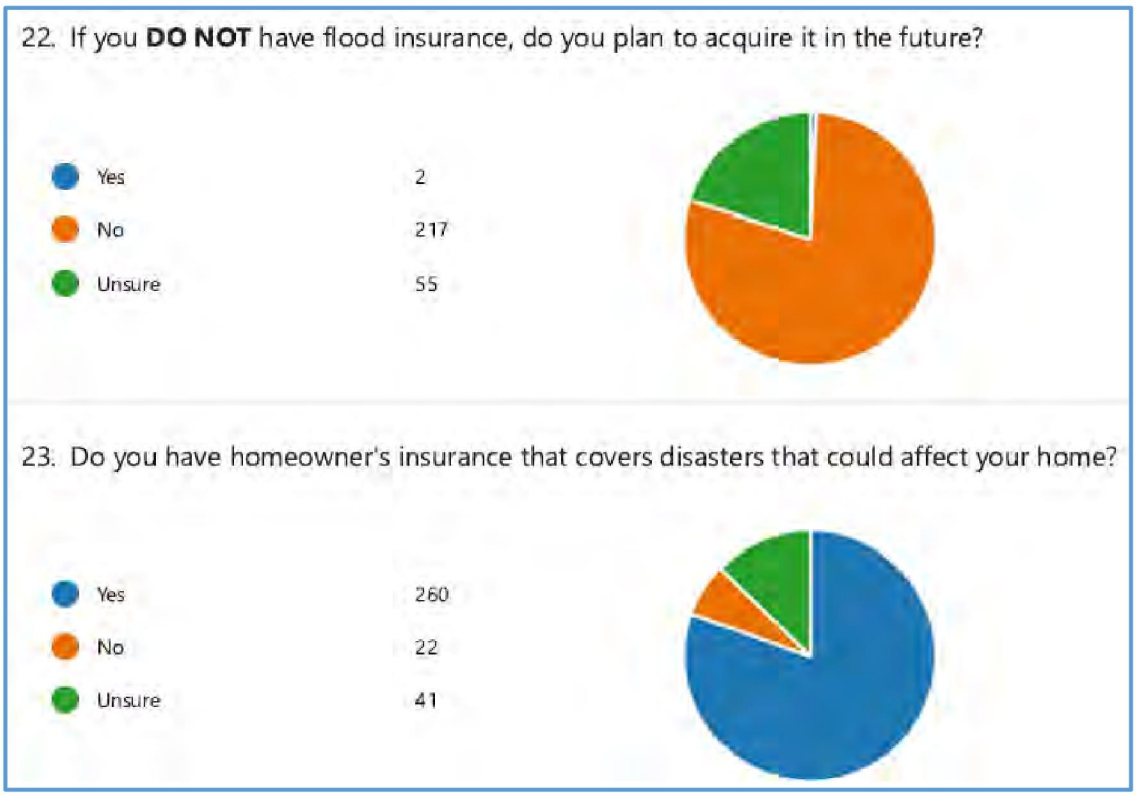
Several questions were included with floodplain and flood insurance. 4% live in a flood plain and 20% wasn't sure if they lived in a floodplain with 5% of all respondents having flood insurance.



For the 83% not requiring or needing insurance. 7% was not familiar with it or don't know if they need it.

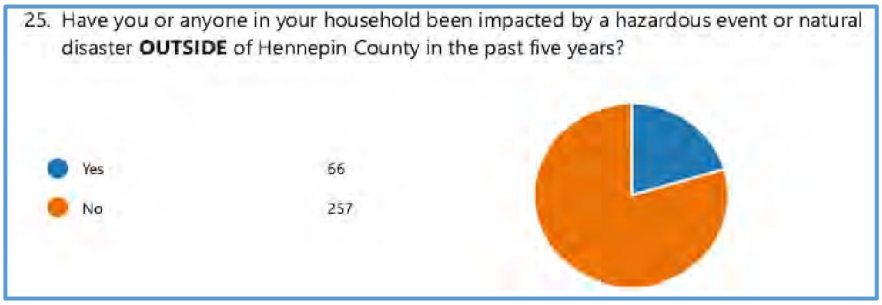


80% of the respondents have homeowner coverage if damages occur.

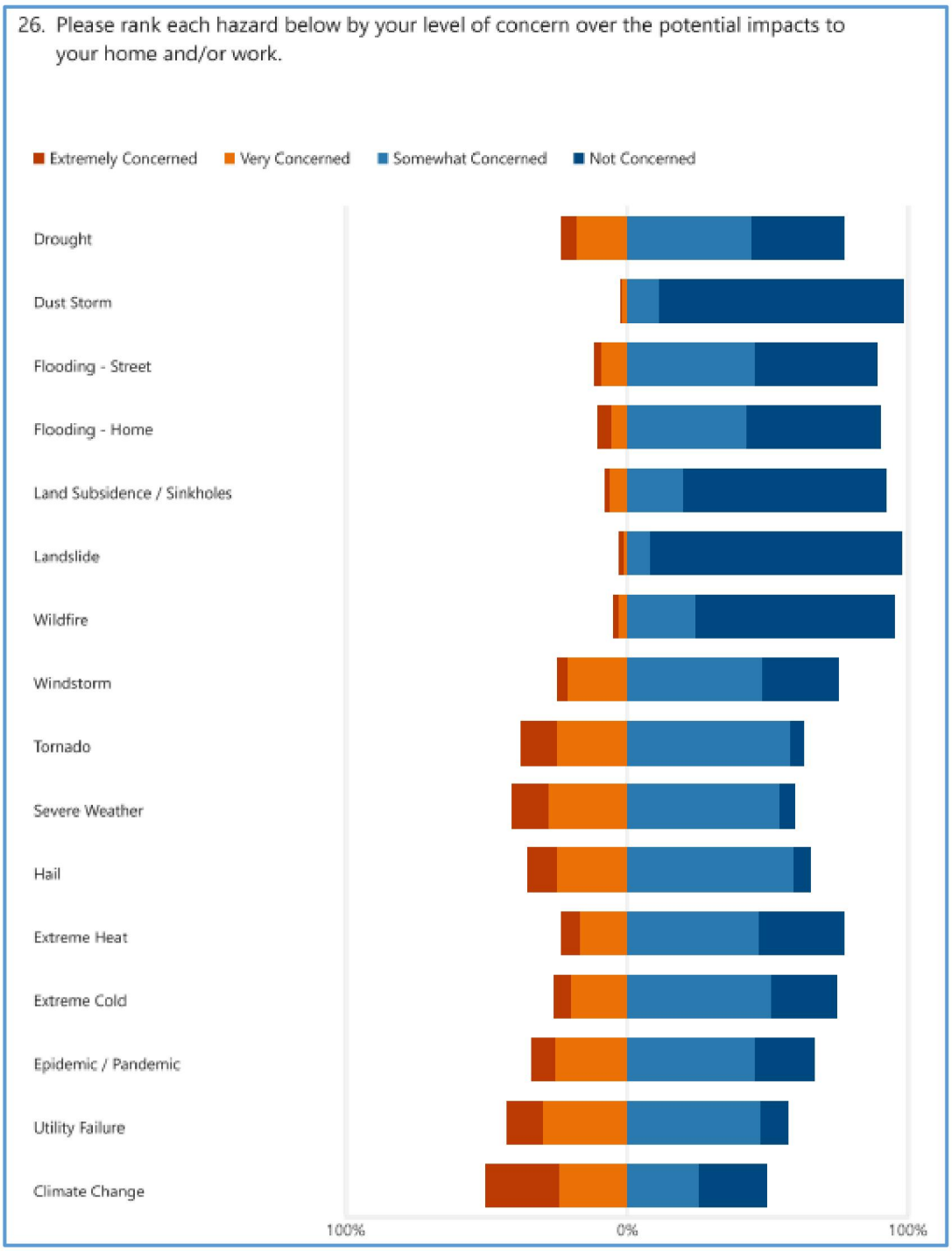


Two questions addressed if a respondent was impacted by a disaster in the past 5 years. If so, what did they experience? They were able to mark all that apply. 15% were impacted by pandemic, 15% were impacted by hail, and 11% impacted by severe weather.





The respondents were able to rank hazards. Climate Change received the most concern, with severe weather and utility failure rounding out the top 3. Participants were also asked if there were other hazards not listed- with the majority of responses as “none”.



Participants were asked to consider what hazards they felt they were most vulnerable too, and what are they prepared to handle? Respondents were able to select all that apply.

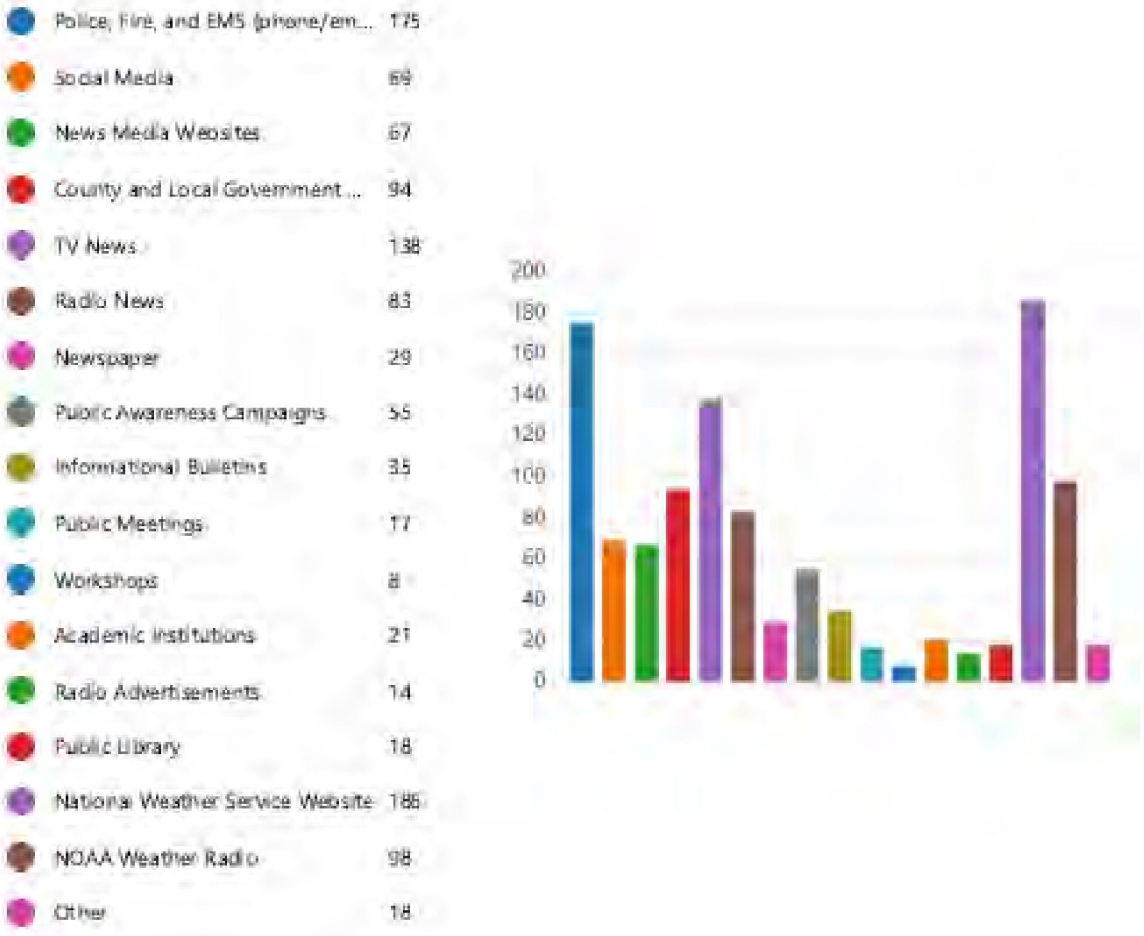
Vulnerable **Prepared to Handle**


Drought 51
Dust Storm 2
Flooding - Street 33
Flooding - Home 31
Land Subsidence / Sinkholes 11
Landslide 6
Wildfire 17
Windstorm 91
Tornado 186
Severe Weather 211
Hail 160
Extreme Heat 86
Extreme Cold 116
Epidemic / Pandemic 125
Utility Failure 143
Climate Change 109
Other 10

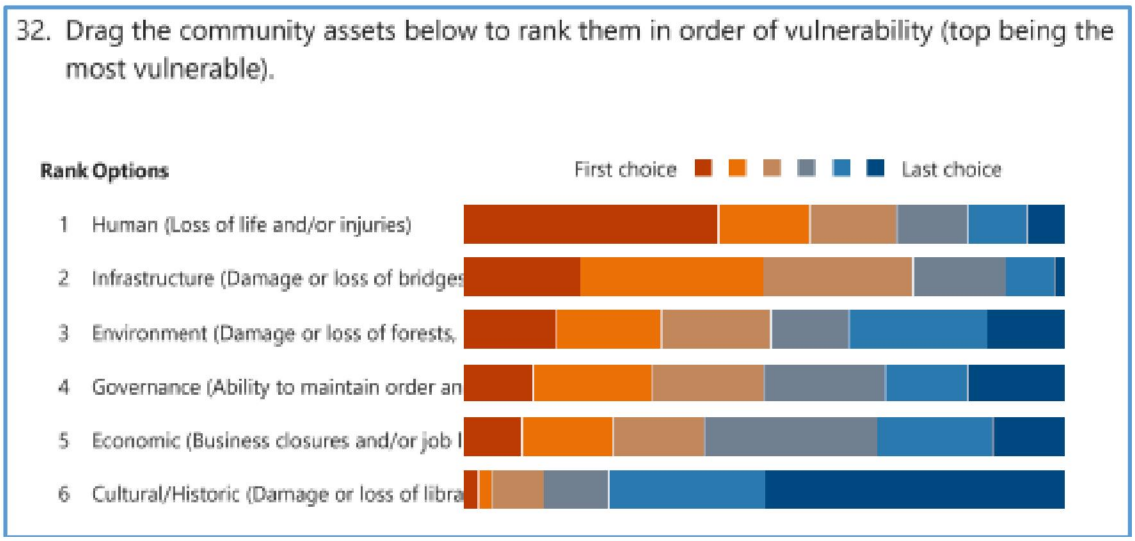

Drought 128
Dust Storm 73
Flooding - Street 86
Flooding - Home 51
Land Subsidence / Sinkholes 30
Landslide 33
Wildfire 40
Windstorm 90
Tornado 105
Severe Weather 170
Hail 136
Extreme Heat 150
Extreme Cold 162
Epidemic / Pandemic 143
Utility Failure 81
Climate Change 46
Other 19

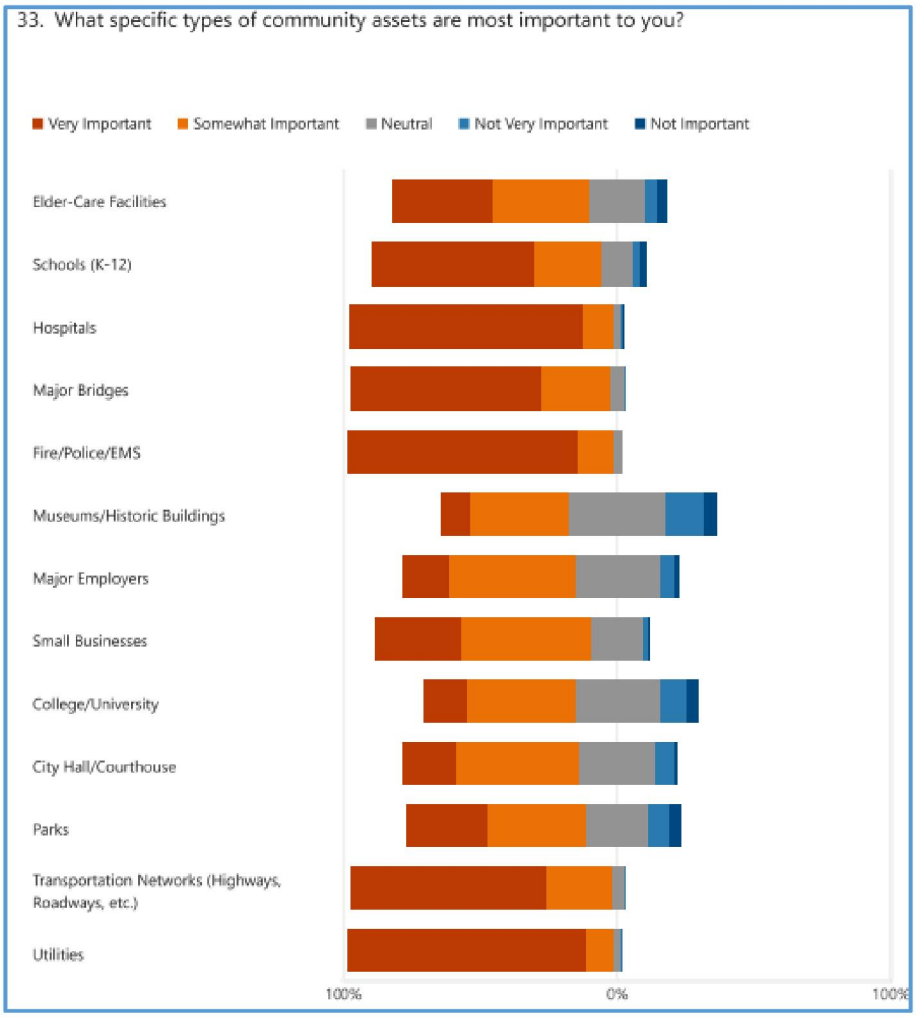
Respondents were asked to pick their "Top Three" most reliable and trustworthy information sources. They were able to select all that apply. 16% each for the National Weather Service, Police, Fire, and EMS followed by 12% getting their information from TV News

30. Please identify the **top three** resources you use, or feel are the most effective, trustworthy, and provide you information to make your home safer and better able to withstand the impact of a hazardous event.

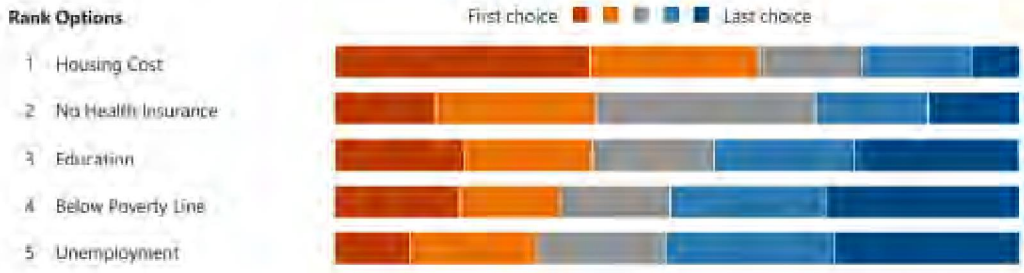


Respondents were able to rank community asset vulnerability and what assets were most important to them.

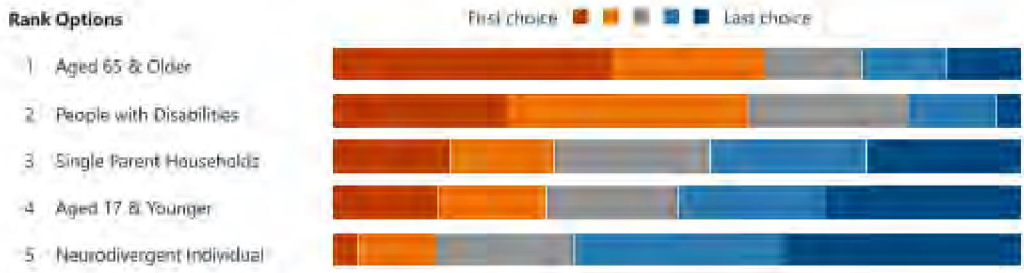




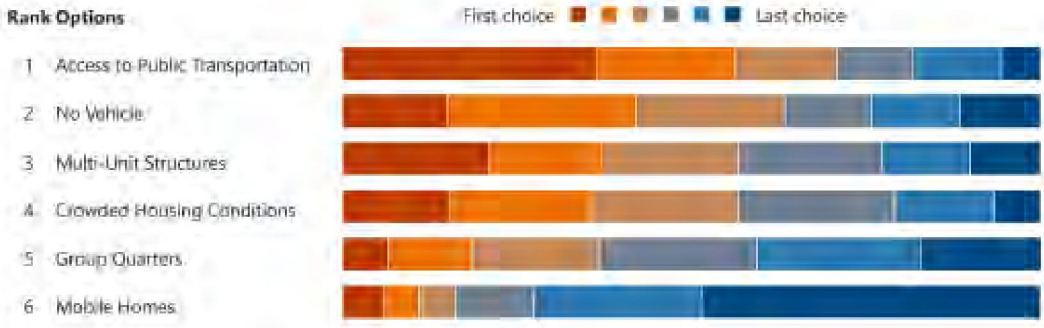
35. Socioeconomic Status



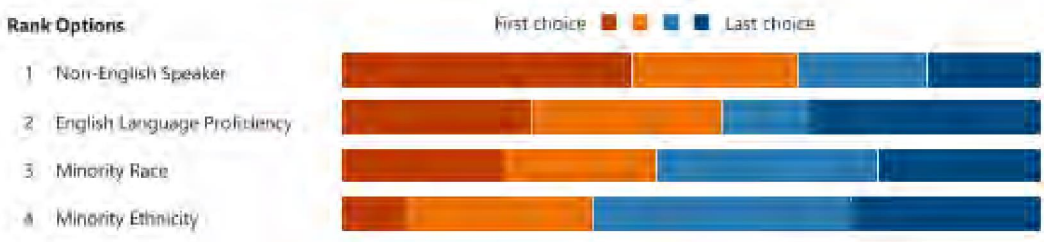
36. Household Characteristics



37. Housing Type & Transportation



38. Minority Status and Language



39. Are there any other social vulnerabilities not listed?

57
Responses

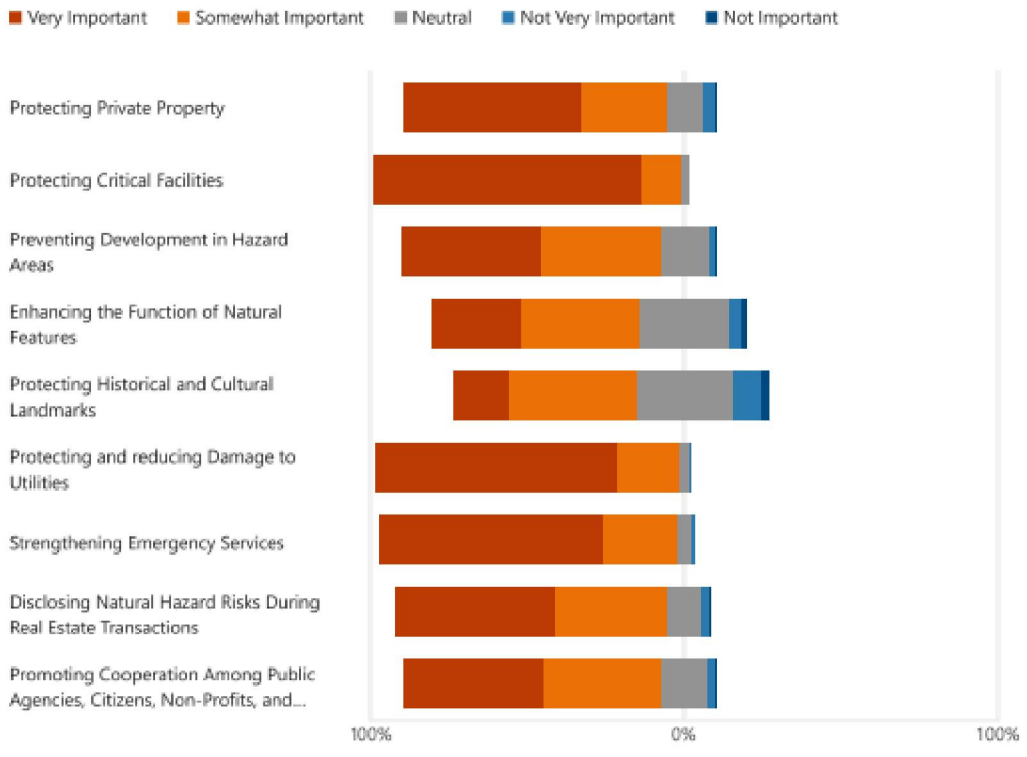
Latest Responses

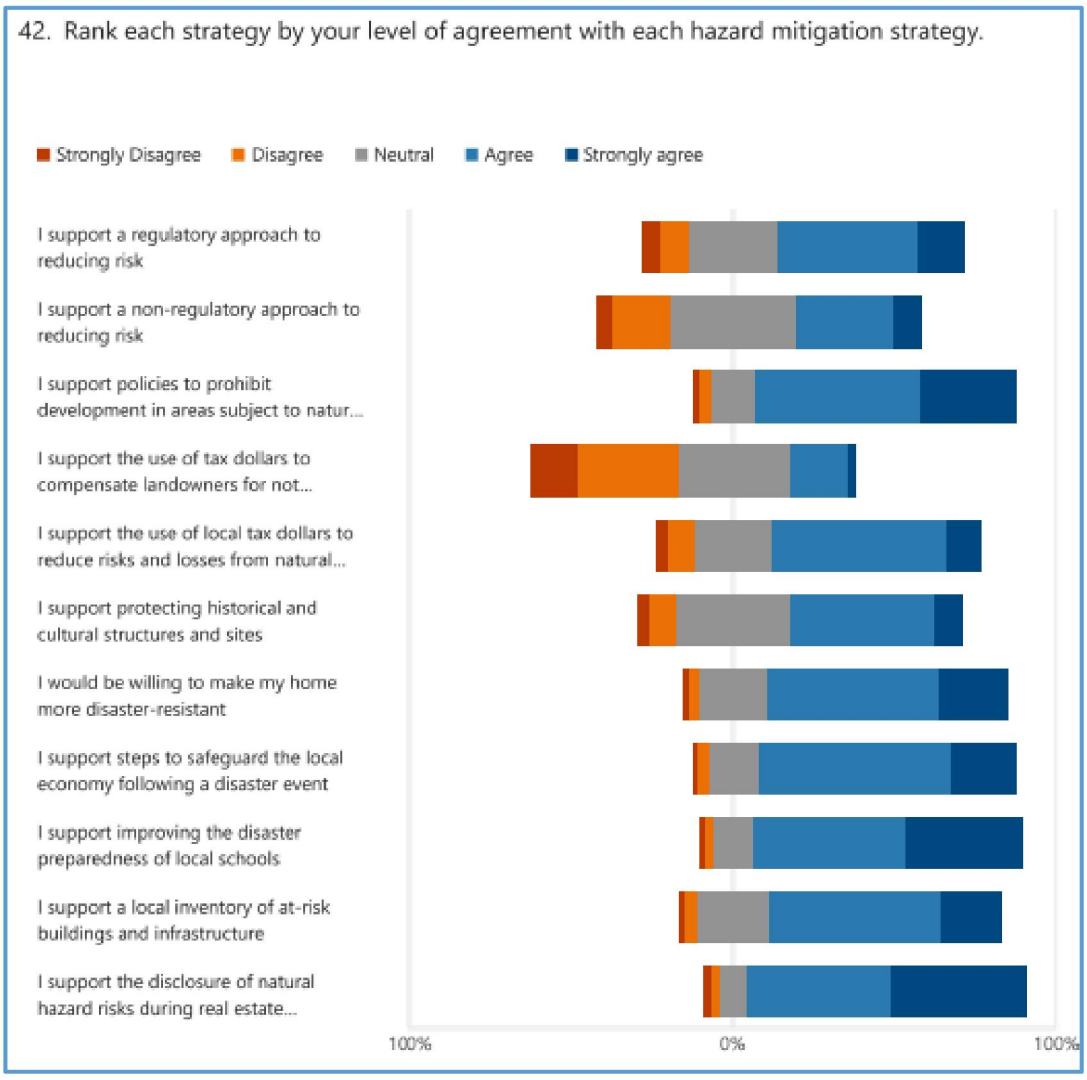
40. Which of these vulnerabilities do you find most concerning in your local community?

81
Responses

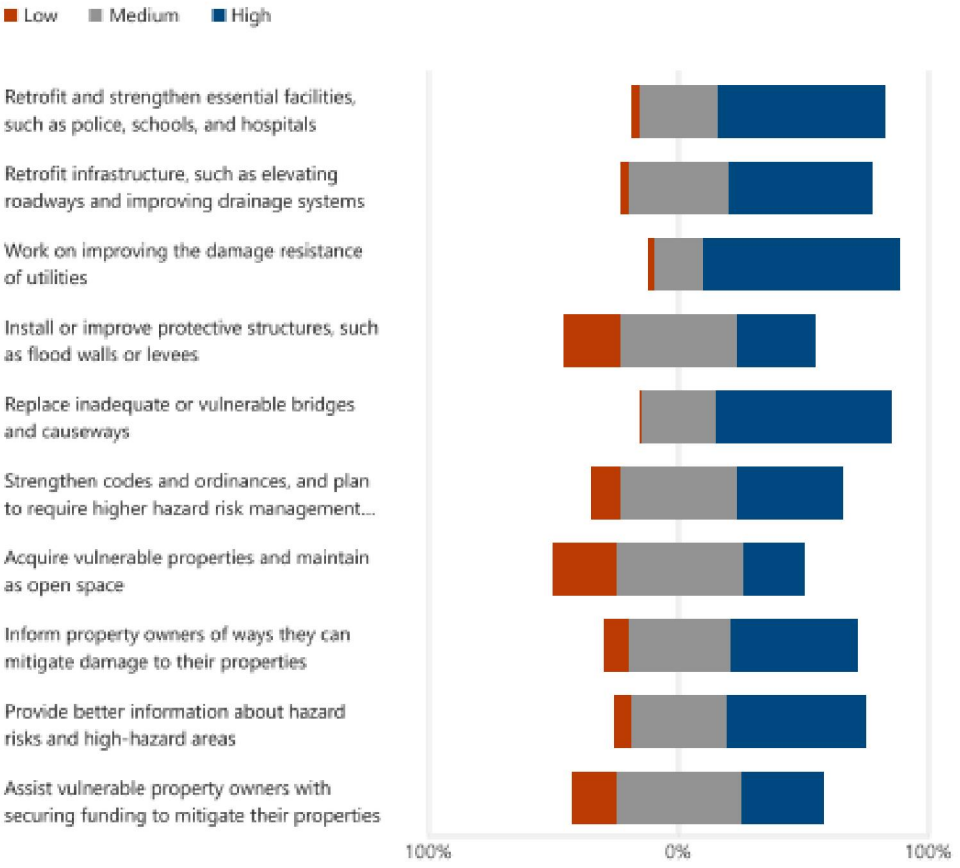
Latest Responses

41. Rank each mitigation priority by level of importance **TO YOU** when planning for natural hazards in the county.

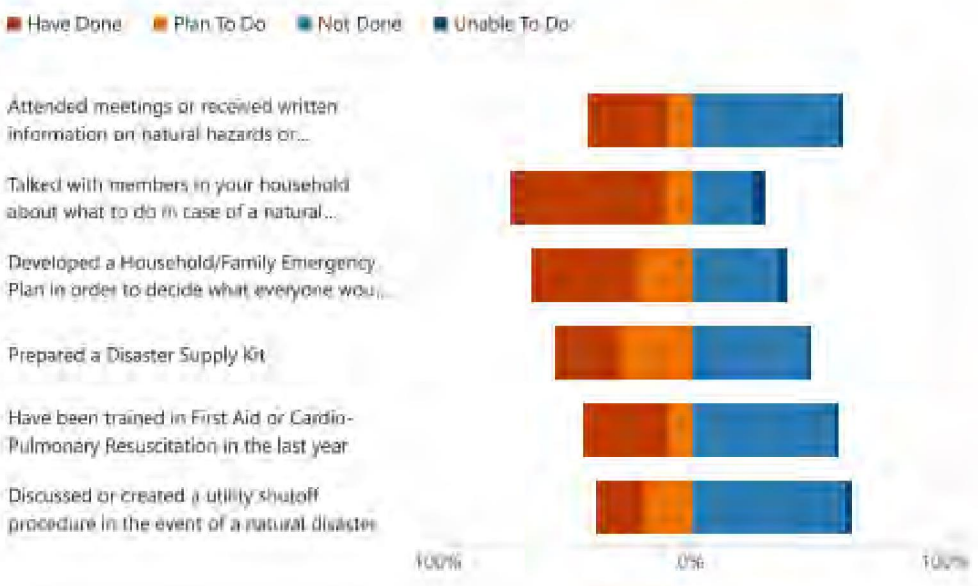



42. Rank each strategy by your level of agreement with each hazard mitigation strategy.
Strongly Disagree
Disagree
Neutral
Agree
Strongly agree
I support a regulatory approach to reducing risk
I support a non-regulatory approach to reducing risk
I support policies to prohibit development in areas subject to natur...
I support the use of tax dollars to compensate landowners for not...
I support the use of local tax dollars to reduce risks and losses from natural...
I support protecting historical and cultural structures and sites
I would be willing to make my home more disaster-resistant
I support steps to safeguard the local economy following a disaster event
I support improving the disaster preparedness of local schools
I support a local inventory of at-risk buildings and infrastructure
I support the disclosure of natural hazard risks during real estate...
100%
0%
100%

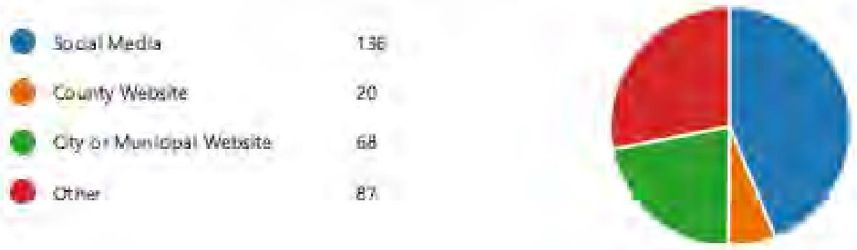
43. What types of projects should local, county, state, and federal governments focus on to reduce the impact of natural hazards in the county? Please rank by low, medium, or high priority.



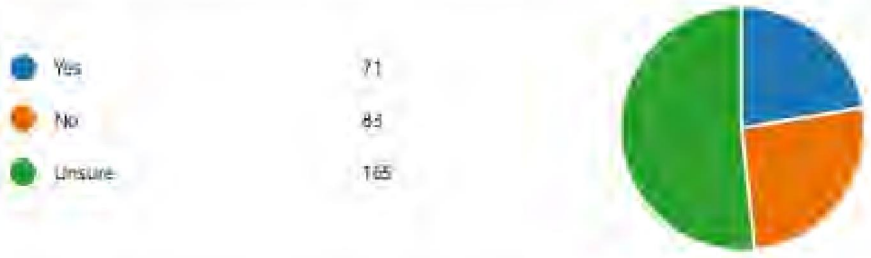
44. What have you and/or your household done and/or plan to do to prepare for hazards and natural disaster?



45. How did you hear about this survey?



46. If Hennepin County Emergency Management were to hold a public meeting to gather further input on a draft version of the Hazard Mitigation Plan, would you attend?



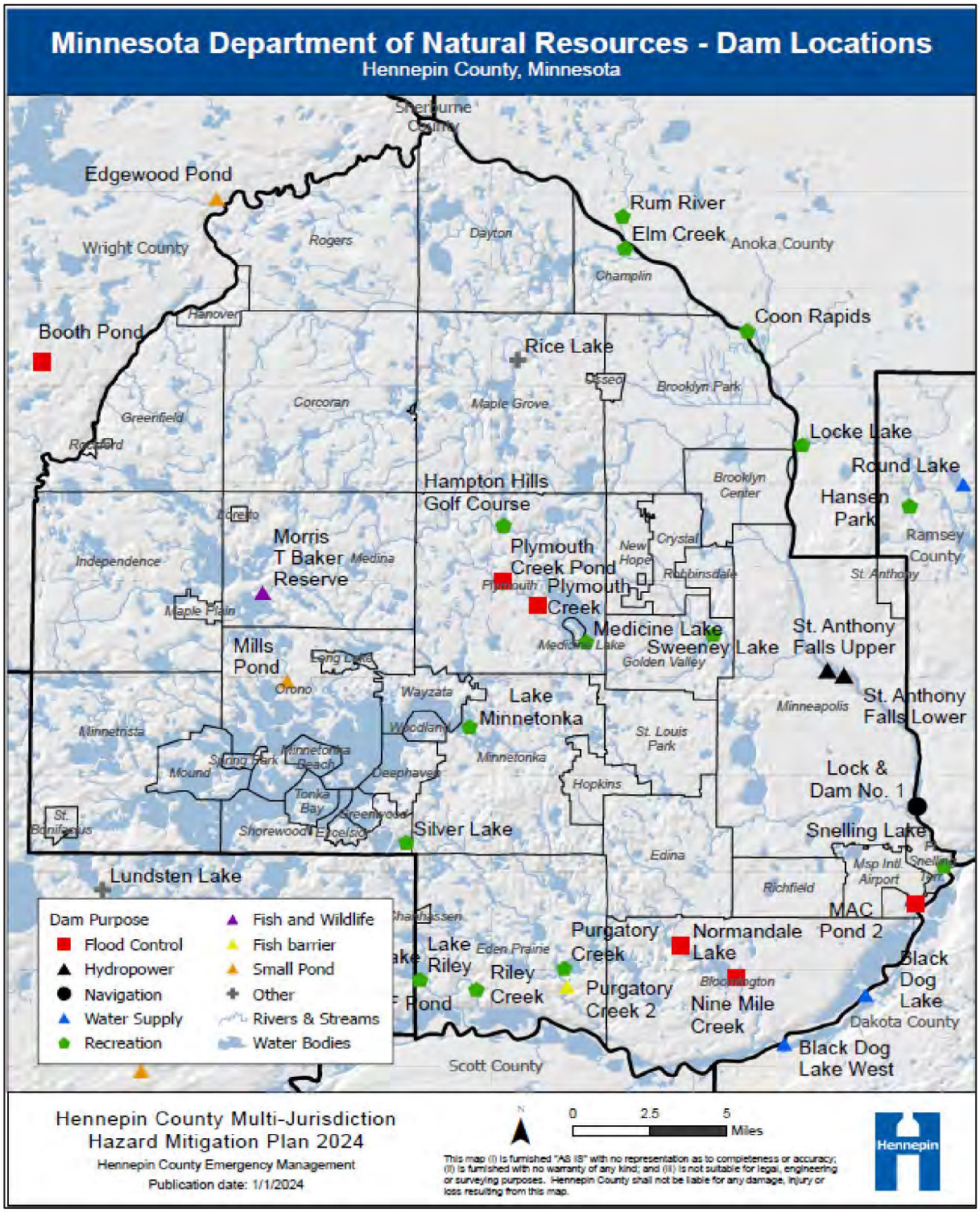
47. Please provide any additional feedback about this survey below.

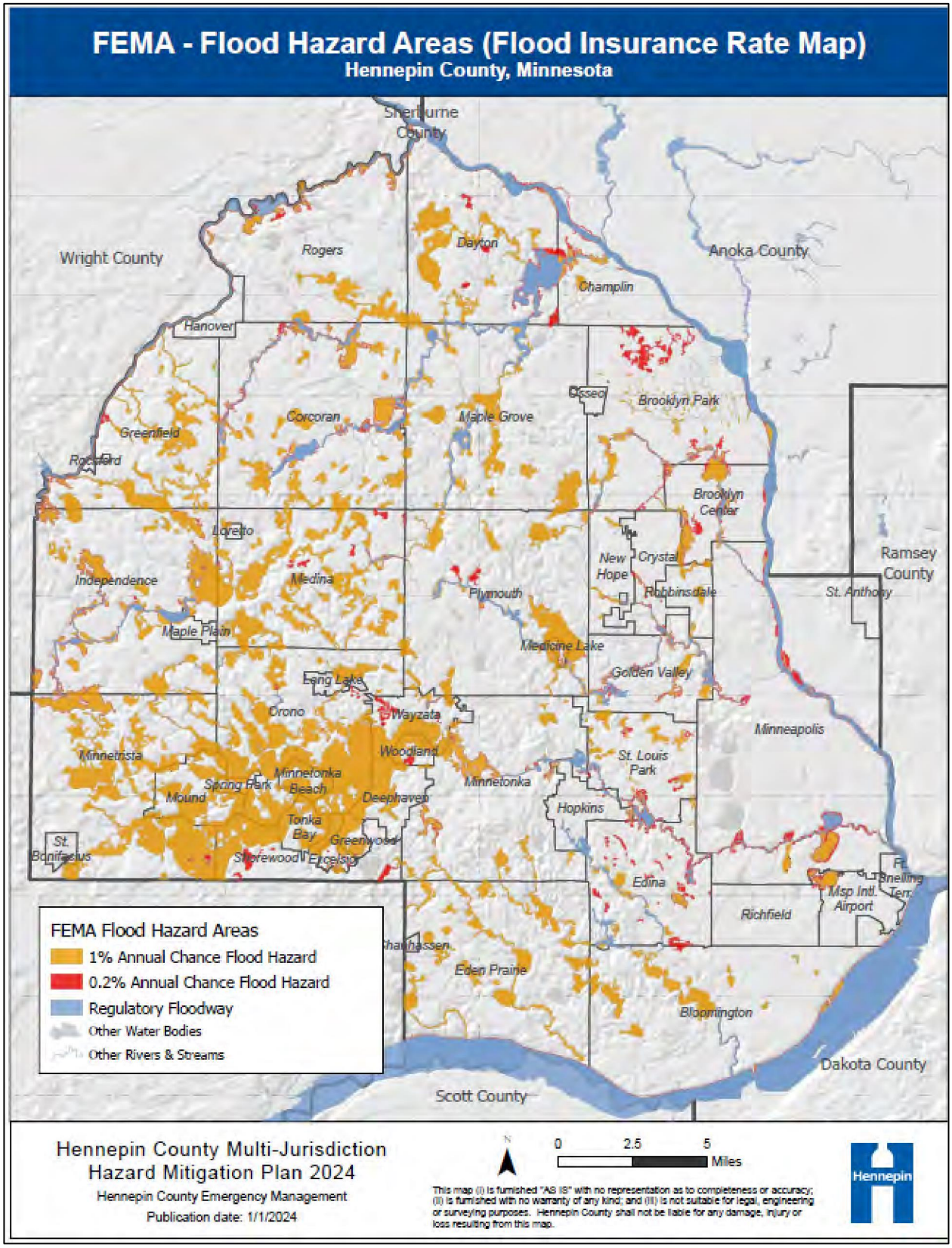
48
Responses

Latest Responses

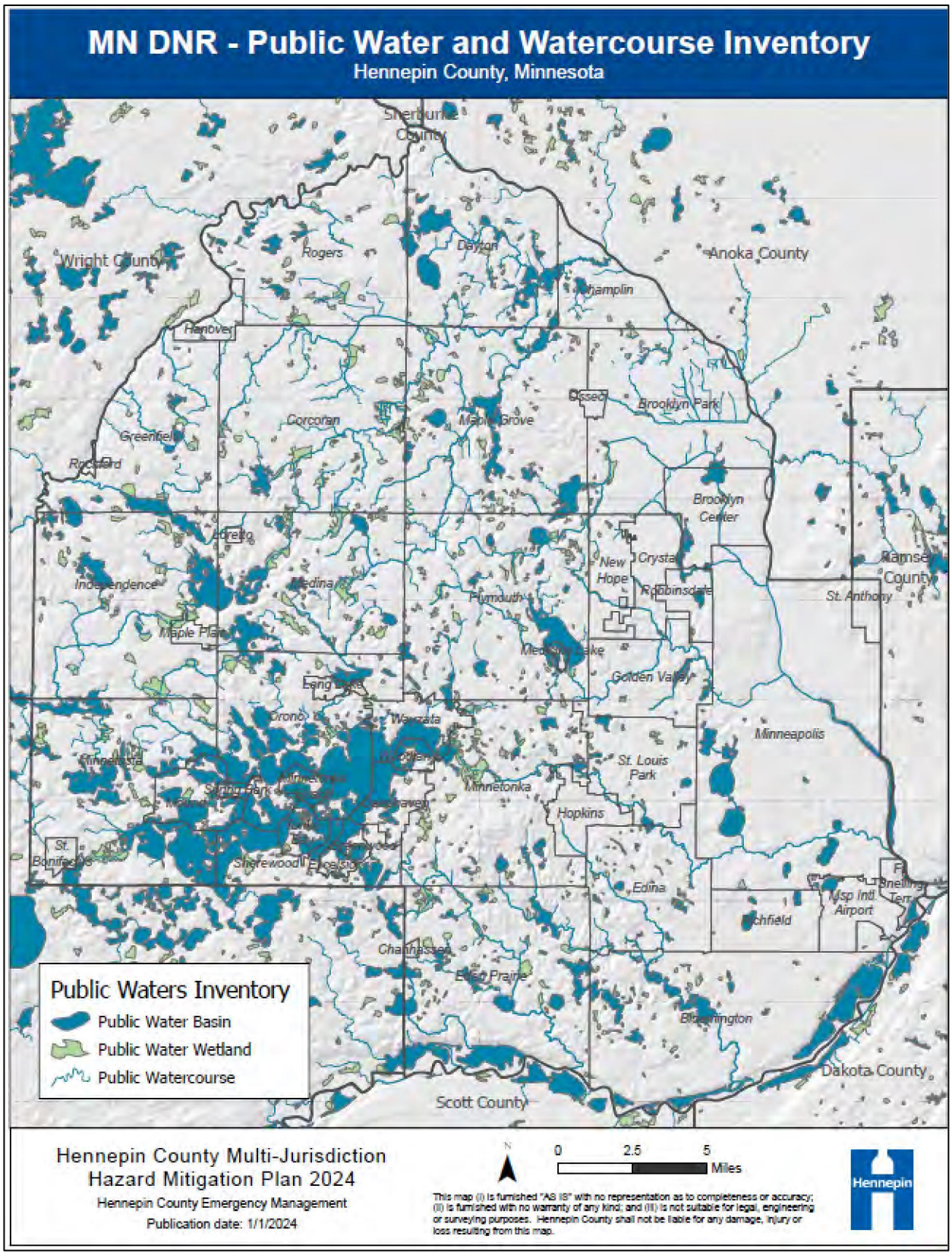
Appendix D	Community Map Series		
Reference to:	Section 4	4.3 -4.9	Pages 35-38

1. Bodies of Water




FEMA - Flood Hazard Areas (Flood Insurance Rate Map)
Hennepin County, Minnesota
Sherburne County
Wright County
Anoka County
Ramsey County
Dakota County
Scott County
Rogers
Dayton
Champlin
Hanover
Corcoran
Maple Grove
Osseo
Brooklyn Park
Greenfield
Rockford
Brooklyn Center
Loretto
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Long Lake
Orono
Wayzata
Minneapolis
Minnetrista
Woodland
St. Louis Park
Minnetonka Beach
Minnetonka
Spring Park
Mound
Deephaven
Hopkins
Tonka Bay
Greenwood
St. Bonifacius
Shorewood
Excelsior
Edina
Msp Intl. Airport
Richfield
Eden Prairie
Bloomington
FEMA Flood Hazard Areas
1% Annual Chance Flood Hazard
0.2% Annual Chance Flood Hazard
Regulatory Floodway
Other Water Bodies
Other Rivers & Streams
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.
Hennepin

B1b


MN DNR - Public Water and Watercourse Inventory
Hennepin County, Minnesota
Sherburne County
Wright County
Rogers
Dayton
Anoka County
Champlin
Hanover
Corcoran
Maple Grove
Osseo
Brooklyn Park
Greenfield
Rockford
Brooklyn Center
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
Ramsey County
St. Anthony
Maple Plain
Golden Valley
Long Lake
Orono
Minneapolis
St. Louis Park
Minnetonka
Hopkins
Shorewood
Excelsior
Edina
MSP Intl Airport
Chanhassen
Eden Prairie
Bloomington
Dakota County
Scott County
Public Waters Inventory
Public Water Basin
Public Water Wetland
Public Watercourse
Hennepin County Multi-Jurisdiction
Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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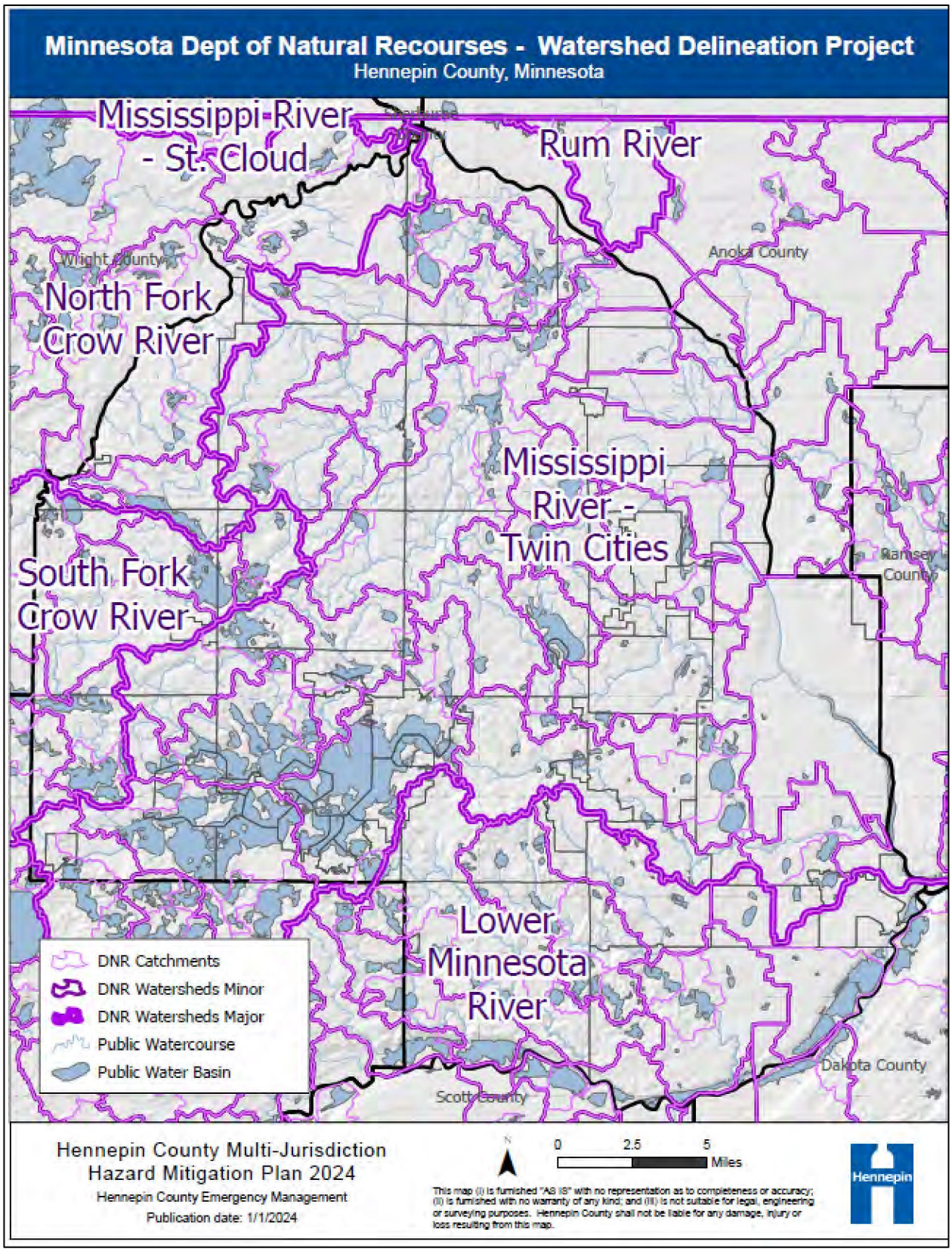
Hennepin


Minnesota Dept of Natural Recourses - Watershed Delineation Project
Hennepin County, Minnesota
Mississippi River - St. Cloud
Rum River
Wright County
North Fork Crow River
Anoka County
Mississippi River - Twin Cities
South Fork Crow River
Ramsey County
Lower Minnesota River
Dakota County
Scott County
DNR Catchments
DNR Watersheds Minor
DNR Watersheds Major
Public Watercourse
Public Water Basin
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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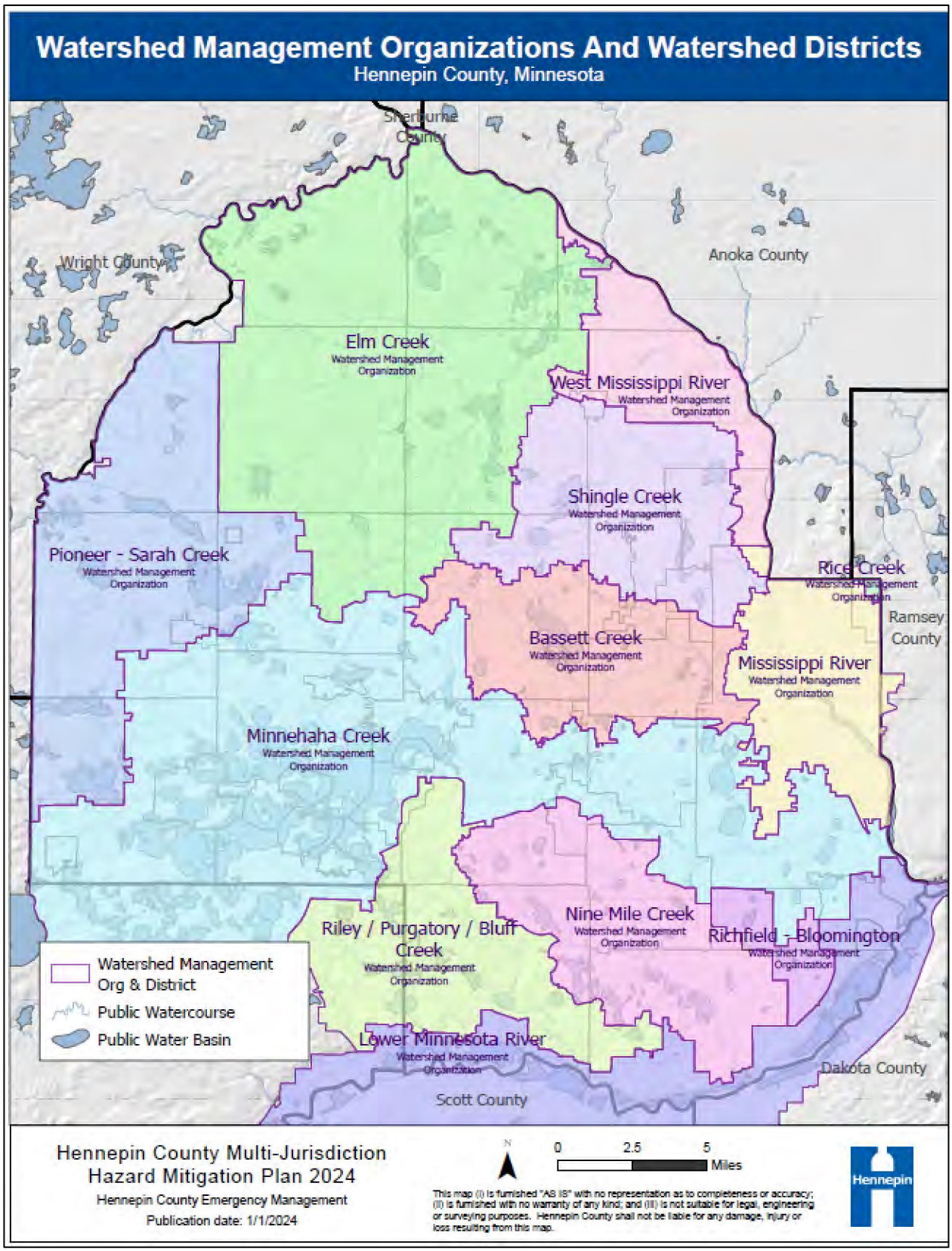
Hennepin


Watershed Management Organizations And Watershed Districts
Hennepin County, Minnesota
Sherburne County
Wright County
Anoka County
Elm Creek
Watershed Management Organization
West Mississippi River
Watershed Management Organization
Shingle Creek
Watershed Management Organization
Pioneer - Sarah Creek
Watershed Management Organization
Rice Creek
Watershed Management Organization
Ramsey County
Bassett Creek
Watershed Management Organization
Mississippi River
Watershed Management Organization
Minnehaha Creek
Watershed Management Organization
Nine Mile Creek
Watershed Management Organization
Riley / Purgatory / Bluff Creek
Watershed Management Organization
Richfield - Bloomington
Watershed Management Organization
Lower Minnesota River
Watershed Management Organization
Dakota County
Scott County
Watershed Management Org & District
Public Watercourse
Public Water Basin
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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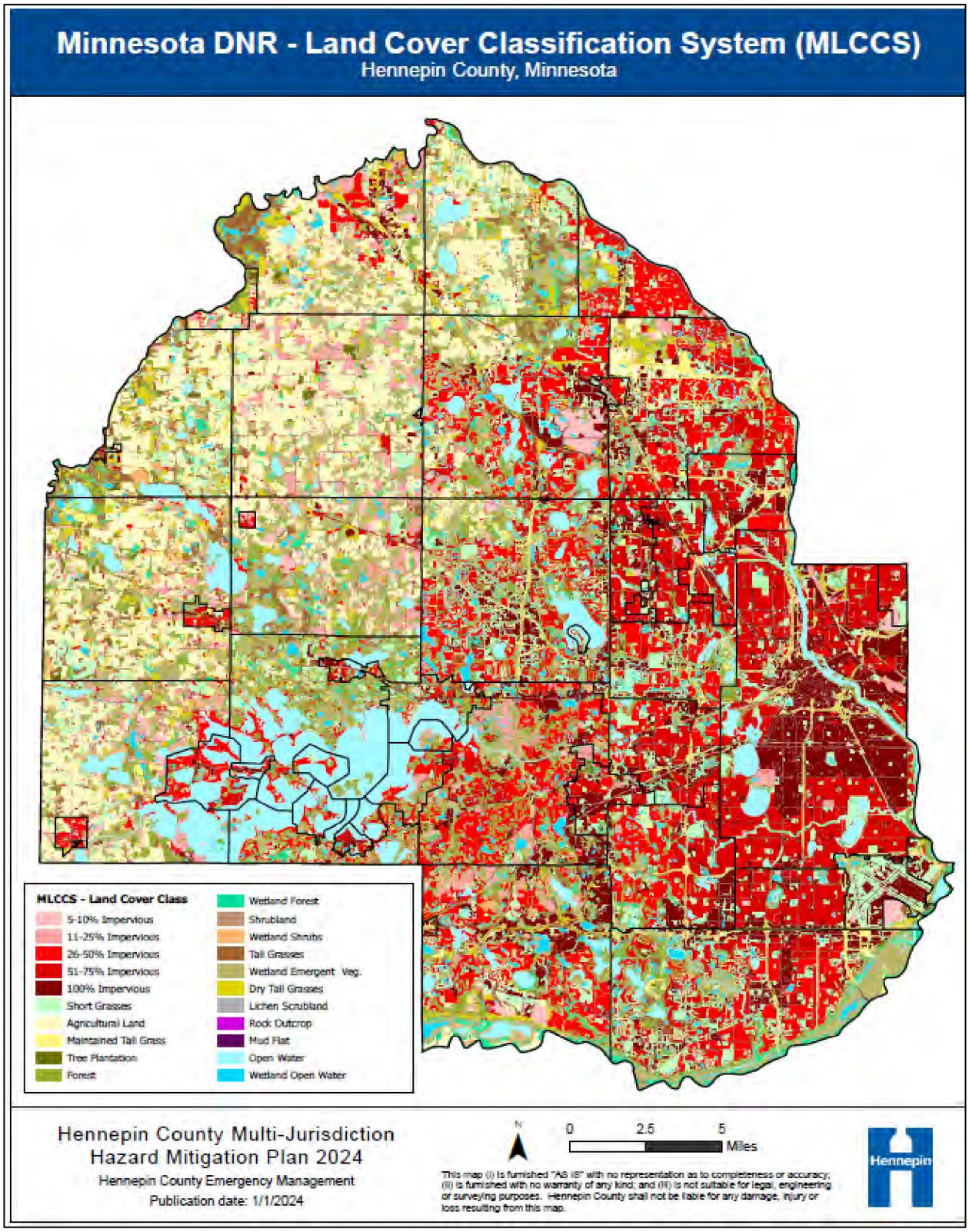
Hennepin

2. Geography


Minnesota DNR - Land Cover Classification System (MLCCS)
Hennepin County, Minnesota
MLCCS - Land Cover Class
5-10% Impervious
11-25% Impervious
26-50% Impervious
51-75% Impervious
100% Impervious
Short Grasses
Agricultural Land
Maintained Tall Grass
Tree Plantation
Forest
Wetland Forest
Shrubland
Wetland Shrubs
Tall Grasses
Wetland Emergent Veg.
Dry Tall Grasses
Lichen Scrubland
Rock Outcrop
Mud Flat
Open Water
Wetland Open Water
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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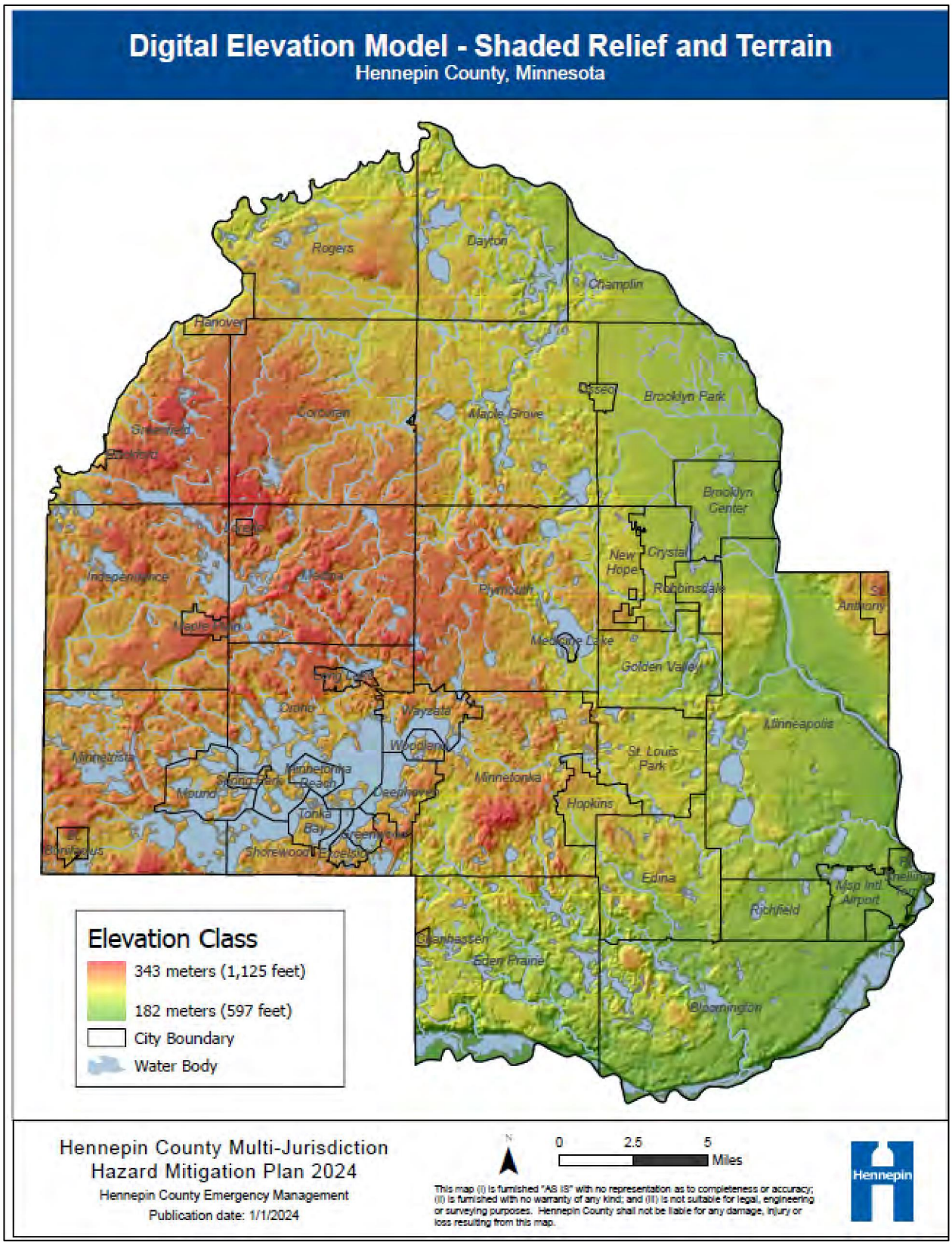
Hennepin


Digital Elevation Model - Shaded Relief and Terrain
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Osseo
Brooklyn Park
Corcoran
Maple Grove
Brooklyn Center
New Hope
Crystal
Robbinsdale
St. Anthony
Plymouth
Golden Valley
Orono
Wayzata
Minneapolis
Minnetrista
Minnetonka Beach
Minnetonka
St. Louis Park
Mound
Tonka Bay
Hopkins
Shorewood
Edina
Msp Intl Airport
Richfield
Chanhassen
Eden Prairie
Bloomington
Elevation Class
343 meters (1,125 feet)
182 meters (597 feet)
City Boundary
Water Body
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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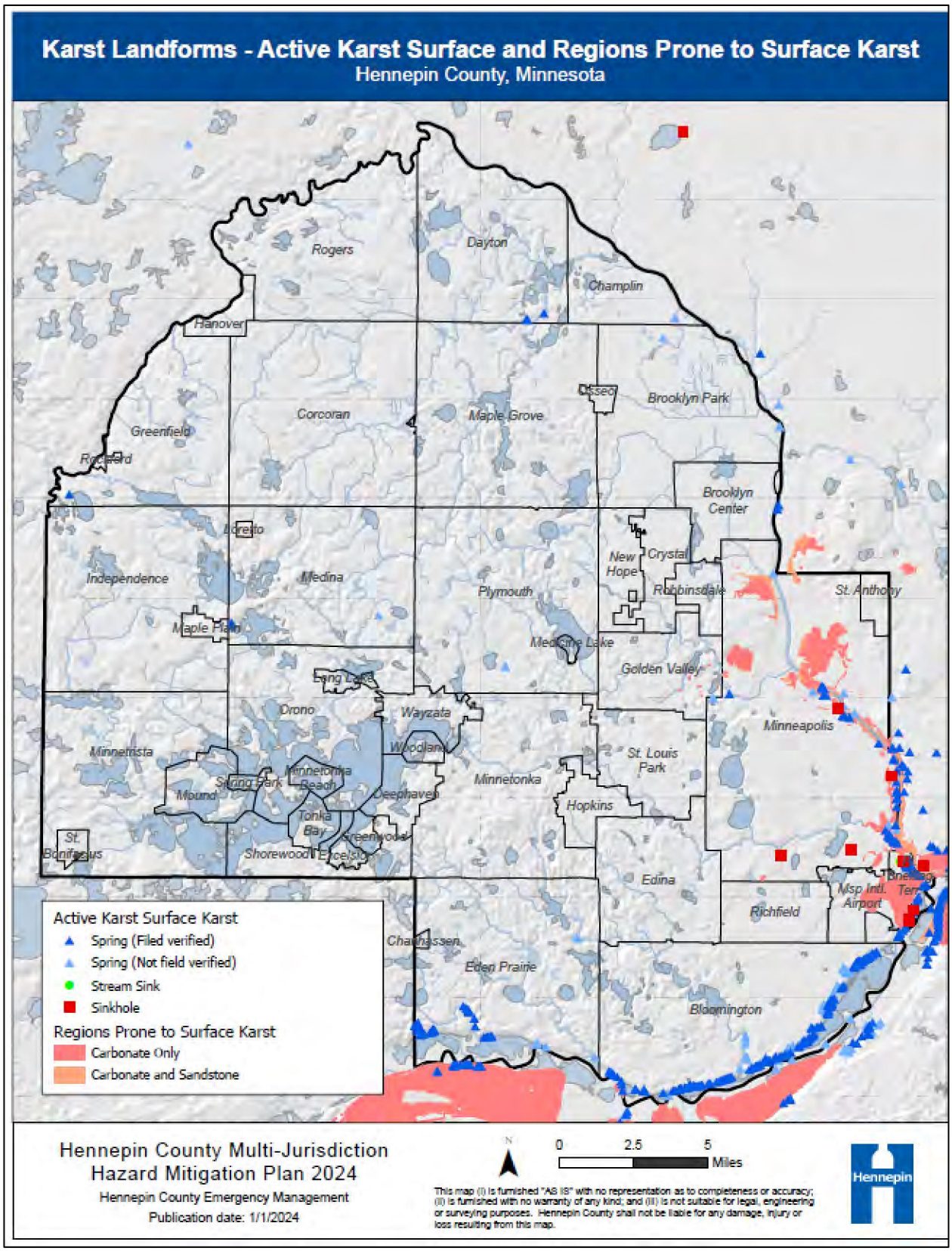
Hennepin


Karst Landforms - Active Karst Surface and Regions Prone to Surface Karst
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Maple Grove
Brooklyn Park
Greenfield
Brooklyn Center
Loretto
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Long Lake
Orono
Wayzata
Minneapolis
Minnetrista
Woodland
St. Louis Park
Minnetonka Beach
Minnetonka
Mound
Deephaven
Hopkins
Tonka Bay
Greenwood
St. Bonifacius
Shorewood
Excelsior
Edina
Msp Intl. Airport
Richfield
Chanhassen
Eden Prairie
Bloomington
Active Karst Surface Karst
Spring (Filed verified)
Spring (Not field verified)
Stream Sink
Sinkhole
Regions Prone to Surface Karst
Carbonate Only
Carbonate and Sandstone
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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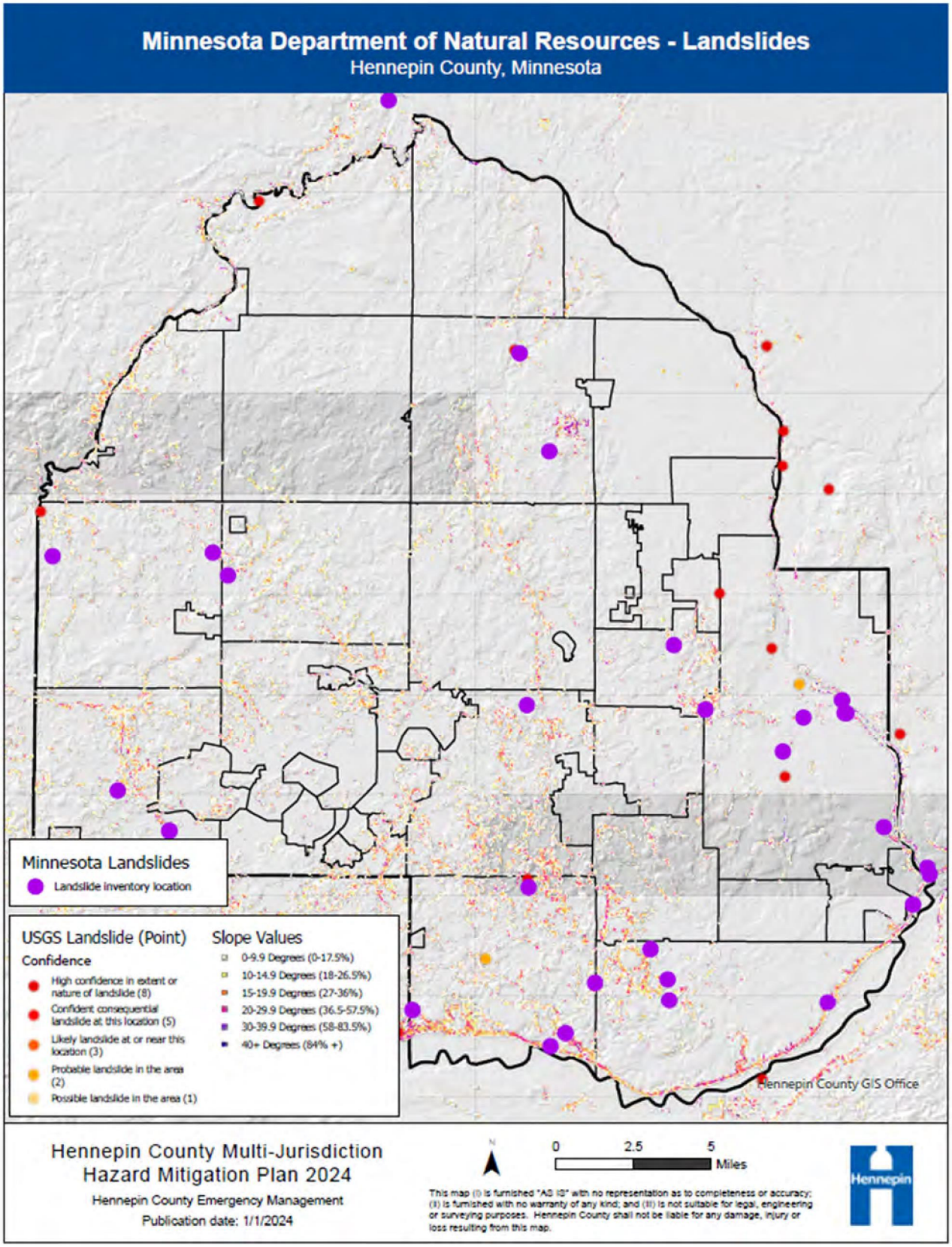
Hennepin


Minnesota Department of Natural Resources - Landslides
Hennepin County, Minnesota
Minnesota Landslides
Landslide inventory location
USGS Landslide (Point)
Confidence
High confidence in extent or nature of landslide (8)
Confident consequential landslide at this location (5)
Likely landslide at or near this location (3)
Probable landslide in the area (2)
Possible landslide in the area (1)
Slope Values
0-9.9 Degrees (0-17.5%)
10-14.9 Degrees (18-26.5%)
15-19.9 Degrees (27-36%)
20-29.9 Degrees (36.5-57.5%)
30-39.9 Degrees (58-83.5%)
40+ Degrees (84% +)
Hennepin County GIS Office
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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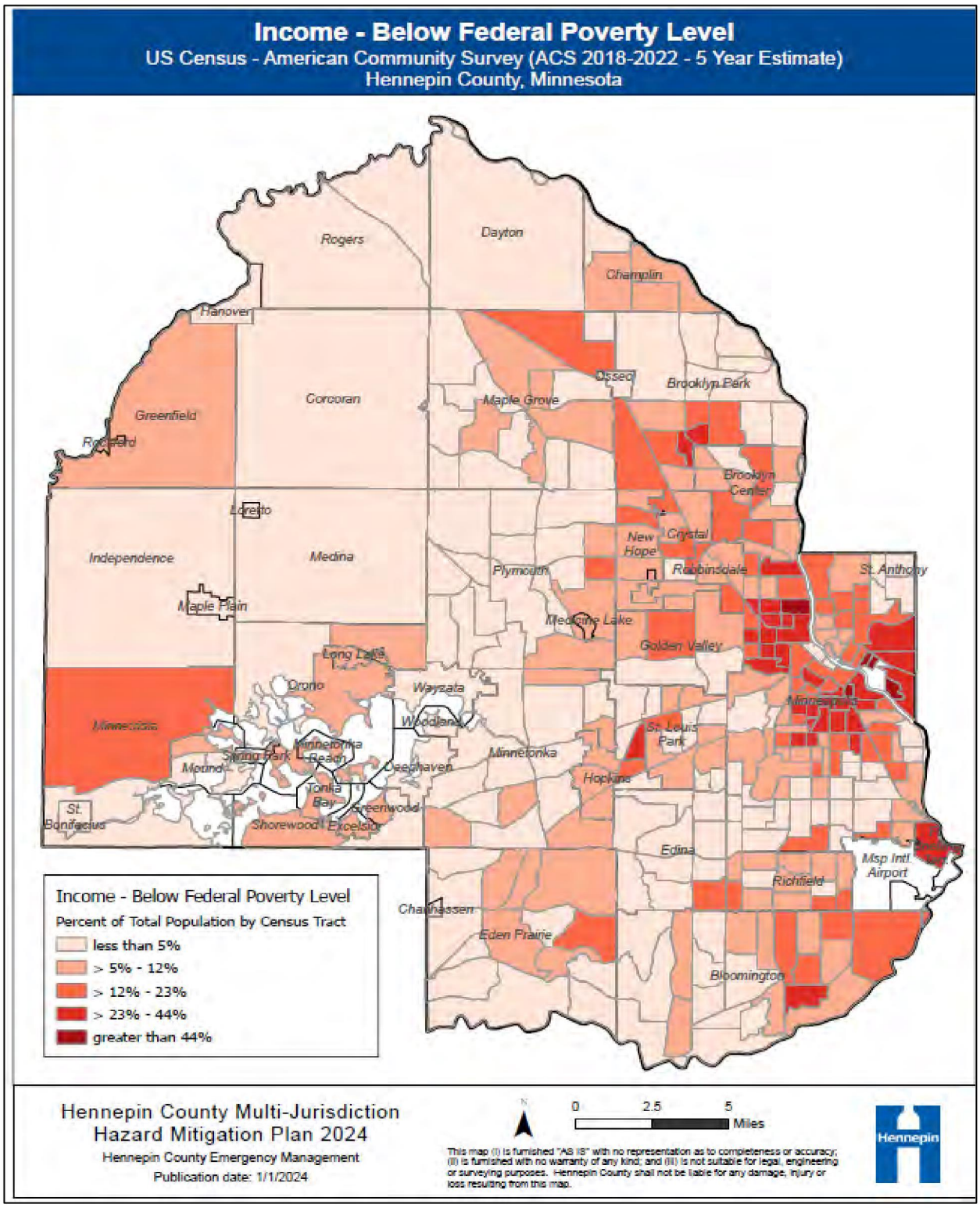
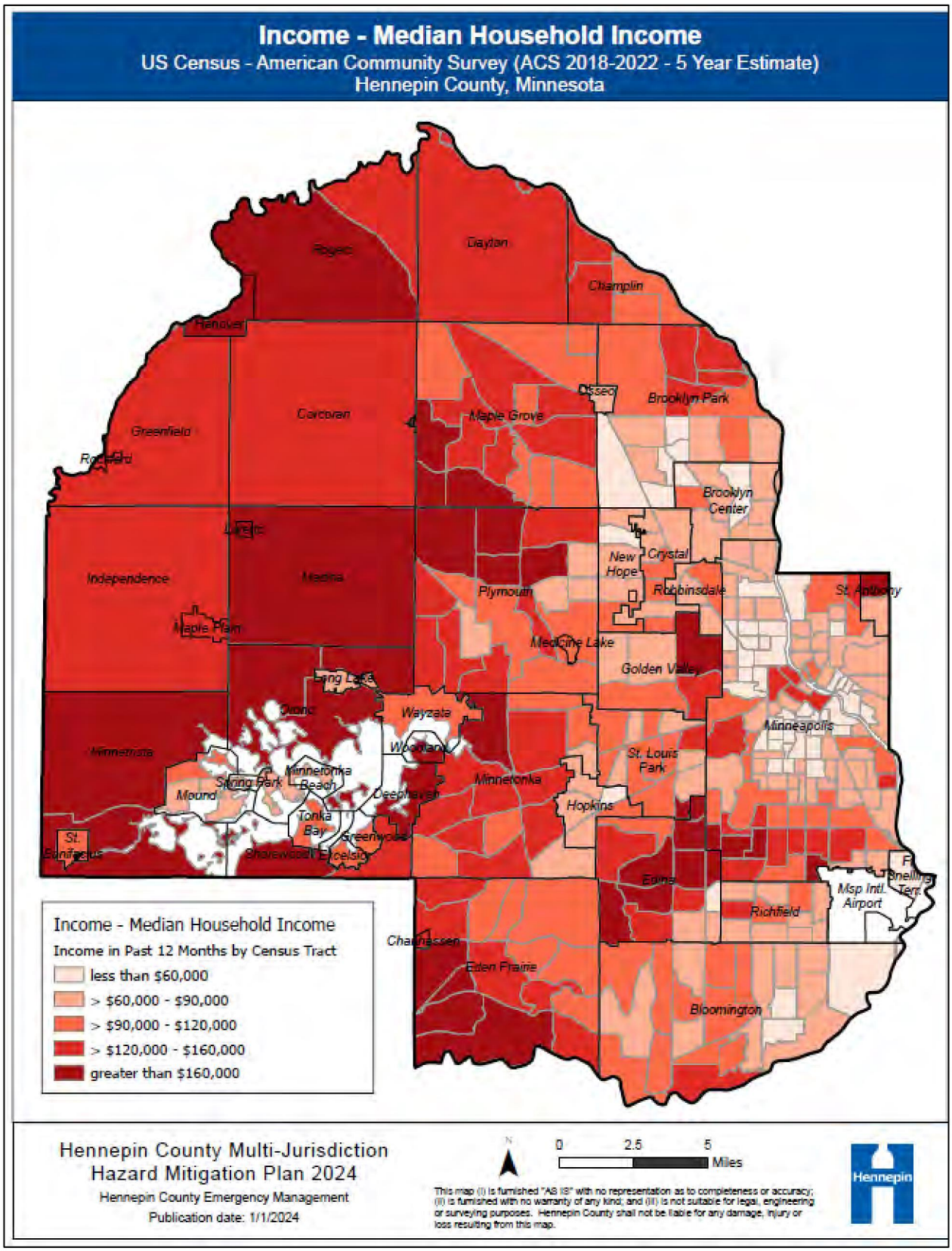
Hennepin

B1b

3. Income and Poverty




Income - Median Household Income
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Dayton
Champlin
Hanover
Corcoran
Greenfield
Maple Grove
Osseo
Brooklyn Park
Brooklyn Center
Crystal
New Hope
Robbinsdale
Plymouth
Medina
Independence
Maple Plain
Medicine Lake
Golden Valley
Wayzata
Minnetonka
Minnetonka Beach
Mound
Tonka Bay
Deephaven
Hopkins
St. Louis Park
Minneapolis
Richfield
Msp Intl Airport
Edina
Eden Prairie
Bloomington
Income - Median Household Income
Income in Past 12 Months by Census Tract
less than $60,000
> $60,000 - $90,000
> $90,000 - $120,000
> $120,000 - $160,000
greater than $160,000
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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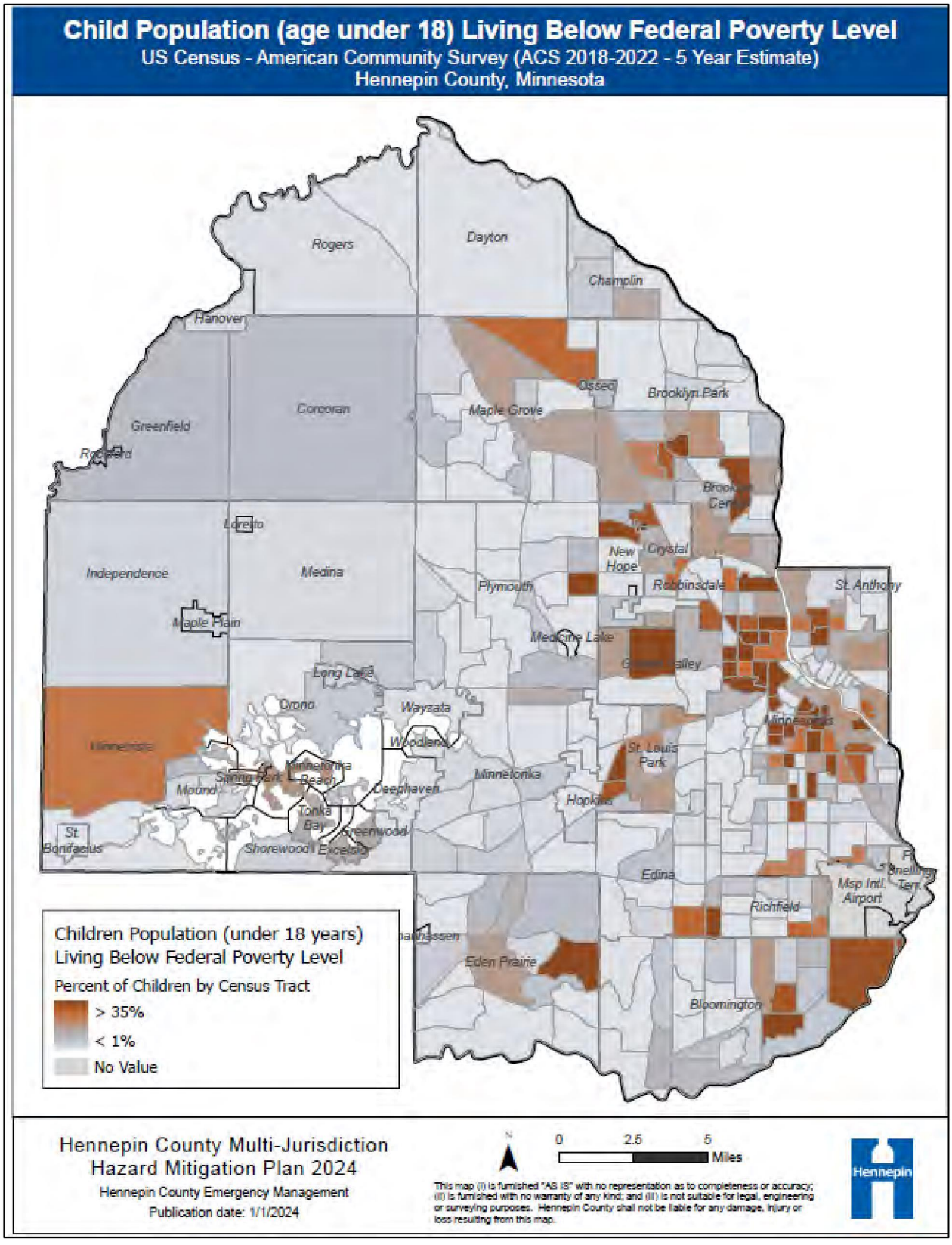
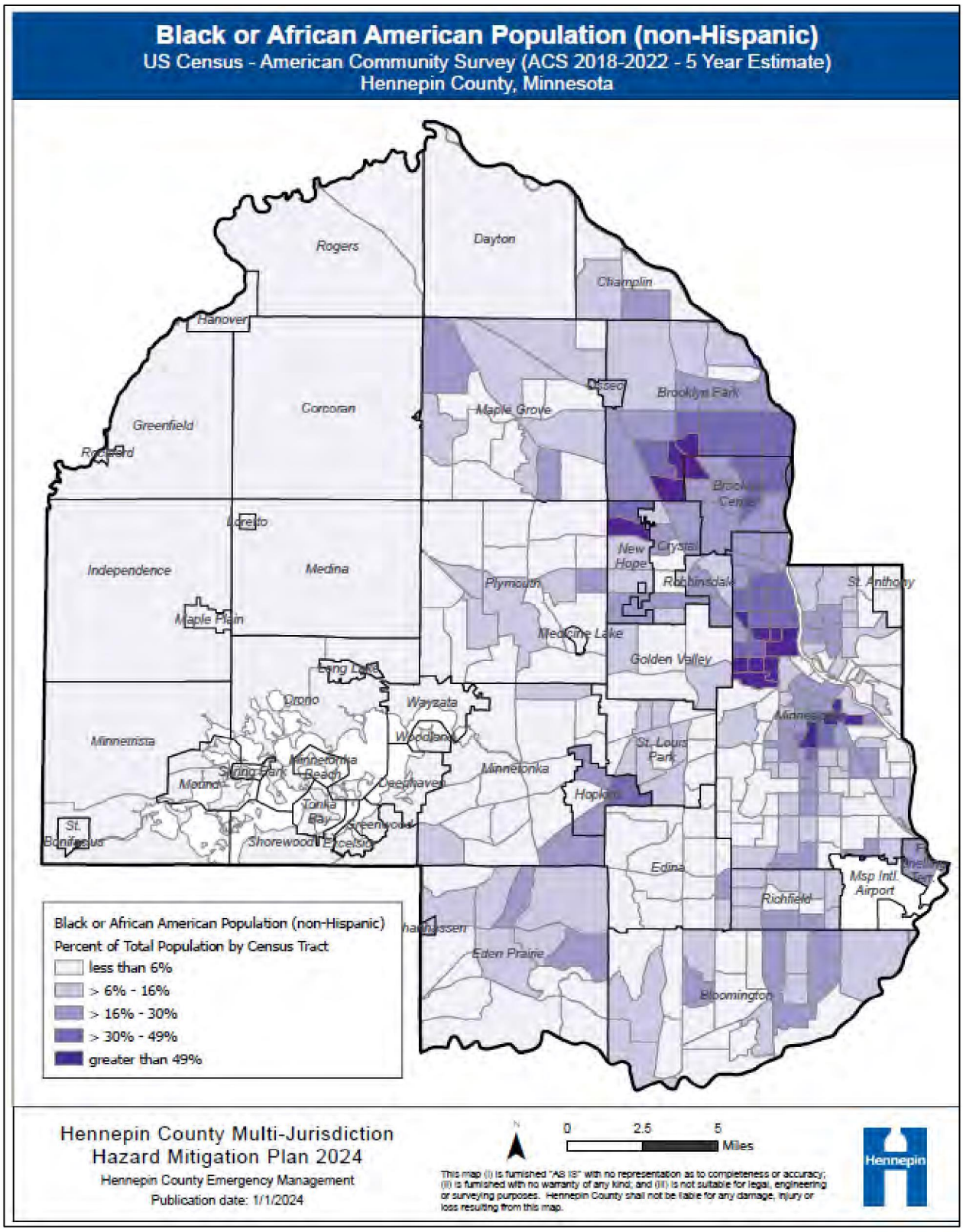
Hennepin

4. Population




Black or African American Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Maple Grove
Brooklyn Park
Greenfield
Rockford
Loretto
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Long Lake
Orono
Wayzata
Minnetrista
Woodland
St. Louis Park
Minnetonka Beach
Minnetonka
Deephaven
Hopkins
Tonka Bay
Greenwood
St. Bonifacius
Shorewood
Excelsior
Edina
Msp Intl. Airport
Richfield
Eden Prairie
Bloomington
Black or African American Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 6%
> 6% - 16%
> 16% - 30%
> 30% - 49%
greater than 49%
Hennepin County Multi-Jurisdiction
Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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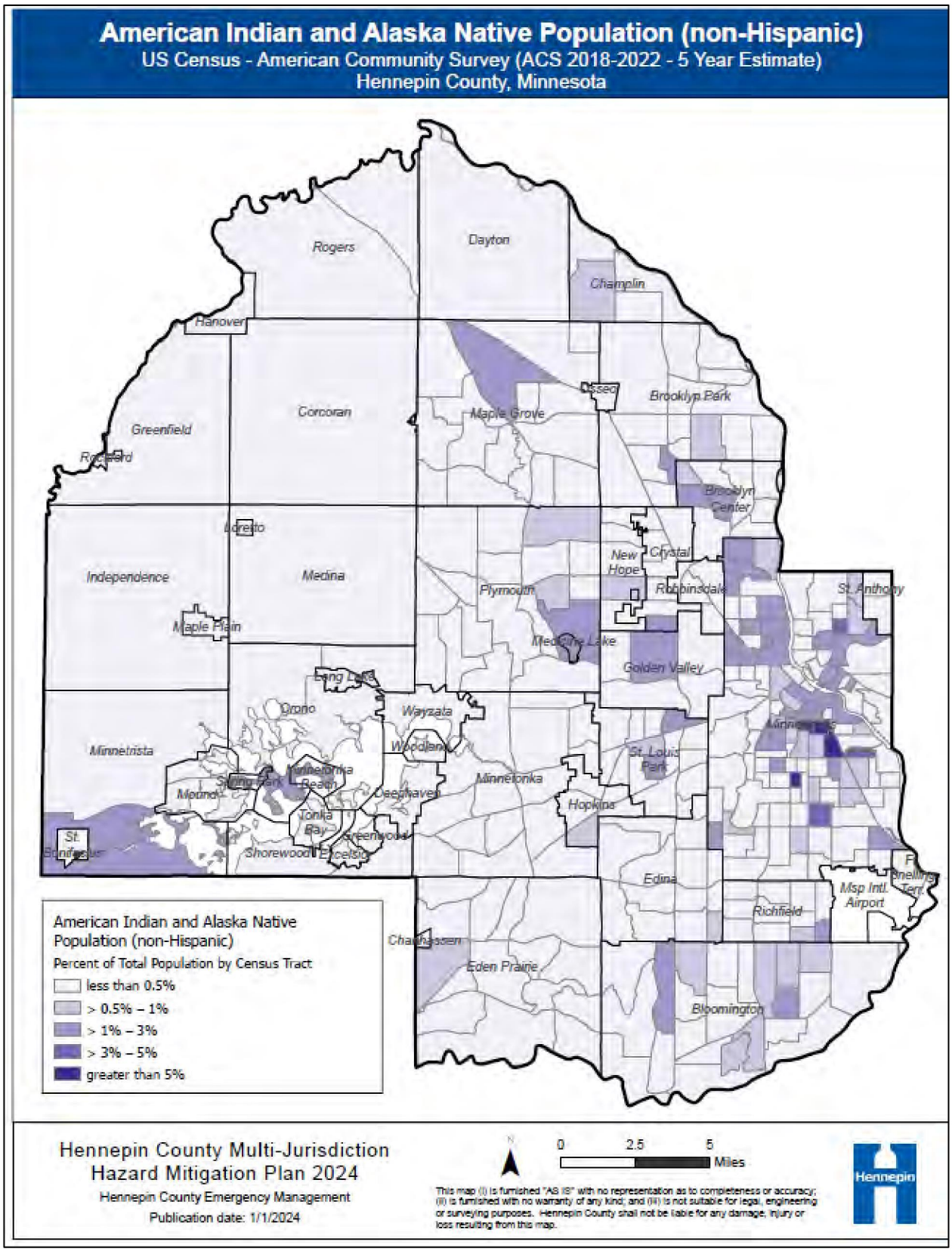
Hennepin


American Indian and Alaska Native Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Osseo
Brooklyn Park
Corcoran
Maple Grove
Greenfield
Rockford
Brooklyn Center
Loretto
Independence
Medina
New Hope
Crystal
Plymouth
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Long Lake
Orono
Wayzata
Minneapolis
Minnetrista
Woodland
St. Louis Park
Minnetonka Beach
Minnetonka
Mound
Deephaven
Minnetonka
Hopkins
Tonka Bay
St. Bonifacius
Greenwood
Shorewood
Excelsior
Edina
Msp Intl. Airport
Richfield
Chanhassen
Eden Prairie
Bloomington
American Indian and Alaska Native Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 0.5%
> 0.5% – 1%
> 1% – 3%
> 3% – 5%
greater than 5%
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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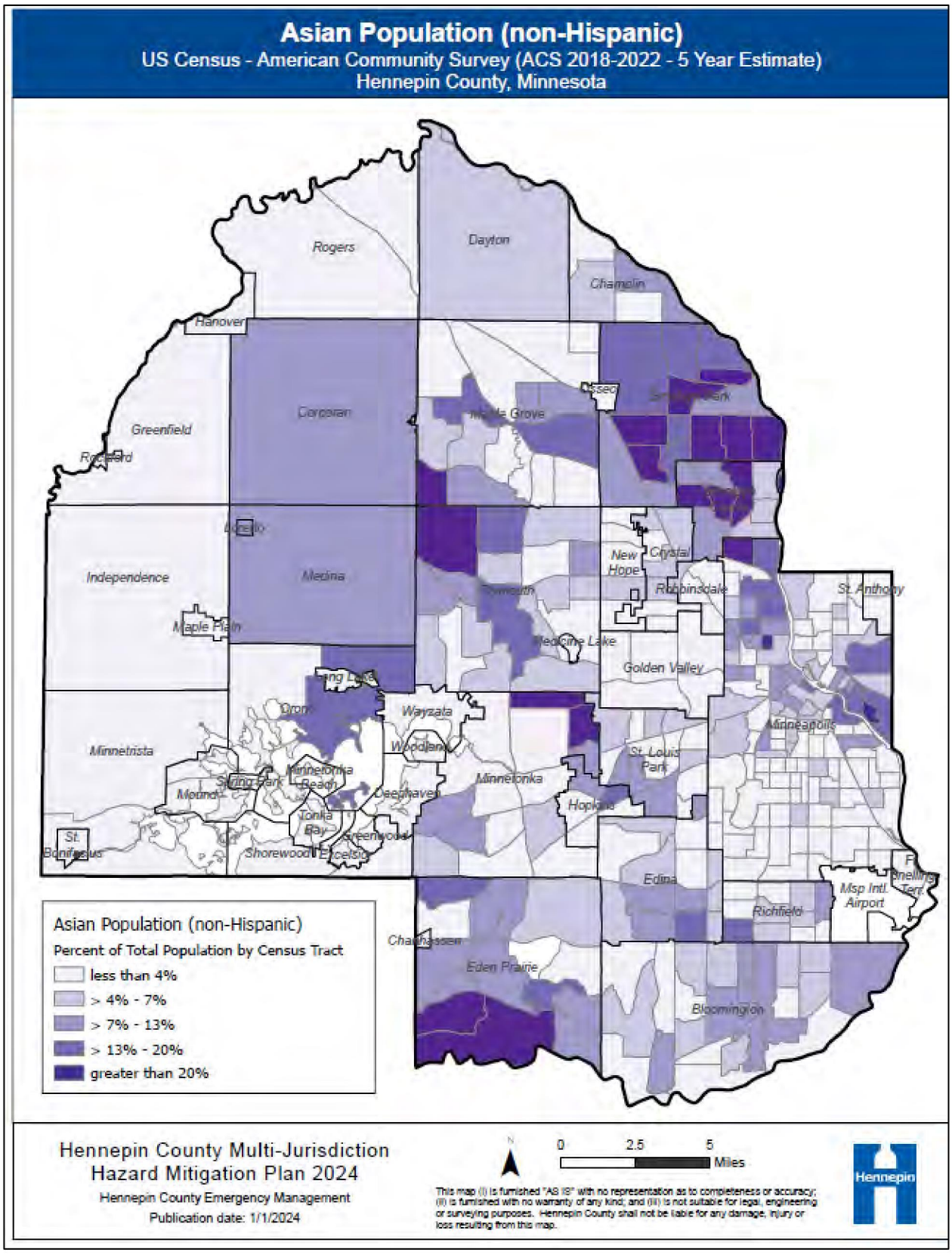
Hennepin


Asian Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Greenfield
Rockford
Medina
Independence
Maple Plain
New Hope
Crystal
Robbinsdale
St. Anthony
Golden Valley
Minneapolis
Wayzata
Minnetrista
Minnetonka
St. Louis Park
Hopkins
Edina
Richfield
Msp Intl. Airport
Eden Prairie
Bloomington
Asian Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 4%
> 4% - 7%
> 7% - 13%
> 13% - 20%
greater than 20%
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
0
2.5
5
Miles
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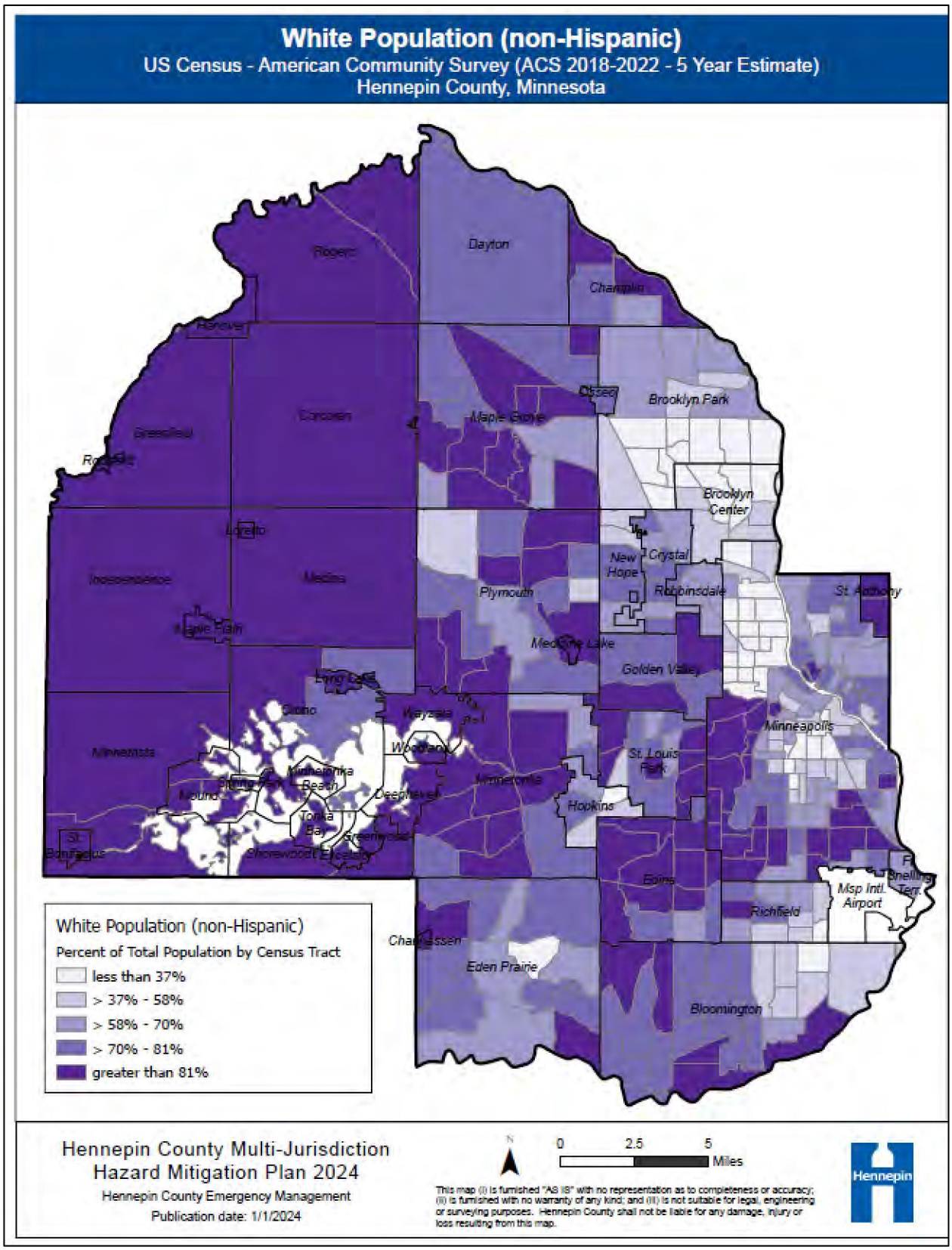
Hennepin


White Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Dayton
Champlin
Osseo
Brooklyn Park
Maple Grove
Brooklyn Center
Crystal
New Hope
Robbinsdale
St. Anthony
Plymouth
Medicine Lake
Golden Valley
Minneapolis
St. Louis Park
Hopkins
Edina
Richfield
Msp Intl. Airport
Eden Prairie
Bloomington
Minnetonka
Wayzata
Woodland
Deephaven
Tonka Bay
Greenwood
Shorewood
Excelsior
Mound
Minnetonka Beach
Minnetonka
Medina
Loretto
Maple Plain
Independence
Greenfield
Corcoran
Hanover
Rogers
White Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 37%
> 37% - 58%
> 58% - 70%
> 70% - 81%
greater than 81%
Hennepin County Multi-Jurisdiction
Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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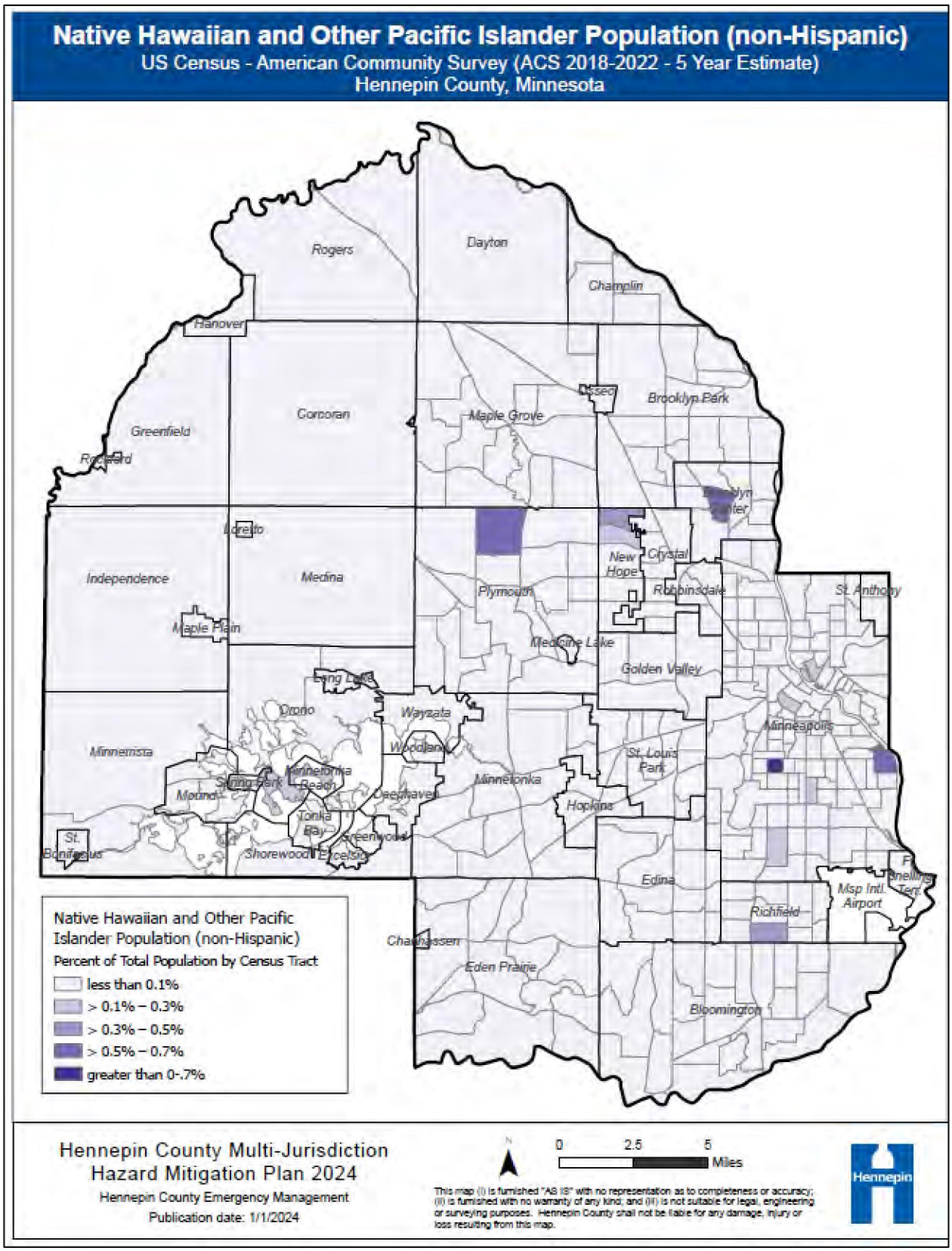
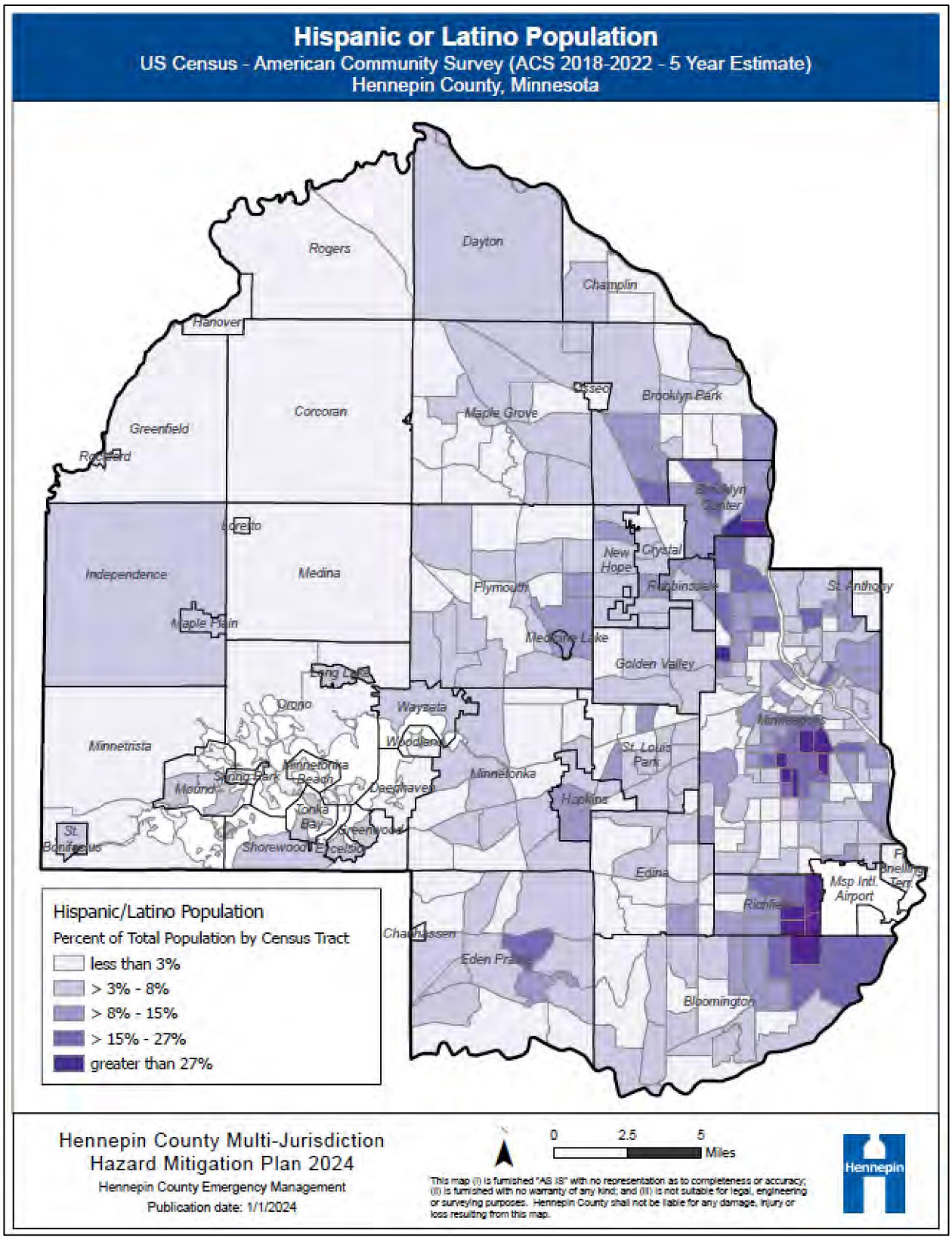
Hennepin


Native Hawaiian and Other Pacific Islander Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Maple Grove
Brooklyn Park
Greenfield
Loretto
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Orono
Wayzata
Minnetrista
Minnetonka
St. Louis Park
Minneapolis
Hopkins
Edina
Msp Intl Airport
Richfield
Chanhassen
Eden Prairie
Bloomington
Native Hawaiian and Other Pacific Islander Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 0.1%
> 0.1% – 0.3%
> 0.3% – 0.5%
> 0.5% – 0.7%
greater than 0-.7%
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.
Hennepin


Hispanic or Latino Population
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Greenfield
Maple Grove
Brooklyn Park
Independence
Medina
Plymouth
Maple Plain
Golden Valley
Orono
Wayzata
Minnetrista
Minnetonka
St. Louis Park
Hopkins
Edina
Msp Intl. Airport
Chanhassen
Bloomington
Hispanic/Latino Population
Percent of Total Population by Census Tract
less than 3%
> 3% - 8%
> 8% - 15%
> 15% - 27%
greater than 27%
Hennepin County Multi-Jurisdiction
Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
0
2.5
5
Miles
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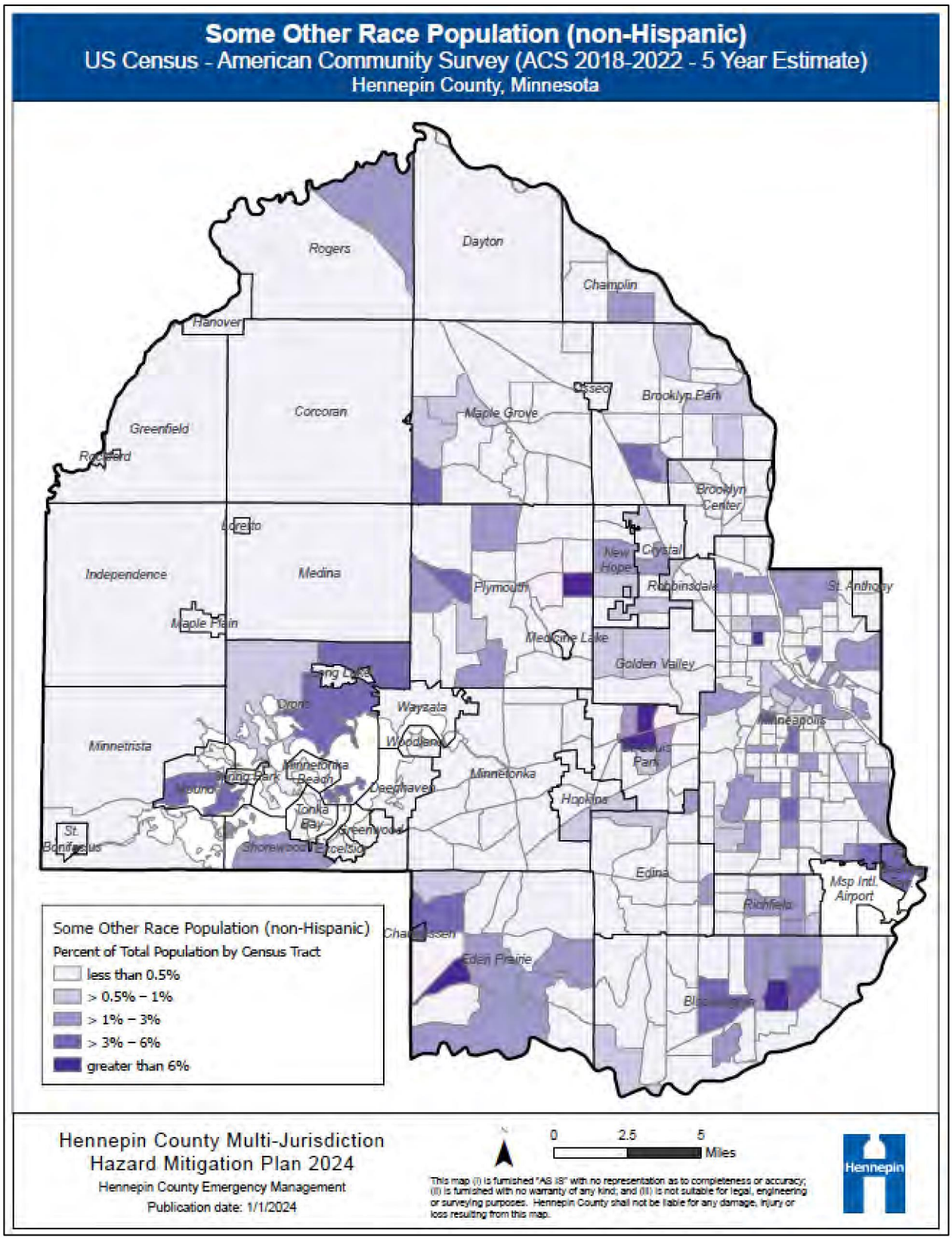
Some Other Race Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Rogers
Dayton
Champlin
Hanover
Corcoran
Greenfield
Maple Grove
Brooklyn Park
Brooklyn Center
Independence
Medina
Plymouth
New Hope
Crystal
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Minnetrista
Wayzata
Minneapolis
Minnetonka
Hopkins
St. Louis Park
Edina
Msp Intl. Airport
Richfield
Eden Prairie
Some Other Race Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 0.5%
> 0.5% – 1%
> 1% – 3%
> 3% – 6%
greater than 6%
Hennepin County Multi-Jurisdiction
Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
0
2.5
5
Miles
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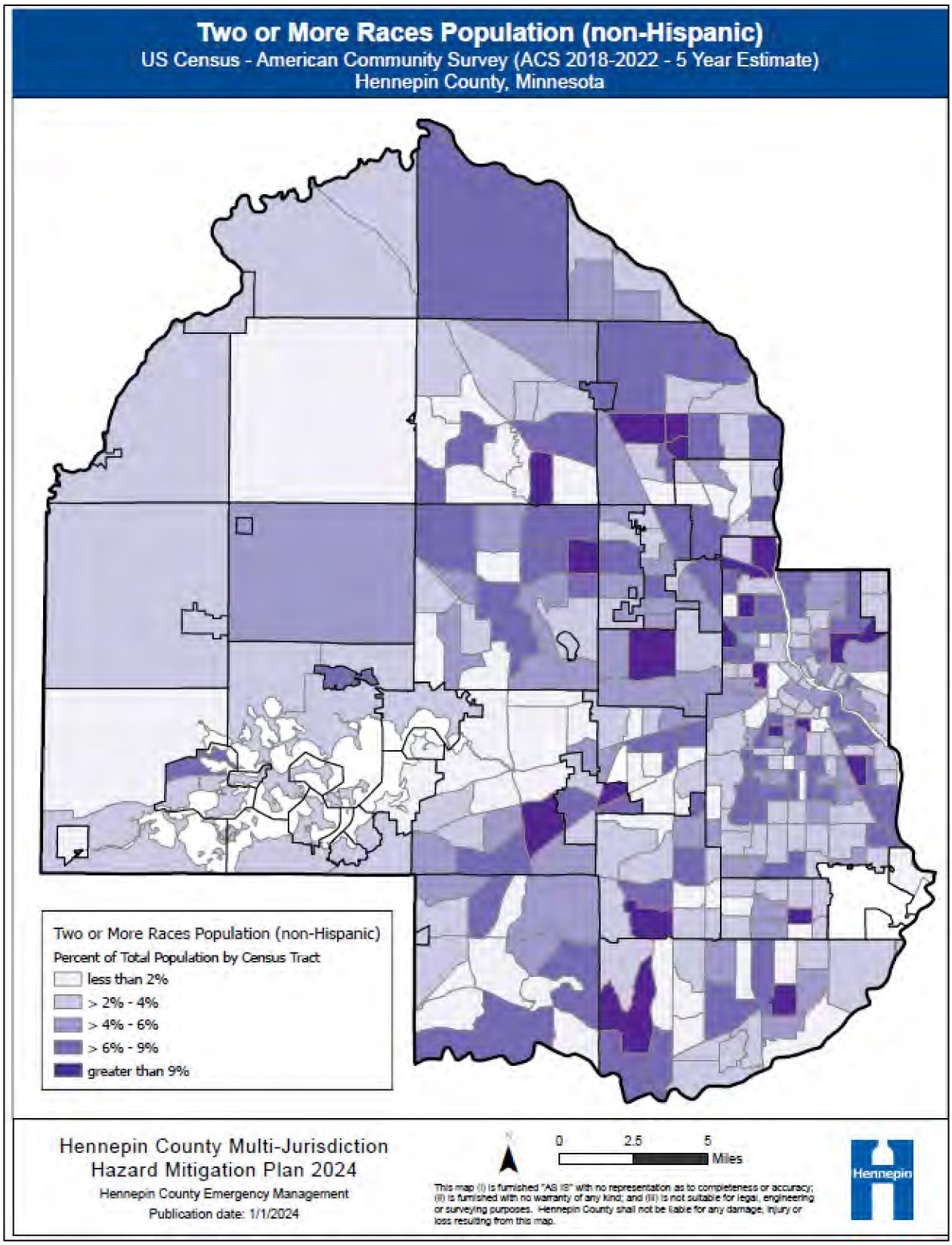
Hennepin


Two or More Races Population (non-Hispanic)
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Two or More Races Population (non-Hispanic)
Percent of Total Population by Census Tract
less than 2%
> 2% - 4%
> 4% - 6%
> 6% - 9%
greater than 9%
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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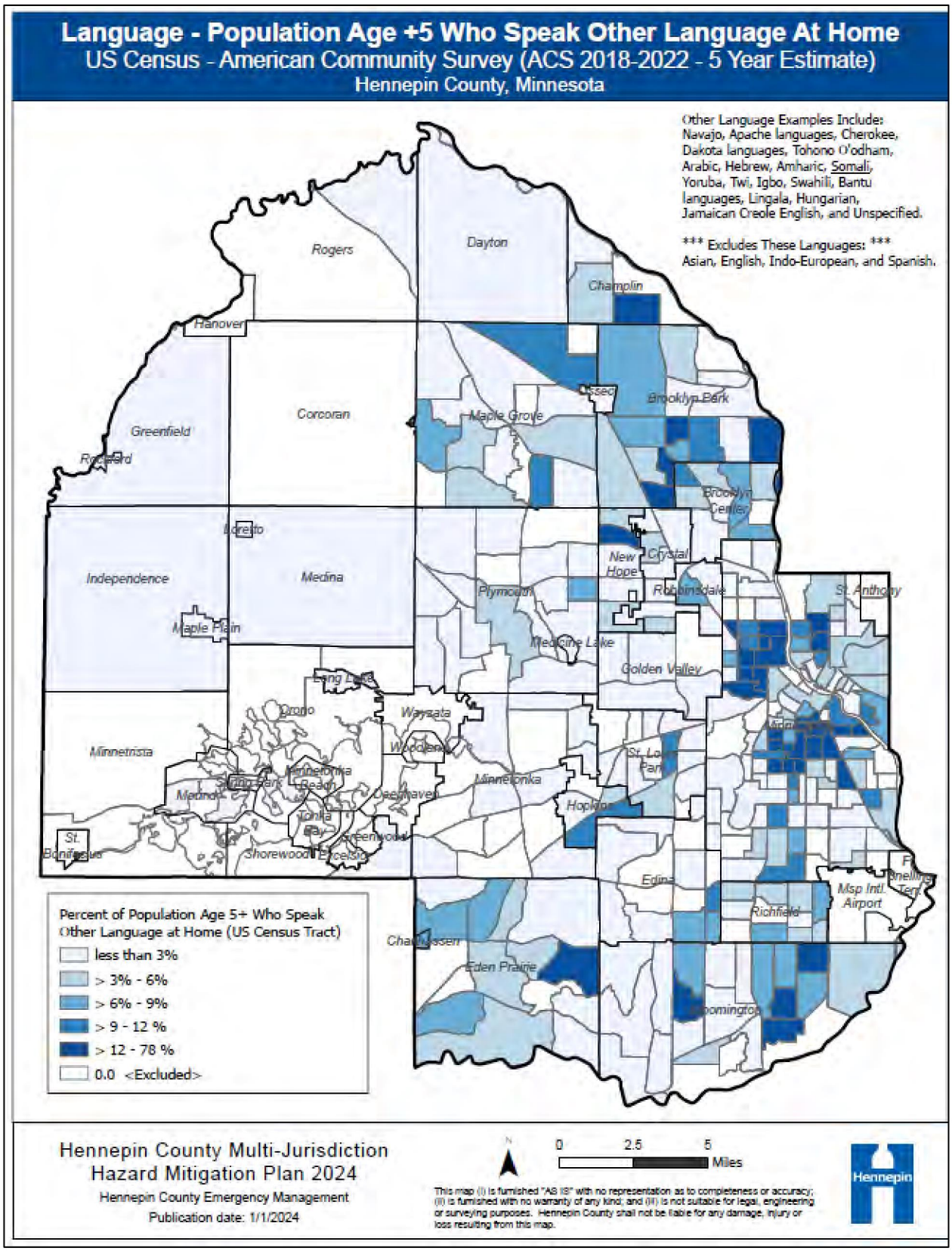
Hennepin


Language - Population Age +5 Who Speak Other Language At Home
US Census - American Community Survey (ACS 2018-2022 - 5 Year Estimate)
Hennepin County, Minnesota
Other Language Examples Include: Navajo, Apache languages, Cherokee, Dakota languages, Tohono O'odham, Arabic, Hebrew, Amharic, Somali, Yoruba, Twi, Igbo, Swahili, Bantu languages, Lingala, Hungarian, Jamaican Creole English, and Unspecified.
*** Excludes These Languages: *** Asian, English, Indo-European, and Spanish.
Rogers
Dayton
Champlin
Hanover
Corcoran
Maple Grove
Brooklyn Park
Greenfield
Brooklyn Center
Loretto
Independence
Medina
New Hope
Crystal
Plymouth
Robbinsdale
St. Anthony
Maple Plain
Medicine Lake
Golden Valley
Long Lake
Orono
Wayzata
Minnetrista
Minnetonka
Hopkins
Edina
Msp Intl Airport
Richfield
Eden Prairie
Percent of Population Age 5+ Who Speak Other Language at Home (US Census Tract)
less than 3%
> 3% - 6%
> 6% - 9%
> 9 - 12 %
> 12 - 78 %
0.0 <Excluded>
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
N
0
2.5
5
Miles
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Hennepin


Minnesota Dept of Education - School Districts - SY 2023/2024
Hennepin County, Minnesota
DRAFT
St. Michael-Albertville School District
Anoka-Hennepin School District
Buffalo-Hanover-Montrose School District
Spring Lake Park School District
Osseo School District
Rockford School District
Mound View School District
Fridley School District
Brooklyn Center School District
Columbia Heights School District
Delano School District
Robbinsdale School District
St. Anthony-New Brighton School District
Orono School District
Wayzata School District
Minneapolis School District
Watertown-Mayer School District
Westonka School District
St. Louis Park School District
Saint Paul School District
Minnetonka School District
Hopkins School District
Edina School District
Richfield School District
Waconia School District
Eastern Carver County
Eden Prairie School District
Bloomington School District
Shakopee School District
Burnsville School District
School District - SY 2023/2024
County Boundary
City Boundary
Hennepin County Multi-Jurisdiction Hazard Mitigation Plan 2024
Hennepin County Emergency Management
Publication date: 1/1/2024
0 2.5 5 Miles
This map (i) is furnished "AS IS" with no representation as to completeness or accuracy; (ii) is furnished with no warranty of any kind; and (iii) is not suitable for legal, engineering or surveying purposes. Hennepin County shall not be liable for any damage, injury or loss resulting from this map.
Hennepin

Appendix E	Community Growth Trend Summaries E1a

Each community that participates in this Mitigation Plan was given the opportunity to detail changes in development that have occurred within their jurisdiction, if that development involved known hazard prone areas, or if that development impacted underserved communities. The details provided by each community that fall within the scope of this plan are provided in this appendix.

E.1: Champlin

The City has experienced moderate commercial and residential development over the past few years. The residential development was mainly single-family residential subdivisions. None of the new development has been into any hazard prone areas or has affected vulnerable populations.

E.2: Dayton

The City of Dayton has seen enormous growth in residential and commercial properties. However, that growth has yet to be in any hazard-prone areas within the community, such as floodplains, and it has yet to impact vulnerable populations within the community.

E.3: Edina

Over the past 5 years the City has approved several large scale re-developments. As these sites were already developed, there was no impacts on wetland, floodplains or hazard prone areas. There have not been any developments that have affected vulnerable populations. Each site was reviewed by City staff and consultants when necessary and found not to have negative impacts. The following projects have been approved and built: 8 unit townhome replaced a 5-unit townhome at 5132 Hankerson Avenue; 21-unit apartment replaced a day care at 4425 Valley View Road; a 118-unit senior apartment replace an office building at 4040 70th Street; a 408 unit apartment replaced a large office building at 4660 77th Street; A 200 unit apartment replaced an office building at 4911 77th Street; A 196 unit apartment replaced an office and Perkins at 4917 Eden Avenue; 24,000 square foot medical office replaced a 16,000 s.f. medical office at 6500 Barrie Road; New restaurant, indoor tennis courts and fitness center built at Interlachen Country Club, 6200 Interlachen Blvd.; A 276 unit apartment replaced an office building at 4600 77th Street; 4-unit townhome replaced a beauty salon at 4404 Valley View Road; Church and school expansion at 5051 Eden Avenue; 3-story furniture store and restaurant built in the parking lot at Southdale; 70-unit apartment replaced a large recording studio at 4100 76th Street; 62 unit apartment replaced a laundromat at 7075 Amundson Avenue; A 10,000 square feet retail building replaced an office building at 6950 France; A 167 unit apartment replaced a retail building at 3650 Hazelton Road.

E.4: Loretto

The Chippewa Estates Development was completed between 2018-2020 and consists of four single-family residential homes. No part of this development is in a hazard prone area, nor did it affect vulnerable populations.

E.5: Maple Grove

The City of Maple Grove is a fast-growing community with a number of large areas undergoing rapid development. Highlights include development of residential neighborhoods in the area of 105th Avenue,

construction of a large new headquarters building for Boston Scientific, residential neighborhoods in the vicinity of the Hindu Temple north of Arbor Ridge Parkway (101st Avenue), as well as numerous other residential and commercial buildings of various sizes. Maple Grove works within a comprehensive master plan in coordination with the Metropolitan Council and the State of Minnesota to ensure that new development has minimal effect on vulnerable populations and limited exposure to hazard prone areas.

Maple Grove - 105th Avenue Master Plan

In 2018, the City of Maple Grove initiated a planning process to guide future development in the 105th Avenue North Growth Area. The study area is generally defined by Interstate 94 to the west, Interstate 610 to the south, County Road 81 and the rail line to the north, and Fernbrook Lane to the east.

Core objectives of the 105th Avenue North Growth Area Master Plan were to examine alternatives for land uses, parks, trails and open space features and guide the design of the infrastructure network needed to support the desired development. Additionally, another key objective was also to understand the desires of existing landowners in the study area, some of whom are interested in developing their property and others, primarily existing single-family residences, who are interested in remaining. Finding the right balance for new development, identifying what uses will likely remain, providing future opportunities for land uses to transition over time, was fundamental to the success of the Master Plan.

The study area includes a variety of development areas, or districts, each with their own unique physical characteristics and development and/or redevelopment potential. In order to understand and address the many facets influencing development in the 105th Avenue North Growth Area, the planning team worked to understand current and future market conditions, existing and currently proposed land uses, potential transportation enhancements (vehicular, bicycle and pedestrian) and to identify necessary parks and open space features.

Maple Grove – Gravel Mining Area South Master Plan

The GMA South study area is just over 400 acres. Located north of Interstate 94 and west of US Highway 169. Elm Creek Boulevard bisects the northern portions of the plan area. The existing land uses within the GMA south area principally material extraction and industrial. Surrounding land uses include regional-scale commercial to the west, and low-density residential to the south across I-94. Ownership of the parcels within the GMA South area is limited to a handful of entities.

According to the most recent comprehensive plans for Maple Grove and Brooklyn Park, the area surrounding the gravel mining area south is envisioned for a wide range of uses. Commercial uses (Arbor Lakes) are well established to the west and industrial use is expected to continue to the north. Housing is planned to the west of the parkway shown north of the GMA area. A large business park to the east across 169 (in Brooklyn Park) is planned to continue. An established neighborhood is located to the south across I-94, with some mixed use area available adjacent to the highway.

Maple Grove – Northwest - 610 Master Plan

Existing land uses within the study area primarily consist of agricultural uses and undeveloped open space. Approximately a dozen rural residences and farmsteads dot the study area. A 20-acre parcel

containing the Minneapolis Northwest KOA campground and RV Park is located along Brockton Lane/County Road 101. The Hindu Society of Minnesota owns approximately 80 acres within the study area, which includes a Hindu temple facility. Adjoining land uses within Maple Grove City limits include a combination of single-family and townhome residences to the south within the Delgany Neighborhood. Areas further to the southeast, include commercial and retail uses primarily within the Maple Commons development. Directly west and across I-94, land uses are similar to those within the study area, consisting of primarily undeveloped open areas, with larger-lot single-family residences.

The City's proposed 2018 Land Use plan designates the study area primarily low-medium density residential. Higher density residential categories are identified within the Hindu Society property in recognition of their campus master plan. An additional area identified for highdensity residential is located at the intersection of 105th and 101st Avenues. Areas east of 105th Ave and Lawndale Lane are designated as mixed use, envisioned to contain a mix of residential, office, and office-warehouse uses primarily. The school district property is identified as a future public use.

E.6: Medicine Lake

Medicine Lake is making long-term improvements to critical infrastructure beginning in the summer of 2024. These projects include complete reconstruction of all streets within the city of Medicine Lake, municipal water main installation, sanitary sewer upgrades, and lift station reconstruction. Each of these projects will impact all residents of Medicine Lake.

E.7: Medina

Recent residential development activity in Medina has included single-family and townhome development concentrated north of Highway 55. Commercial development included the new Adam's Pest Control office building and Loram Warehouse development. Okalee, a new senior housing/assisted living facility has also been constructed and the Wealshire Memory Care facility has been expanded, both housing populations with service needs. Development and construction have not been in hazard prone areas.

E.8: Minneapolis

Minneapolis recently received an application for an addition to an existing home in the floodplain. An existing home at 4845 James in the FP overlay and AE floodway proposed a building addition. They received a CUP to build the addition on pilings as opposed to on fill, which would have been permitted by code as of right. The proposed floor elevations were above the base flood elevation. No other development that is of relevance to the hazard mitigation plan occurred.

E.9: Minnetrista

The Woodland Cove development has progressed over the past several years in the area just north of Hwy 7 at Kings Point Road. It includes a variety of housing ranging from townhouses, villa homes, single family homes and multi-million dollar lake homes. Within the past year or so we have added commercial property to include a grocery store, Caribou Coffee, a liquor store and a several hundred unit apartment complex. Additionally, there are a couple other areas in the city currently zoned for multi-family development. None of these areas are prone to hazards.

E.10: New Hope

As an inner-ring suburb of Minneapolis, the city of New Hope is largely developed, with limited opportunities for further development. However, New Hope continues to pursue opportunities for redevelopment in all areas and has seen growth in commercial, industrial, and single-family housing areas, despite some slowing during the COVID19 pandemic. Single-family home values have risen steadily the past few years, increasingly the valuation of property for homeowners and slowly growing the overall tax base of the city. The city's population has held steady around the 21,000 mark for several years, and population diversity remains relatively steady year-over-year.

A new consideration for the community to incorporate into vulnerability planning is the addition of a new residential development. This development was completed on a 8.7 acre site, consisting of 32 single-family homes near a known Burlington Northern Santa Fe (BNSF) freight railway, which does transport hazardous materials, including crude oil. Continued development and redevelopment near this transport site is a consideration going forward.

E.11: Plymouth

The City of Plymouth has recently developed the Hollydale Golf Course into a residential neighborhood. This 160-acre development is located east of Holly Lane N between the 4600-block and the 5900-block. There are 231 lots for single family homesThere are no hazard prone areas in this new development. Enclave mixed use project is currently under construction. The property is located along Bass Lake Rd, west of Hwy 169 and consists of 19 acres. The project will contain commercial, office and mixed use retail/residential. There are no known hazard prone areas in this development.

Parkera and Twin Cities Orthopedics: is currently under construction and is a redevelopment site of Dundee Nursery. The site was remediated during initial construction and there are no known hazards. When complete the site will have a 70,00 Square Foot medical building (complete/TCO) and a 210 unit multi-family building with 428 parking spaces (bus transit).

E.12: Robbinsdale

Recent development in Robbinsdale can be characterized as redevelopment of obsolescent or underutilized commercial and office properties for high density multiple family uses. No building occurred in any hazard prone areas and there was no impact to vulnerable populations.

E.13: Rogers

Residential Development

The City has seen approximately 2000 new single family lots be platted/subdivided (available for construction, not necessarily built) over the past 5 years.

New Single Family and Townhome permits

- 265 new homes (single/townhomes) constructed in 2023.
- 226 in 2022
- 256 in 2021
- 141 in 2020
- 83 in 2019

Apartments

- 2019-2021 – Vincent Woods apartments constructed with 165 units.

- 2022 - The Frederik apartments were constructed with approximately 175 units.
- 2023 - Territorial Lofts constructed on Territorial Road, 75 units
- 2022 - Quest Apartments constructed on 137th Avenue North, 135 units.

Commercial Development

- Endeavor Distribution Center (Brockton Lane)
- Graco expansion, 440,000 sq ft of industrial expansion of existing Graco facility. (David Koch)
- Capitol Beverage Expansion (South Diamond Lake Rd)
- Freddy's/Dunkin strip mall (Main Street)
- 21st Century Bank (Rogers Drive)
- I-State Trucking (CR81)
- Rogers Tennis Club (James Rd)
- Primrose Daycare (South Diamond Lake Rd)

Construction of Norbella Senior Living and Memory Care development (40 units) could introduce new vulnerable populations to the community on South Diamond Lake Road.

No recent developments are in a floodplain.

HENNEPIN COUNTY
MINNESOTA

2024 HENNEPIN COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

VOLUME 2
Hazard Inventory

01 February 2024

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SECTION 1	HAZARD CATEGORIES AND INCLUSIONS

1.1.1. Risk Assessment Process

Risk from natural hazards is a combination of hazard and vulnerability. The risk assessment process measures the potential loss to a community, including loss of life, personal injury, property damage and economic injury resulting from a hazard event. The risk assessment process allows a community to better understand their potential risk and associated vulnerability to **natural, intentional human-caused and unintentional human-caused hazards**. This information provides the framework for a community to develop and prioritize mitigation strategies and plans to help reduce both the risk and vulnerability from future hazard events.

This section describes the natural hazards that have had historical impact within Hennepin County and assesses their associated risk with future impact. There are 19 hazards that have affected Hennepin County and are identified and defined in terms of their range of magnitude, spectrum of consequences, potential for cascading effects, geographic scope of hazard, historical occurrences, and likelihood of future occurrences. There were no hazards eliminated in this revision **TABLE 1.1A** was created to meet FEMA guidance.

TABLE 1.1A B1a

Eliminated Hazards in 2024
There were no hazards eliminated in this revision

In addition, a thorough geospatial risk analysis was conducted using locally available parcel data and building values. Further, maps were provided where hazard boundaries and data existed. These improvements help to provide a more accurate assessment of risk in the county to develop mitigation actions.

1.1.2. FEMA Risk Assessment Tool Limitations

In 1997, FEMA developed the standardized Hazards U.S., or HAZUS model to estimate losses caused by earthquakes and identify areas that face the highest risk and potential for loss. HAZUS was later expanded into a multi-hazard methodology, HAZUS-MH, with new models for estimating potential losses from wind (hurricanes) and flood (riverine and coastal) hazards.

HAZUS-MH is a Geographic Information System (GIS) based software program used to support risk assessments, mitigation planning, and emergency planning and response. It provides a wide range of inventory data, such as demographics, building stock, critical facility, transportation and utility lifeline, and multiple models to estimate potential losses from natural disasters. The program maps and displays hazard data and the results of damage and economic loss estimates for building and infrastructure.

However, due to the limitations of the software (only estimates losses for earthquakes, hurricanes, and floods), Hennepin County did not use this software in 2018 or this new update in 2024. To estimate losses, Hennepin County Emergency Management used the Hennepin County Critical Infrastructure and Facilities Critical Facility Index (CFI) Priority Ranking Aid. This CFI was provided to municipalities, Hennepin County Departments, and special jurisdictions to assist in identifying critical infrastructure and facilities in their

community and estimate the potential losses. This CFI considers all hazards that were identified in the Risk Assessment.

1.1.3. Justification of Hazard Inclusion

TABLE 1.3A provides the types of natural hazards that have been identified through analysis and assessment.

TABLE 1.3A. Natural Hazards B1a

Natural Hazards	Types	Justification for Inclusion
Geological	Landslide	Countywide vulnerable area, especially where steep slopes are located, and heavy saturation occurs.
	Sink Hole	History of occurrences, poses danger to population and property
	Soil Frost	History of occurrences that have caused infrastructure damage
	Volcanic Ash	Historic volcanic eruptions (western states) have spread ash into Hennepin County. Future occurrences may also impact the county
Meteorological	Climate Change	There has been climate research done at the international level through the Intergovernmental Panel on Climate Change (IPCC) and local through the Minnesota State Climatology Office.
	Tornado	Hennepin County has a strong history of tornadoes dating back to 1820. This hazard is a consistent threat to both life safety and property
	Winds, Extreme Straight-Line	Hennepin County has a strong history of derecho's dating back to 1904. The Storm Prediction Center (SPC) also highlights Minnesota as being highly impacted by derecho activity during the summer months.
	Hail	Hailstorms occur during severe convective storms and are an annual occurrence in Hennepin County. Very large hail has been recorded back as far as the National Weather Service has compiled data (1950). These storms pose a significant threat to people and infrastructure.
	Lightning	Lightning is a regular occurrence and is associated with thunderstorm activity. Hennepin County has a history of lightning deaths as well as damage to property and infrastructure
	Rainfall, Extreme	Hennepin County has had a history of extreme rainfall events, and the occurrences are becoming much more frequent. The State Climatology Office has published sixteen-year research

		documents on Minnesota flash floods caused by extreme rainfall.
	Heat, Extreme	Extreme heat is an annual occurrence in Hennepin County and there have been several historic heat waves that have caused both deaths and injuries to our residents.
	Drought	Several historic droughts have occurred across Hennepin County dating back to 1863. These events cause severe impacts on agriculture and the economy as well as increasing wildfire potential.
	Dust Storm	Hennepin County has a history of dust storms going back to the 1930's. These days' dust storms are the cascading events of extreme drought.
	Cold, Extreme	Extreme cold temperatures are an annual occurrence in Hennepin County, with historic outbreaks dating back to the 1800's. These events pose significant threat to people and infrastructure.
	Winter Storm, Blizzard/Extreme Snowfall	Hennepin County has a history of winter weather dating back to the late 1800's. Varying degrees of severity occur in Hennepin County due to the different topography, with the worst conditions occurring in western Hennepin County.
	Winds, Non-Convective High	Although rare, extreme wind-producing non-convective event may affect well over 100,000 square miles with wind damage, and may produce extreme impacts over tens of thousands of square miles
	Ice Storm	Several ice storms have occurred in Hennepin County dating back to the 1930's. These storms have caused great impact to infrastructure and people. The cascading effect of power outages is another threat that has occurred with past ice storms.
Hydrologic	Flooding, River	Several historic flood events have occurred due to the Mississippi, Crow, and Minnesota River in Hennepin County.
	Flooding, Urban	Urban flooding is a consistent problem in Hennepin County, due to torrential rainfall associated with thunderstorm activity.

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SECTION 2	DISASTER DECLARATION HISTORY AND RECENT TRENDS

2.1. Disaster Declaration History

One method to identify hazards based upon past occurrence is to look at what events triggered federal and/or state Disaster Declarations in Hennepin County. Disaster Declarations are granted when the severity and magnitude of the events impact surpass the ability of the local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. If the disaster is severe enough that both the local and state government's capacity is exceeded, a Federal Declaration may be issued, allowing for the provision of Federal disaster assistance.

It is important to note that the Federal government may issue a Disaster Declaration through the U.S. Department of Agriculture (USDA) and/or the Small Business Administration (SBA), as well as through FEMA. The quantity and types of damages are the determining factors. Listed below in **TABLE 2.1A** are the previous Disaster Declarations that are of concern to Hennepin County. There have been six presidential declarations since 2010.

TABLE 2.1A. FEMA Declared Disasters (1965-2023)

Date	Disaster Type	Assistance Type	Disaster Number
April 7, 2020	Minnesota Covid-19 Pandemic	Individual/Public Assistance	DR-4531-MN
March 13, 2020	Minnesota Covid-19	Public Assistance	EM-3453-MN
November 2, 2016	Severe Storms and Flooding	Individual Assistance	DR-4290-MN
July 21, 2014	Severe Storms, Straight Line Winds, Flooding, Landslides, and Mudslides	Public Assistance	DR- 4182-MN
July 25, 2013	Severe Storms, Straight Line Winds, and Flooding	Public Assistance	DR- 4131-MN
June 7, 2011	Severe Storms and Tornadoes	Public Assistance	DR- 1990-MN
March 19, 2010	Flooding	Public Assistance	EM- 3310-MN
August 21, 2007	I-35W Bridge Collapse	Public Assistance	EM-2378-MN
September 13, 2005	Hurricane Katrina Evacuation	Public Assistance	EM- 3242-MN
May 16, 2001	Flooding	Individual Assistance	DR- 1370-MN
June 23, 1998	Severe Storms, Straight-Line Winds and Tornadoes	Public Assistance	DR- 1225-MN
August 25, 1997	Flooding	Individual/Public Assistance	DR1187-MN
April 8, 1997	Severe Storms/Flooding	Individual/Public Assistance	DR- 1175-MN

August 6, 1987	Severe Storms, Tornadoes, Flooding	Individual/Public Assistance	DR- 797-MN
July 8, 1978	Severe Storms, Tornadoes, Hail, Flooding	Individual/Public Assistance	DR- 560-MN
June 17, 1976	Drought	Public Assistance	EM-3013-MN
April 18, 1969	Flooding	Individual/Public Assistance	DR- 255-MN
April 11, 1965	Flooding	Individual/Public Assistance	DR-188-MN

TABLE 2.1B. FEMA Declared Disasters (2019-2023)

Date	Disaster Type	Declaration Number
February 21, 2023	Severe Winter Storm	EO 23-02
April 12, 2021	Civil Unrest	EO 21-17
August 26, 2020	Civil Unrest	EO 20-87
May 28, 2020	Civil Unrest	EO 20-64
March 13, 2020	Pandemic	EO 20-01
April 11, 2019	Flooding	EO 19-30

SECTION 3	CLIMATE ADAPTATION CONSIDERATIONS

3.1.1. Climate Adaptation

Climate includes patterns of temperature, precipitation, humidity, wind, and seasons. Climate plays a fundamental role in shaping natural ecosystems and the human economies and cultures that depend on the. Climate adaptation refers to the ability of a system to adjust to climate change to moderate potential damage, to take advantage of opportunities, or to cope with the consequences. *The International Panel on Climate Change* (IPCC) defines adaptation as the "*adjustment in natural or human systems to a new or changing environment*". Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

3.1.2. Hennepin West Mesonet (HWM)

In order to adapt to climate change, Hennepin County has built the Hennepin West Mesonet, a network of remote sensors which provide highly accurate, near real-time measurements of weather, soil and water conditions. Recent experiences across the Twin Cities metro area reveal a long-standing vulnerability to dangerous weather or human-caused conditions that form very quickly without clear advance indications. Fatal tornadoes in Rogers, MN (*2006*) and in North Minneapolis, MN (*2011*) both point to a need for more complete and rapid surface observations from a network of sensors spread across the area. A fatal landslide in Saint Paul, MN (*2013*) also shows that near real time soil temperature and saturation data across the metro could be useful in providing alerts for evolving dangerous conditions. Other vulnerabilities exist in our area to rapid-onset flash flooding, straight-line winds or hazardous materials releases which require many sensors with quick detection capability to provide useful public warning or evacuation decision-making.

The Hennepin West Mesonet delivers normal at different temporal resolutions, thus providing more precise climate monitoring. Through climate monitoring, the HWM provides an essential service and benefit of observing and precisely detecting impacts on the environment and ecosystems both at the geospatial and temporal scale in Hennepin County. Archived data and current observations provide consistent and high-quality information from decision-makers and researchers, information that can be utilized for development of research and prediction models, improving understanding of climate variability, advancing public climate education, and supporting development of mitigation and/or adaptation measures for local communities.

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SECTION 4	COMPREHENSIVE NATURAL HAZARD ASSESSMENTS

NATURAL HAZARD PROFILES

4.1. Geological Hazards

4.1.1.	Hazard Assessment: LANDSLIDES

4.1.1.1. Definition. A landslide is the downward movement of rock, soil, or other debris along a slope. Other terms used for landslides are debris flow, earth flow, mudslide, slump, slope failure, mass wasting, and rock fall. The rate of landslide movement ranges from sudden to very slow and may involve small amounts of material up to very large amounts. The kinds of movement include falling, sliding, and flowing. Material can move as an intact mass or become significantly deformed and unconsolidated. The slopes that have landslides can range from near vertical to gently rolling with slopes above 30% having the highest susceptibility.



4.1.1.2. Range of magnitude

Further work is needed among the Hennepin County landslide assessment team to develop range of magnitude.

4.1.1.3. Spectrum of Consequences B2b

4.1.1.3.1. PRIMARY CONSEQUENCES:

4.1.1.3.1.1. Transportation: Mobility is frequently stopped or slowed by landslides. When at the foot of slopes, roads and highways can be impacted by fallen rock, soil flows and landslide debris. When routes are at the crest of slopes, surfaces may be undercut by slides and fall away leaving voids and gaps in the road. Railroads are similarly impacted by landslides. The practice of cut and fill in road and rail grade construction can increase susceptibility to this problem. Besides direct damage to surface transportation routes, secondary impacts can occur if vehicles carrying hazardous materials rupture if struck by slides.

4.1.1.3.1.2. Electric utilities: Electric service lines often follow alongside roads, including their routes through valleys and ravines or along the crests of slopes. This makes them vulnerable to disruption from landslides. Cut power lines are a frequent feature of landslide activity. Landsides impact both lines suspended from utility poles and buried power lines.

4.1.1.3.1.3. Water, sanitary and storm sewer services: Cracked, broken or leaking water or sewer lines often have a significant role in triggering landslides in susceptible areas.

Inspections and maintenance of lines in vulnerable locations should be a priority to reduce risk. Water and sewer lines are also vulnerable to damage and destruction by landslide events.

4.1.1.3.1.4. Energy pipelines: Gas lines and other energy pipelines that pass-through landslide susceptible areas may become weakened or severed by slide action. Damages may be caused by direct physical impacts or by indirect transmission of stresses through soil to the pipeline causing weaknesses or deformation of the lines.

4.1.1.3.1.5. Telecommunications: Telecommunications cables that pass-through landslide susceptible areas may become weakened or severed by slide action. Damages may be caused by direct physical impacts or by indirect transmission of stresses through soil to the cable causing weaknesses or deformation of the lines. Fiber optic lines are particularly susceptible to deformation which can cause erratic signals or total signal loss.

4.1.1.3.1.6. Structural damage: Landslides impacts to structures ranges from rapid catastrophic destruction resulting from a landslide impact to gradual degradation of structures from slow earth movements. Complex load factors act on structures that are subject to landslide forces. Engineering assessment of compromised structures is vital to both response and recovery phases of a landslide incident. Landslide impacts to structures is both a life-safety hazard and can also be an occasion for costly property damage.

4.1.1.3.1.7. Recreational impacts: Parks and trails are frequently placed in areas subject to landslides. Often parks or trails are in scenic areas in ravines or valleys associated with rivers with natural slopes being a main feature. They may also be part of former railroad rights-of-way that have been abandoned. Human-modified slopes or other historic disruptions of natural soils and terrain can elevate landslide susceptibility in parklands. Slides in parks and trails is a risk to lives and safety, as well as a costly disruption to recreation activities.

4.1.1.3.2. SECONDARY CONSEQUENCES:

4.1.1.3.2.1. Hazardous material spill or release: If cut by a landslide, pipelines may release hazardous liquids or gasses, or polluting materials that can threaten lives, impact property or harm the environment as a secondary hazard after the landslide.

4.1.1.3.2.2. Fire or explosion: In certain instances, landslides may trigger fires or explosions at the site of buildings or other impacted structures, or where pipelines or service lines carrying gas or other flammable material.

4.1.1.4. Potential for Cascading Effects

4.1.1.4.1. Life-Safety: Landslides can result in deaths and have done so in Hennepin County (1955) and adjacent metro counties (2013). Injuries have resulted in numerous other instances, as well as close calls. The landslide at Fairview-Riverside hospital in Minneapolis (2014) narrowly missed pushing passing motorists on West River Road into the Mississippi River, for instance.

4.1.1.4.2. Infrastructure Destruction: Landslides can impact many kinds of critical infrastructure. Linear infrastructure such as roads, highways, railroads, pipelines, electric power lines and telecommunications cables are particularly vulnerable to slides that cross their paths. Water and wastewater infrastructure is not only vulnerable to slides as a linear system but may also help trigger landslide activity if a break occurs in water, sewer or storm sewer lines at sites that have other susceptibility factors. Point infrastructure located at susceptible sites anywhere between the crest to the foot of slopes are also vulnerable.

4.1.1.4.3. Property Damage: Homes and businesses have been damaged or destroyed by landslides in Hennepin County and surrounding counties. Lack of detailed landslide investigations and awareness in some cases have led to development on susceptible terrain. The fact that landslides are not covered by insurance policies has led to often catastrophic financial losses for homeowners and businesses that are hit. Expensive litigation has also often resulted from these incidents between property owners and cities.

4.1.1.5. Geographic Scope of Hazard B1c

Landslide activity depends on certain localized factors (see above critical values) that result in an uneven distribution of landslides across Hennepin County. In general, Hennepin County landslide activity occurs in the valley walls of the Minnesota, Mississippi and Crow Rivers and their tributaries. Some of the exposed glacial sediments and bedrock layers in these valleys are unstable and subject to precipitation or spring-induced landslides. In the interior of Hennepin County, small landslides happen in steep slopes in glacial sediments that are found along streams, ravines, lakeshores, and wetlands. Artificially steepened slopes, often with disrupted soils and fills, also have been sites for landslides in Hennepin County. A Hennepin County Landslide Hazard Atlas is in development and is set for release in late 2018.

4.1.1.6. Chronologic Patterns

Further work is needed among the Hennepin County landslide assessment team to develop Chronological Patterns

4.1.1.7. Historical Data B1d

4.1.1.7.1. HISTORICAL RECORD: Hennepin County Emergency Management commissioned an assessment of historic landslide activity in the county using archival data and historic news accounts. There are around two dozen landslides in Hennepin County that were documented in written accounts including a known location and date.

- June 19, 2014 (DR-4182)
- June 1, 2014
- April 2014
- May 22, 2013

4.1.1.7.2. PRE-HISTORIC EVIDENCE: Hennepin County Emergency Management commissioned an assessment of pre-historic landslide activity in the county using LiDAR (Light Detection and Ranging) imagery. There are over one thousand sites in Hennepin County with landslide evidence that have been discovered through imagery analysis.

4.1.1.8. Future Trends B1e

4.1.1.8.1. TRENDS AND PROJECTIONS: The most significant trigger for landslide activity in Hennepin County is precipitation. Documented trends in precipitation in Minnesota, as well as projections into the future show an increase in overall rainfall, plus an increase in intense precipitation events. Recent landslide activity in Minnesota and Hennepin County has risen. It appears likely that landslide activity will continue to grow in tandem with precipitation trends.

4.1.1.8.2. EVENT PROBABILITIES: More analysis of the recently developed data is needed to determine landslide event probabilities in Hennepin County.

4.1.1.9. Indications and Forecasting

Further work is needed among the Hennepin County landslide assessment team to develop modeling and forecasting methods.

4.1.1.10. Detection & Warning

Additional work is needed among the Hennepin County landslide assessment team to develop detection and warning criteria. Indications of changes in key factors will be accomplished in large part by the Hennepin-West Mesonet network of environmental sensors.

4.1.1.11. Critical Values and Thresholds

4.1.1.11.1. Slope. Also called the angle of repose, slope is a critical factor for landslide susceptibility. In Hennepin County, landslide activity starts to increase above 20% slope, and is most numerous on slopes between 30-40%. Slopes may be either natural or artificially created by human activities.

4.1.1.11.2. Soil type: Soil type is important to landslide susceptibility for several reasons. Differences in the porosity and permeability of soils is important since it describes the degree to which soil types will either slowly retain or quickly shed water. Other characteristics such as soil structure may contribute to slope failure. Many soils in Hennepin have been disrupted or altered in some way by human activities.

4.1.1.11.3. Soil moisture: Soil moisture is a critical factor in Hennepin County landslides. Among other things, when water replaces air within soil pores, the overall weight of the soil increases. Increasing the weight of near surface soils can increase the likelihood of the material moving downslope and forming a landslide. The Hennepin County landslide assessment is developing specific soil moisture criteria for alert purposes.

4.1.1.11.4. Precipitation. Precipitation is one of the most critical factors in triggering landslides in Hennepin County. Duration, intensity, and recurrence of precipitation are important elements in precipitation-initiated landslide events. The Hennepin County landslide assessment is developing specific precipitation thresholds for alert purposes.

4.1.1.11.5. Springs. Springs discharge water along slopes, increasing erosion and helping to trigger landslides. Springs in Hennepin have been mapped in detail.

4.1.1.11.6. Bedrock. The depth from the surface to bedrock is an important factor in some kinds of slides. Exposed bedrock is required for rock falls for instance. A shallow depth to bedrock may also facilitate flows and other forms of slides as well.

4.1.1.11.7. Surface conditions: Vegetation on slopes usually assists in stabilizing them against failure. Plants with deep root systems, often native species, are recommended to help slow slope erosion. Conversely, removal of vegetation that results in bare and exposed soil increases the risk of landslides and mudslides.

4.1.1.11.8. Soil temperature: The action of winter and spring freeze-thaw cycles seems to help trigger some rock falls or topples. Thus, these types of landslides are the only ones that appear to happen outside of the normal rainfall/thunderstorm season of Hennepin County. The freeze-thaw cycles allow water, trapped in voids and crevices in rock, to expand and push rock apart, sometimes triggering a fall.

4.1.1.12. Prevention

Further work is needed among the Hennepin County landslide assessment team to develop prevention methods.

4.1.1.13. Mitigation

4.1.1.13.1. Avoidance (Prevention). The most effective mitigation measure against landslide fatalities, injuries, infrastructure disruption and property loss are avoiding development and certain human activities at sites prone to landslides. This is a preventive action. Avoidance may be accomplished through evidence-based zoning policies that utilize local area landslide hazard assessments that trigger site-specific landslide investigations when appropriate if development or other uses are proposed at sites inside identified hazard zones. Specific actions include avoiding cutting into slope sides or at the food of slopes, and not placing excessive weight on the top of slopes by erecting structures there.

4.1.1.13.2. Education and public alerts. Education of zoning officials, landowners and need accurate local information in order to make sound decision regarding their development and activities in landslide susceptible terrain. A simple knowledge of landslide risk also sets the foundation for appropriate action when a public alert is issued. Public alert thresholds, messages and distribution methods must be developed.

4.1.1.13.3. Active mitigation methods. Geometric methods include changes in slope angle to reduce the chances of landslides. Hydrological methods consider surface, shallow and deep-water drainage and attempt to improve the ability of landslide-susceptible sites to drain water effectively. Finally, mechanical methods include the use of rock anchors, netting, retaining walls, or pilings. In general, these methods are expensive and are suitable only of sites of limited size in areas where development is of high importance.

4.1.1.14. Response

Further work is needed among the Hennepin County landslide assessment team to develop Response

methods.

4.1.1.15. Recovery

Further work is needed among the Hennepin County landslide assessment team to develop Recovery methods.

4.1.1.16. References

4.1.2.	Hazard Assessment: SINKHOLE

4.1.2.1. Definition.



A **sinkhole** is a bowl-shaped depression in the land surface. Sinkholes are also called **subsidence**, which is a downward settling of the surface without any horizontal movement. Sinkholes result from natural processes where near-surface carbonate bedrock is dissolved by water to form underground spaces, also called voids. These voids typically form along existing joints or cracks in the rock that aid the movement of water. Some voids grow toward the surface where infiltrating surface waters meet and flow downward into the drain of the void. This action weakens the rock. Eventually, the weight of overlying materials can result in a collapse. Areas favorable for sinkhole development are called **karst** terrain. Certain human activities may speed up the natural sinkhole processes in karst areas. Human activities outside of normal karst terrain can also trigger unexpected human-caused ground collapses in materials not usually prone to sinkholes.

4.1.2.2. Range of magnitude

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored sinkhole hazard assessment in 2020.

4.1.2.3. Spectrum of Consequences B2b

4.1.2.3.1. PRIMARY CONSEQUENCES:

Sinkholes and other land subsidence can cause significant direct damage to buildings, roads, water supply systems and other infrastructure. The loss of land usable for farming or other development is another consequence of sinkhole activity. Finally, groundwater contamination is a significant consequence of karst and sinkhole activity. Subsurface water flow in karst areas creates a situation where surface water, along with their contaminants, quickly travel deep into aquifers without significant filtration. The problem is worsened when people use sinkholes as garbage dumps, which was formerly a common practice in the United States.

4.1.2.3.2. SECONDARY CONSEQUENCES:

4.1.2.3.2.1. Disease. Dumping of wastes into sinkholes maybe a source of disease. A disease outbreak in Harmony, Minnesota (Fillmore County) was traced to a sinkhole used as a disposal point for human waste.

4.1.2.3.2.2. Dam failures. There have been instances of dams and other water-control infrastructure being undermined by sinkholes and other karst activity.

4.1.2.3.2.3. Fires or explosions. When structures, or infrastructure such as pipelines are impacted by sinkholes and gas lines are compromised, fires and explosions are possible.

4.1.2.4. Potential for Cascading Effects

In Minnesota, most sinkholes are in rural areas and develop very slowly. These sinkholes are not dangerous, and they do not cause much destruction except for the loss of crop land. When sinkholes happen in developed urban areas however, they have the potential to be much more costly and, in some cases, even dangerous. The active karst areas in southeast Hennepin County are in places with concentrated developments of housing, businesses, schools and infrastructure. The potential for destructive sinkhole events in Hennepin County has not been adequately assessed. Hennepin County Emergency Management is initiating a study of sinkhole hazards in the county that is expected to be complete by 2020.

4.1.2.5. Geographic Scope of Hazard B1c

The southeastern three-quarters of Hennepin County is underlain by carbonate bedrock and is karst terrain. The western and northern limits of this area begin in the south around Excelsior and extend northward into Medina, then eastward into Brooklyn Center. Most of this area is comprised of *covered karst* which has overlying glacial material more than 100 feet in depth. An area with pockets of *transitional karst* which has overlying glacial material between 50 and 100 feet thick is roughly bounded in the south by Edina, west to Wayzata, and northeast to Brooklyn Center. *Active karst* is found in mostly along the Mississippi River from North Minneapolis south to Fort Snelling. Scattered outlying pockets of active karst can be found westward from Golden Valley south to St. Louis Park. Active karst areas have less than 50 feet of overlying material covering them.

Note: Other types of land subsidence are directly caused by human activities and are dealt with in the human-caused, industrial/technological section of this hazard assessment. These include water or sewer system breaks that cause sinkholes or collapse of underground tunnels.

4.1.2.6. Chronologic Patterns

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored sinkhole hazard assessment in 2020.

4.1.2.7. Historical Data B1d

The Seven Oaks Park in south Minneapolis is a sinkhole. The surface depression is approximately 300 feet wide and over 20 feet deep. The time of formation of the sinkhole is unknown but predates the construction of the structures around it. Seven Oaks Park is located between E 34th Street and E 35th Street at 47th Avenue South in Minneapolis (USNG 15T VK 83754 76384). Other possible sinkholes are nearby but await more definitive confirmation.

There have been no other naturally caused incidents that are within the scope of this plan.

4.1.2.8. Future Trends B1e

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored sinkhole hazard assessment.

4.1.2.9. Indications and Forecasting

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored sinkhole hazard assessment in 2020.

4.1.2.10. Detection & Warning

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored sinkhole hazard assessment.

4.1.2.11. Critical Values and Thresholds

4.1.2.11.1. Bedrock material: Areas susceptible to sinkholes (karst terrains) are underlain by water-soluble, but relatively impermeable bedrock such as limestone (calcium carbonate). Soluble rocks dissolve when exposed to certain acids, including acidic water. Over time, acidic water flowing through joints and cracks will dissolve and remove large amounts of soluble rock creating many void spaces. In more unusual instances, sandstones or even quartzite may develop sinkholes. In these cases, the bedrock is more permeable, but less soluble. Slower sinkhole development may occur in these rocks.

4.1.2.11.2. Water acidity: Acidic surface water and groundwater is required for natural sinkhole formation as the agent that dissolves soluble bedrock. Pure water has a pH of 7.0, which is neutral – neither acidic nor base. However, water in nature is not pure. Instead, it contains natural impurities which make it acidic. Unpolluted rainwater has a pH of around 5.6 (acidic). Rainwater in Minnesota contains atmospheric pollutants which further lower the pH, increasing acidity. Once at the surface, water can become further acidified by exposure to nitrogen fertilizers or other chemicals. When this water infiltrates into the bedrock it begins to gradually dissolve any carbonate rocks.

4.1.2.11.3. Bedrock depth: For a void to cause a collapse of the overlying surface material it must be close to the surface. *Active karst* areas have carbonate bedrock less than 50 feet below the surface. *Transitional karst* areas have carbonate bedrock covered by material between 50 and 100 feet. In some instances, sinkholes can occur in these conditions as well. *Covered karst* areas have more than 100 feet of overburden. Sinkholes are unlikely to develop in such deep conditions.

4.1.2.11.4. Bedrock topography. Once water penetrates the soil, it will arrive at the bedrock layer. Typically, the bedrock is much less permeable than the overlying unconsolidated soils which promotes lateral water flow. The water will flow according to the topography of the bedrock finding crevices and valleys that collect water until a penetration point can be found into the bedrock.

4.1.2.11.5. Joints, fractures, and bedding planes: These features provide easy routes for water to travel through the rock. As water moves through this network of joints, fractures and bedding planes, chemical action of the acidic water dissolves the bedrock. Joints and fractures are often oriented in parallel and perpendicular patterns. Because of this, voids and sinkholes also are often aligned to follow these patterns.

4.1.2.11.6. Water table: Fluctuations in ground water levels can affect sinkhole activity. Abrupt

changes in ground water level can induce sinkholes. Ground water drawdown often increases sinkhole activity.

4.1.2.11.7. Construction and development. Human development activities that add extra weight and pressure to land surfaces by construction of new buildings and other infrastructure may accelerate sinkhole formation. The alteration of surface and subsurface drainage flows due to human development may also accelerate sinkhole formation by increasing the flow of water through sinkhole drains. Water and sewer lines in karst areas are susceptible to damage from sinkholes and other land subsidence. When water or sewer lines leak or break, the released water may enter sinkhole systems and quickly enlarge voids, accelerating sinkhole formation.

4.1.2.12. Prevention

4.1.2.12.1. Avoidance The most effective prevention/mitigation measure against sinkhole fatalities, injuries, infrastructure disruption and property loss are avoiding development and certain human activities at sites prone to sinkholes. This is a preventive action. Avoidance may be accomplished through evidence-based zoning policies that utilize local area sinkhole hazard assessments that trigger site-specific sinkhole risk investigations when appropriate if development or other uses are proposed at sites inside identified hazard areas. Zoning-based measures would be challenging in Hennepin County because much of the karst areas have already been developed.

4.1.2.13. Mitigation

4.1.2.13.1. Education. Education of zoning officials, landowners need accurate local information to make sound decision regarding their development and activities in sinkhole susceptible terrain. These require detailed sinkhole hazard maps. HCEM completed its Landslide Hazard Atlas to assist in mitigation, avoidance, and planning response efforts. The atlas was release by 2020.

4.1.2.14. Response

With the completion of the Landslide Hazard Atlas in 2020. Response effort follows five key principles: engage partnerships, have a tiered response, have a scalable, flexible, and adaptable operational capability, unify your effort, and be ready to act. Scene stabilization will be achieved when the immediate threat to life-safety and property damage at the scene have been stopped.

4.1.2.15. Recovery

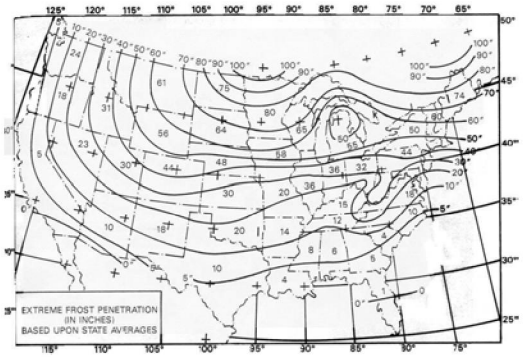
The recovery process begins soon after the incident happens. The objective is to bring households and communities back to normal activities post-disaster. Relief can come from a variety of ways. Public Assistance, Individual Assistance, Emergency Repair, or Permanent Repair.

4.1.2.16. References

Hennepin County landslide Hazard Atlas. (July 2020). https://www.hennepin.us/-/media/hennepinus/residents/emergencies/landslides/landslide-atlas-cover-contents.pdf

4.1.3.	Hazard Assessment: SOIL FROST

4.1.3.1. Definition.



Soil frost is caused when water, which is present as a component of soil, freezes into pore ice. The depth to which this freezing penetrates is called the *deep frost*. Some soils are vulnerable to *frost heaving*, which is the vertical displacement of the surface due to frost expansion or the development of ice lenses. *Melt collapse* happens when the ice lenses melt. These effects can damage roads and building foundations and other infrastructure. Deep penetration of frost can also have a devastating impact on critical buried infrastructure, such as water and wastewater pipes. In extreme cases, fire hydrants and fire sprinkler water supplies may freeze. Hard *impervious frost* layers in the soil also can worsen springtime rain and snowmelt flooding by not allowing water to penetrate the soil and increasing run-off.

4.1.3.2. Range of magnitude

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored soil frost hazard assessment in 2020.

4.1.3.3. Spectrum of Consequences B2b

4.1.3.3.1. PRIMARY CONSEQUENCES

4.1.3.3.1.1. Water utilities: In Hennepin County, water service lines are typically buried between 78 to 90 inches (198.1 to 228.6 centimeters) deep. This depth is usually protecting these lines against freezing. When particularly deep frost is formed, however, water service lines may freeze, cutting off water services to residences, businesses, and government facilities. Bottled water delivery is often the response of choice while awaiting water service restoration. Water service freezing not only stops the flow of potable water to an address, it may also interrupt fire protection systems such as sprinklers or standpipes. Water mains, which are buried deeper than service lines, are less likely to freeze. If they freeze, then fire hydrant services also are interrupted. Thawing frozen water lines is difficult and time consuming. It requires special equipment and experience. Some methods may cause structural fires. In widespread instances of frozen water lines, service may be cut for days to weeks. Without intervention, frozen water service lines in Hennepin County would thaw by May. Service line freezing may be prevented by keeping a pencil-sized flow of cold tap-water always moving through the system. Prevention is usually done at the request of the local water utility.

4.1.3.3.1.2. Wastewater services: In general, municipal sewer lines have similar depth requirements as water service lines to prevent frost damage or disruption. Sewer lines typically have fewer freeze problems during deep frost events than water lines, however. Rather than frost causing problems for municipal sewer systems, a bigger issue seems to be impacts to household septic systems.

4.1.3.3.1.3. Energy pipelines: Gas and other pipelines are vulnerable to the effects of frost. According to data from the Pipeline and Hazardous Materials Safety Administration (PHMSA), 82% of cold weather failures of distribution pipelines in the US (1984 through 2014) were caused by frost heave.

4.1.3.3.1.4. Communications: Buried fiber optic cables are susceptible to impacts from frost. This occurs when water that has infiltrated the fiber optic conduit freezes. The most vulnerable areas where sites were cables were shallow or exposed near bridges. While freezing has no impact on copper cables, fiber optic cables may be bent by the expansion of the ice. Various levels of signal degradation may occur, including complete failure. As a countermeasure, some communication companies have injected their conduit with anti-freeze compounds.

4.1.3.3.1.5. Structural damage: Frost heave of soils can cause significant damage to structures including cracked foundations or slabs and other effects from ground movement.

4.1.3.3.1.6. Transportation: Roads and highways are impacted frost action. Differential frost heaves are creating blisters in pavement that leads to cracking and potholes. Frost can block proper drainage and lead to additional problems. Road load-bearing capacity is affected by freeze-thaw cycles.

4.1.3.3.2. SECONDARY CONSEQUENCES:
Frost induced breaks in gas or oil pipelines can cause fires or explosions.

4.1.3.4. Potential for Cascading Effects

4.1.3.4.1. Specific sites. Deep frost can impact buried infrastructure that carry water, wastewater, energy or communications causing service interruption by freezing or by physical damage. Frost heaving can also cause damage to buildings and other structures. These damages are highly dependent on localized conditions leading to impacts that area variable from address to address. Frost depth impacts may be widespread but spotty.

4.1.3.4.2. General areas. Deep frost can create a frozen and temporarily impervious layer of soil across wide regions which limits infiltration of snow-melt water and rainwater in springtime. This additional runoff worsens springtime flooding across river basins and stream watersheds.

4.1.3.5. Geographic Scope of Hazard B1c

All areas of Hennepin County and the State of Minnesota are vulnerable to soil frost during winter months. Minnesota and the adjacent state of North Dakota are the center of deep frost activity in the 48 contiguous United States. While frozen soils are routine in all parts of Minnesota, problems occur when frost penetrates deeper than normal. The Minnesota State Building Code (MSBC) Rule 1303.1600 places construction frost depth in Hennepin County at 42 inches (106.7 centimeters).

4.1.3.6. Chronologic Patterns

Unknown, pending conclusion of the Hennepin County Emergency Management-sponsored soil frost hazard assessment in 2020.

4.1.3.7. Historical Data B1d

4.1.3.7.1. Comprehensive. Hennepin County Emergency Management (HCEM) has not yet systematically investigated historical records of local frost depth. Precise frost measurements using frost tubes or other sensors are unlikely to have been conducted anywhere in Hennepin County prior to the HCEM program which started in 2015. The nearest historic soil frost records are probably measurements taken at the University of Minnesota, Saint Paul campus. These St. Paul records are for frost under sod. It is possible that written historical accounts of frost depth and their effects might be found in records of municipal utility providers. These records, if discovered, would probably be for frost under pavement which impacted water lines and other utilities.

4.1.3.7.2. Winter of 2013-2014. The coldest Hennepin County winter since 1978-1979 occurred in 2013-2014 with a sustained three-month cold snap. The mean temperature for the months of December, January and February was 9.8F degrees at MSP airport. The normal for this time period is 18.7F degrees. More snow fell than average during the period as well (57.2 inches three-month total). Most of it fell late in the period. Frost was pushed much deeper than average. Anecdotal reports by public work crews working on frozen water service lines reported frost as deep as 7 to 8 feet in Plymouth. Twelve cities, not including Minneapolis, provided information regarding service interruptions. In these cities were a total of 324 water freeze up incidents, mostly service lines. In addition, 1 hydrant froze, 2 water mains, and 4 sewer lines also became frozen. The longest outages were over one week. Residences, businesses, care facilities, and government buildings were impacted. In several instances, cities had to distribute bottled water to affected residences.

There have been no other naturally caused incidents that are within the scope of this plan.

4.1.3.7.3. Pre-Historic Evidence:
Unknown. HCEM has not found any research regarding pre-historic frost depth in Hennepin County.

4.1.3.8. Future Trends B1e

Undetermined. Climate change is having a significant impact on Minnesota and Hennepin County. Forces generated by climate change are sometimes at odds over the net effect experienced in this area during any winter. For instance, there has been an overall warming trend in Minnesota winters, including a shorter winter season and higher average temperatures. More recently, prolonged outbreaks of extreme cold air have impacted Minnesota and Hennepin County. These include the winter of 2013-2014 and the winters of 2016-2017 and 2017-2018. These cold outbreaks appear to be related to warming in the Arctic that has weakened the Polar Jet Stream. The weakened jet stream is less able to contain cold Arctic air in high latitudes and block it from streaming south. Some scientists theorize that prolonged outbreaks of extreme cold polar air may be a recurring feature of future winters in Minnesota. When coupled with low or no-snow cover conditions, outbreaks of extreme cold may push frost deeper into the soil.

EVENT PROBABILITIES: Unknown. Further research is needed to determine trends and probabilities of future deep soil frost events in Hennepin County.

4.1.3.9. Indications and Forecasting

Additional study is needed to develop deep soil frost event models and forecasts for Hennepin County. Adequate weather forecasting already exists and would certainly be a major factor in any future soil frost forecasts. Better data on the behavior of frost in local soils under various temperature, surface material, soil moisture and snow cover conditions is required to develop models and forecasts. Hennepin-West Mesonet data will provide much of the needed information.

4.1.3.10. Detection & Warning

In 2015, following the disruptive winter of 2013-2014 when hundreds of water service lines were frozen, Hennepin County Emergency Management (HCEM) began to install a network of manually read frost tubes at locations around Hennepin County. When possible, two frost tubes were installed at the same site. One tube was for measuring frost depth under sod, and the other for frost depth under pavement because of the significant differences between the two. Frost tubes are usually located near a Hennepin-West Mesonet sensor station so that weather factors can be compared to the frost depth at the site. The measurements, taken at least weekly, can provide indications that the frost is pushing deeper than normal and is beginning to threaten water and sewer services, fire protection capabilities, and other vital services. When appropriate, HCEM will send out alerts to public works officials that frost may threaten their water and sewer infrastructure.

4.1.3.11. Critical Values and Thresholds

4.1.3.11.1. Air temperature: Air temperatures below freezing (32F/0C) are required to initiate soil frost formation. A freezing index based on degree-days of freezing may be used to roughly estimate frost depth potential in an area.

4.1.3.11.2. Pavement. Human-made surfaces, such as concrete or asphalt roadways create ideal conditions for exceptionally deep frost penetration into soil. The differences between frost depth under paved roads and frost depth under natural sod is large enough to produce a few feet of difference at the same site. Therefore, measurements should specify of they are taken under pavement or under sod. Factors such as the thermal conductivity of pavement and the removal of snow cover combine to push frost deep into the underlying soils. This is important because a lot of buried infrastructure is underneath immediately adjacent to roadways, increasing their vulnerability to frost.

4.1.3.11.3. Surface albedo: Surface albedo is the ratio of irradiance of solar energy reflected to the irradiance of solar energy absorbed by a surface. Asphalt, dark soils, turf grasses and forests have low albedo. Snow cover, sand, and winter prairie grasses have higher albedo. The albedo of the primary surface is important because it influences the snow cover characteristics of the site. Snow cover is a central factor is controlling frost depth.

4.1.3.11.4. Soil type: Different soil types freeze at different rates. Frost tends to penetrate less in clay (heavy textured) soils and more deeply in silty or sandy (lighter textured) soils. Inorganic soils

with >3% by weight of grains finer than 0.02 millimeter in diameter (silts, silty sands, and clays) form frost lenses more easily and have a very high susceptibility to frost heaves.

4.1.3.11.5. Moisture content: Soil moisture effects the initial freezing of soil because of the increased heat capacity and thermal conductivity of the soil surface. The initial freezing point of soil is usually delayed with increasing amounts of soil moisture. As winter progresses, the soils that have started with greater amounts of water filling pore spaces experience greater overall frost depths due to increased thermal conductivity since air is a less efficient conductor of heat than water. Water tables within 10 feet of the surface are a contributing factor for frost heaves.

4.1.3.11.6. Snow cover: The insulating effect of snow cover is a key factor in slowing the penetration of frost into the soil. Each foot of undisturbed snow cover typically reduces the depth of soil freezing by an equal amount. Snow cover is a function of the amount of snowfall received at a location, along with the type of surface material at that location. Darker colored surfaces also tend to help accelerate snow melting and help remove the insulating effect of snow (see albedo). Snow removal on paved surfaces helps to push frost deeper by not allowing insulating snow cover to accumulate.

4.1.3.11.7. Vegetative cover: Like snow, vegetation acts as an insulator to slow frost penetration into the soil. Loose grasses or leaves can form insulating air pockets that reduce the depth that frost can penetrate.

4.1.3.11.8. Geographic location: In general, in Minnesota the average initial soil frost date is earlier with higher latitudes and more westerly longitudes. More northerly latitudes have longer overall frost seasons on average. In Minnesota the change in average freezing date is about 3.3 days per degree of latitude.

4.1.3.11.9. Infrastructure condition. In general, older buried infrastructure such as service lines, pipes and conduits are in a more deteriorated condition than newer infrastructure and are more susceptible to damage from deep frost.

4.1.3.12. Prevention

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2020.

4.1.3.13. Mitigation

4.1.3.13.1. Frozen water lines. Water lines can be protected against *deep frost* by ensuring they are buried to the correct depth. Lines which are already installed can resist freezing by ensuring a constant flow of a small amount of water (pencil-diameter stream from a faucet) flowing in from the service line. Typically, water utilities will request that customers maintain running water at addresses that have had freezing problems in the past.

4.1.3.13.2. Buildings, roads, and infrastructure. When it occurs, typical vertical ground movement due to frost heaves and melt collapse is between 4 to 8 inches. Extreme movement can be up to 24 inches. These ground movements are enough to cause significant damage to human-made structures. Various mitigation measures can protect structures against frost heave and melt collapse. Buildings which are heated rarely experience frost heave problems because of

a portion of the heat is received by the surrounding soil which prevents ice lens formation and heave action. For unheated structures, heaves can be prevented through keeping waters out of freezing zone. Another mitigation method is to ensure soils surrounding structures are those less susceptible to frost problems.

4.1.3.13.3. Distribution pipelines. Pipelines are susceptible to frost heave-produced ground movements. Pipe materials, joining methods, soil conditions and water drainage are all important factors in prevention of damages. In areas susceptible to frost heave damage, pipeline materials should shift away from cast iron and threaded steel pipe and be replaced by plastic of welded steel. Other measures can be taken to reduce the chances of frost damage to pipelines. These include drainage to reduce water in the soil and eliminate standing water over pipelines. Soil conditions may also be modified to reduce susceptibility to ice lens formation.

4.1.3.13.4. Flooding. Deep frost penetration can worsen spring meltwater flooding by preventing soil absorption of snow melt or rainwater. Flood control and management measures must consider the potential for deep frost effects in spring flood scenarios.

4.1.3.14. Response

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2024.

4.1.3.15. Recovery

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2024.

4.1.4.	Hazard Assessment: VOLCANIC ASH

4.1.4.1. Definition.

Volcanic ash consists of tiny particles of jagged rock and natural glass blasted into the air by a volcano. This ash poses threats to human and animal health, aircraft engines, electronics, machinery, electrical power generation and telecommunications. Winds may carry ash thousands of miles, impacting areas and people far away from the volcano itself. Volcanic ash is not the product of combustion, and thus is not like the light ashes made by burning leaves, wood, or coal, for example. Volcanic ash particles are hard rock fragments that do not dissolve in water. Ash is extremely abrasive, mildly corrosive and can conduct electricity when wet.



4.1.4.2. Range of magnitude

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2020.

4.1.4.3. Spectrum of Consequences B2b

4.1.4.3.1. PRIMARY CONSEQUENCES

4.1.4.3.1.1. Aircraft. Aircraft in flight are particularly vulnerable to the effects of exposure to volcanic ash. Often the ash cloud is invisible to the flight crew, and must be detected by the odor of sulfur, or by a haze developing on the windscreen. The electrically charged ash particles can interfere with navigational and flight instruments, and communications equipment. The ash may clog the pitot-static system that indicates airspeed and feeds air to several vital flight instruments. Abrasion by the jagged particles can erode leading edge surfaces, and quickly produce a haze on windscreens so that pilots are unable to see through them. Turbine compressor blades in jet engines can wear quickly. Finally, the low melting temperature of volcanic ash means that the particles liquefy in the ignition chamber of jet engines, but quickly cool in the next engine stage and end up coating engine parts with a glaze of volcanic glass. Engines have failed from ingesting volcanic ash. Repair costs from encounters with ash can cost millions of dollars per aircraft.

4.1.4.3.1.2. Surface transportation. At the surface, ash fall could produce hazardous driving conditions by cutting visibilities when at least 1 millimeter (1/32 inch) of ash accumulates on roadways. Ash fall amounts of accumulation greater than 1 mm (1/32 Inch) also obscure markings on roadways, causing confusion among drivers in the low visibility conditions.

4.1.4.3.1.3. Human health. The main health impact of volcanic ash to people (and animals) are to the respiratory tract and to the eyes. Ash particles less than 100 nanometers in size produce upper airway irritation. Ash particles less than 10 nanometers in size can penetrate deep into the lung and worsen the conditions of those

with various pre-existing lung diseases. Ashes with high crystalline silica content may also increase risk for suture silicosis. Technical analysis is required to determine silica component of the ash.

4.1.4.3.2. SECONDARY CONSEQUENCES:
Unknown at this distance from source volcanoes.

4.1.4.4. Potential for Cascading Effects

Volcanic ash is capable of various degrees of destruction, largely based on the distance it has traveled from the volcano of origin. Ash falling to the surface in areas near the volcano is much coarser and heavier than the ash that winds can carry for hundreds of thousands of miles from the eruption. Since the principle volcanic ash producing threats are located at least 800 miles west of Hennepin County, the destructive potential is restricted to the characteristics of ash that can be wind-transported that far. The most significant impacts at this distance involve the critical safety threat of aircraft flying through invisible high-altitude ash clouds. Sensitive electronic devices including computers, communications equipment, medical devices, and other critical equipment can be damaged by the abrasive and electrically charged particles. Finally, human and animal health impacts can occur because of the effect that the irritating volcanic ash has on the respiratory system and on eyes.

4.1.4.5. Geographic Scope of Hazard B1c

Most volcanic ash is produced during explosive volcanic eruptions. Explosive volcanoes are found along the boundaries of Earth's converging tectonic plates that are converging, such as along the Pacific Rim, sometimes called the Ring of Fire. Other volcanic activity is at mantle plumes, called 'hot spots, which melt through tectonic plates. The closest volcano to Hennepin County is the Yellowstone Caldera, located about 800 miles west, in northwest Wyoming. The belt of volcanoes in the Cascade Range are about 1300 miles west of Hennepin County in eastern Washington State. Prevailing winds from the west set up Minnesota as a potential recipient of ash from volcanic eruptions in the western United States, Canada, and Alaska.

4.1.4.6. Chronologic Patterns

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2024.

4.1.4.7. Historical Data B1d

Several major eruptions have occurred in North America where ash clouds traveled great distances. These include the **Spurr Volcano**, Alaska (27 June 1992); **Mount Saint Helens**, Washington (18 May 1980) and the **Novarupta Volcano**, Alaska (06 June 1912). Ash from the Spurr volcano traveled over Minnesota (see graphic at the beginning of this section) in September 1992.

Pre-Historic Evidence

Some extremely large volcanic eruptions occurred in the geologically recent past in the **Yellowstone Super-Volcano** complex in northwestern Wyoming. The United States Geological Survey estimates an average recurrence rate of explosive volcanic eruptions at Yellowstone to be between 600,000 and 800,000 years. The pervious explosive eruptions have been the **Lava Creek Eruption**, Yellowstone, WY (630,000 years ago); the **Mesa Falls Eruption**, Yellowstone, WY (1.3 million years ago); and the **Huckleberry Ridge Eruption**, Yellowstone, WY (2.1 million years ago). Massive ash falls were generated

by these eruptions.

There have been no other naturally caused incidents that are within the scope of this plan.

4.1.4.8. Future Trends B1e

There is no evidence that typical volcanic activity levels among the volcanoes that pose an ash fall threat to Hennepin County are either increasing or decreasing. These volcanic events happen in geologic time in which eruption recurrence rates of hundreds, thousands or even hundreds of thousands of years are possible.

Event Probabilities: The United States Geological Survey (USGS) has estimated the activity level and eruption recurrence rate of each of the volcanoes in the western United States, Canada, and Alaska.

4.1.4.9. Indications and Forecasting

Volcanic forecasting is the responsibility of the United States Geological Survey and its Volcano Observatories. USGS scientists categorize volcanoes and estimate their explosive potential based on evidence of past eruptions.

4.1.4.10. Detection & Warning

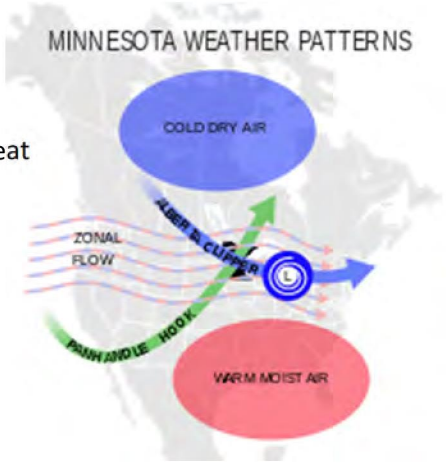
USGS scientists monitor precursor activity and are often able to issue alerts of impending eruptions months or weeks prior to the event. Ash clouds are tracked by the National Oceanic and Atmospheric Administration. The Washington Volcano Ash Advisory Center (WVAAC) is responsible to provide alert and warning services for aviation safety. The Minneapolis Air Route Traffic Control Center (ARTCC) is served by the WVAAC.

4.1.4.11. Critical Values and Thresholds

4.1.4.11.1. Diameter: Ash particles are less than 2 millimeters in diameter down to very extremely small particles of less than 0.001 millimeter. Volcanic ash is lofted high into the atmosphere and can be blown thousands of miles away from the volcano. Larger and heavier particles will fall to Earth much more quickly than smaller and lighter particles which may remain aloft for weeks or longer. Extremely small particles suspended in the air can be invisible to the human eye, yet present hazards to aviation.

4.1.4.11.2. Density: Ash particles have variable degrees of density (pumice, 700-1200 kg/m3; glass, 2350-2450 kg/m3; crystals, 2700-3300 kg/m3; and rock particles, 2600-3200 kg/m3). The high-density ash particles are hard (5 Mohs scale). Window glass and steel have a Mohs hardness of 5.5, for example. Ash particles have sharp edges making them very abrasive.

4.1.4.11.3. Weight: Fallen volcanic ash is heavy and poses a risk to buildings close to the eruption, particularly those with flat roofs. A dry layer of ash 4 inches thick weighs 120 to 200 pounds per square yard, and wet ash weight is usually double the dry totals. Ash weight should not be a threat to Minnesota structures.



4.1.4.11.4. Prevailing winds. Both east-west zonal flow and Alberta Clipper systems bring winds to Minnesota from regions that host active volcanoes.

4.1.4.12. Prevention

Unknown, pending conclusion of the Hennepin County Emergency Management assessment in 2024.

4.1.4.13. Mitigation

4.1.4.13.1. Avoidance. Avoidance of flight through ash clouds is vital to aviation safety. Ash cloud alerts and warnings provide air route control centers the information they need to vector aircraft away from ash clouds.

4.1.4.13.2. Personal protection. Personal protective equipment such as filtration masks and eye protection from covered goggles are needed to avoid some of the health risks posed by volcanic ash.

4.1.4.13.3. Barriers. Sealing off rooms that have sensitive electronics can be done with plastic sheets and duct tape. Covering individual devices may also help protect them against ash.

4.1.4.14. Response

Unknown, pending conclusion of the Hennepin County Emergency Management assessment.

4.1.4.15. Recovery

Unknown, pending conclusion of the Hennepin County Emergency Management assessment.

4.2. Hydrological Hazards

4.2.1.	Hazard Assessment: FLOODING, URBAN

4.2.1.1. Definition



Urban flooding occurs when rain overwhelms drainage systems and waterways and makes its way into the basements, backyards, and streets of homes, businesses, and other properties. As land is converted from fields or woodlands to roads or parking lots, it loses its ability to absorb rainfall. Because of this, densely populated areas are at a high risk for flash floods. The construction of buildings, highways, driveways, and parking lots increases runoff by reducing the amount of rain absorbed by the ground.

4.2.1.2. Range of magnitude

The 10-year average of recent flood damages is about $20 billion. However, some years have run as high as $40 billion.

- Deadliest Flash Flood (Dam Collapse): 1889, Johnstown Pennsylvania: 2,200 people died.
- Deadliest torrential rain flood: July 31, 1976, Big Thompson Canyon, Colorado: 143 people died
- Longest duration: 1993 61 days; The Great Midwest Flood
- Greatest USD Damage: $12 Billion 1993; The Great Midwest Flood

4.2.1.3. Spectrum of Consequences B2b

There are several ways in which storm water can cause the flooding: overflow from rivers and streams, sewage pipe backup into buildings, seepage through building wall and floors, and the accumulation of storm water on property and in public rights-of-way. Sometimes, streams through cities and towns are routed underground into storm drains. During heavy rain, the storm drains can become overwhelmed and flood roads and buildings. Low spots, such as underpasses, underground parking garages, and basements can become dangerous.

The economic, social, and environmental consequences of urban flooding can be considerable. Water quality issues can arise from sewer overflow's debris contamination, fertilizer runoff from agriculture etc.… which affect public health with possible contaminated drinking water and water borne illnesses. The cost of removal of soil from landslides, or sediment deposits from flooding can be high, as well as wildlife habitat reconstruction as wildlife habitat can be ruined by wash out, water contaminates, oxygen loss, or loss of access to food sources.

Chronically wet houses are linked to an increase in respiratory problems, and insurance rates and deductibles may rise to compensate for repeated basement flooding claims. Industry experts estimate that wet basements can lower property values by 10-25 percent and are citied among the top reasons for not purchasing a home. According to FEMA, almost 40 percent of small businesses never reopen their doors following a flooding disaster. Between 2006–2010 the average commercial flood claim made to the NFIP amounted to just over $85,000. Urban flooding also erodes streams and riverbeds and degrades the

quality of our drinking water sources and the health of our aquatic ecosystems.

4.2.1.4. Potential for Cascading Effects

Structures that encroach on the floodplain, such as bridges, can increase upstream urban flooding by narrowing the width of the channel which can cause sediment and debris carried by floodwaters further because the flow is occurring at a higher stage past the obstructions. This can cause channels to become filled with sediment or become clogged with debris causing issues farther upstream from where the initial flooding occurred.

Depending on the extent of the flooding, water quality becomes an issue because it becomes necessary to treat contaminated runoff, but depending on the contaminants present this process can be very costly especially when compared to its benefits. In addition to water quality in the runoff poses issues, if any sewer or water treatment plants have been flooded, homes may now not have access to clean water or working restrooms.

4.2.1.5. Geographic Scope of Hazard B1c

The extent of urban flooding in Hennepin County really depends on an extremely complex set of interactions between the surface and sub-surface drainage networks and features of the environment. Urban flooding can be small in geographic scope as in just a few streets or neighborhoods with minor flooding damage, to large areas of entire cities being under water.

4.2.1.6. Chronologic Patterns

Urban flooding in Hennepin County typically occurs in the spring and summer months associated with thunderstorms. Springtime urban flooding can come from both snowfall melt and runoff during the spring, a spring thunderstorm that comes before the ground has had time to that completely preventing infiltration, or just a normal thunderstorm (or multiple thunderstorms within a smaller period) with excessive rainfall rates.

4.2.1.7. Historical Data B1d

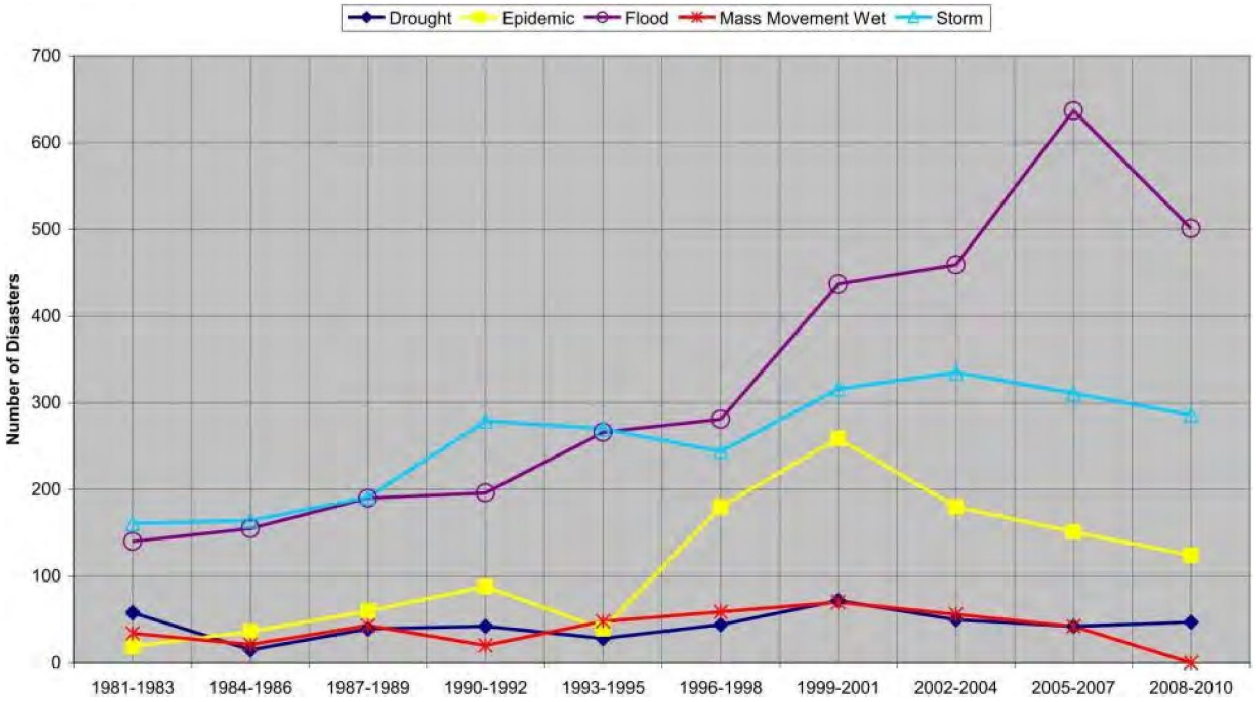
Floods have been documented all the way back to 1776 in Minnesota. However official American records don't begin until 1873. As mentioned in river flooding, of the 24 State of Minnesota Flood Declarations, Hennepin County has been included in six, with all having urban flooding issues with road and bridge closures. There have been no other naturally caused incidents that are within the scope of this plan.

- 1965 Flooding (DR-188)
- 1969 Flooding (DR-255)
- 1997 Severe Flooding, High Winds, Severe Storms (DR-1175)
- 2001 Severe Winter Storms, Flooding, and Tornadoes (DR-1370)
- 2010 Flooding (DR-3310)
- 2014 Severe Storms, Straight-Line Winds, Flooding, Landslides and Mudslides (DR-4182)
- 2016 Severe Storms & Flooding (DR-4290)

4.2.1.8. Future Trends B1e

Urban flooding is a naturally occurring hazard that affects cities and regions around the world, and is expected to become even more problematic in the future. Damages from floods are also increasing as are the number of people who are affected by them.

Human-induced land cover change and climate change are important factors in urban flooding. Rapid population growth and increasing migration from rural areas to cities lead to intense urbanization, which often increases flood risk. According to recent studies, the urban heat island effect and aerosol composition can alter the climate mechanism, which plays an important role in the storm evolution of urbanized regions. Global warming, the other main cause of hydrologic regime change, can induce the acceleration of the water cycle, which can consequently affect the frequency and intensity of future storm events. Research has shown that in the future we may not necessarily see more rainfall, but more rainfall on less days. That is to say that if the monthly average total rainfall is four inches over eight different days, we would now see that four inches come on three or four days. So same amount of rain, just coming more at one time.



4.2.1.9. Indications and Forecasting

Currently, the operational method for forecasting flash floods at the National Weather service is to utilize the Flash Flood Monitoring and Prediction software package to compare rainfall estimates with flood-induced rainfall accumulation thresholds, known as flash flood guidance values. The success of this guidance depends on both accuracy of radar-estimated rainfall rates and the flash-flood guidance values. The National Weather Service Weather Forecast Offices issues all flash-flood advisories, watches, and warnings for their respective county warning areas. The primary indicator used by forecasters to predict onset of flash flooding, is when radar-based rainfall estimates exceed flash flood guidance values over f 1, 3, or 6 hours. Flash-flood guidance is defined as the threshold rainfall required to initiate flooding on small streams that respond to rainfall within a few hours.

4.2.1.10. Detection & Warning

The National Weather Service issues flash flood advisories, watches, and warnings.

- ***Flood Advisory***: Thunderstorms have produced heavy rainfall that may result in ponding of water on roadways and in low-lying areas, as well as rises in small stream levels, none of which pose an immediate threat to life and property.
- ***Flash Flood Watch***: Atmospheric and hydrologic conditions are favorable for short duration flash flooding and/or dam break is possible.
- ***Flash Flood Warning***: Excessive rainfall producing thunderstorms have developed, lead to short duration flash flooding. A warning may also be issued if a dam break has occurred.

4.2.1.11. Critical Values and Thresholds

Using thresholds for flooding indicators can be intellectual traps for the uneducated and what constitutes an important threshold in one situation may be unimportant in another. In broad terms, moderately high rainfall rates begin at about 1 inch per hour, and moderately long durations begin at about one hour, but these should be considered only as the crudest of guidelines.

Conversation with the local National Weather Service in Chanhassen, MN has concluded that local forecasters tend to look at the rainfall rate and return period more than any amount threshold. It also depends on antecedent conditions. Consensus between the hydrologist and an operation warning forecaster is they look for model outputs to show them at least a 10-year event as a starting point to get flash flooding. In addition, using one particular source, they use a return period for precipitation to have at least a 20–50-year event to get flash urban flooding in the Twin Cities Metro area.

4.2.1.12. Prevention

To improve water management and protect the sewage system from damage, cities can revamp their underground pipe and drainage systems by separating rainwater from the sewage system. The separation enables the wastewater treatment plant to function properly, without it being overburdened by large quantities of storm water.

Other more obvious methods are to keep sewer systems clean of clog up with waste, debris, sediment, tree roots and leaves.

4.2.1.13. Mitigation

Areas that have been identified as flood prone areas can be turned into parks, or playgrounds, buildings and bridges can be lifted, floodwalls and levees, drainage systems, permeable pavement, soil amendments, and reducing impermeable surfaces. Reducing impervious surfaces could include the addition of green roofs, rain gardens, grass paver parking lots, or infiltration trenches.

Other mitigation strategies include developing a floodplain management plan, form partnerships to support floodplain management, limit or restrict development in floodplain areas, adopt and enforce building codes and development standards, improve storm water management planning, adopt policies to reduce storm water runoff, and improve the flood risk assessment.

4.2.1.14. Response

One of the most important things to be done during the initial response is to make sure that people are safe. If their homes have been damages and are unlivable, finding a place for them to stay is among one of the top priorities. Next is the access to places if roads are washed out or still underwater. One complicated factor with flood disasters, is sometimes you do not know how bad the damage is until the water recedes, which can take time and slow the response. Another important part of response is to make sure water supply is available as quick as possible if there has been any contamination. The role of Hennepin County Emergency Management is to coordinate resources that our municipalities may need to accomplish all response needs.

4.2.1.15. Recovery

As mentioned in river flooding, recovery from floods can take weeks, to months, to years. Urban flooding is unlike quick disasters (e.g., tornadoes) where you can see the damage immediately, sometimes with urban flooding you must wait for the flood waters to recede to find out what damage there is to recover from. A lot of the time, the longer the water level stays too high, the more consequences are introduced that you must then recover from.

4.2.1.16. References

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4.2.2.	Hazard Assessment: FLOODING, RIVER

4.2.2.1. Definition



River flooding occurs when river levels rise and overflow their banks or the edges of their main channel and inundate areas that are normally dry. River flooding can occur from both high precipitation weather events and/or ice/snow melt in the spring. The amount of flooding is usually a function of the amount of precipitation in an area, the amount of time it takes for rainfall to accumulate, previous saturation of local soils, and the terrain around the river system, dam failures, rapid snowmelt, and ice jams. Over 750 of Presidential Disaster Declarations result from flooding.

River flooding is classified as Action, Minor, Moderate, or Major based on water height and impacts along the river that have been coordinated with the National Weather Service. Action means the National Weather Service, or a customer/partner, needs to take mitigation action in preparation for potential river flooding. Minor river flooding means that low-lying areas adjacent to the stream or river, mainly rural areas and farmland and secondary roadways near the river flood. Moderate flooding means water levels rise high enough to impact homes and businesses near the river and some evacuations may be needed. Larger roads and highways may also be impacted. Major flooding means that extensive rural and/or urban flooding is expected. Towns may become isolated and major traffic routes may be flooded.

4.2.2.2. Range of Magnitude

- United States
  - Most destructive flood: Mississippi River, 1927 (500 killed; 600,000 homeless)
  - Costliest Flood: Great Mississippi & Missouri River Flood of 1993 ($30.2 billion)

- Minnesota

  - Most destructive flood: 1997 Red River Flood (58 of 87 counties in Minnesota Federally Declared Disasters)
  - MN costliest flood: 1997 Red River Flood ($2 billion)

4.2.2.3. Spectrum of Consequences B2b

River flooding can affect both people and property. Losses in both wildlife and livestock can also occur, which can drastically affect the economy. In addition, road washouts, power and water outages can also be common with river flooding.

4.2.2.4. Potential for Cascading Effects

There is high potential for cascading consequences from river flooding. Depending on severity, there could be public health sanitation problems, landslides, food spoilage and food production shortages from farmland being underwater.

4.2.2.5. Geographic Scope of Hazard B1c

River flooding occurs across all of Hennepin County. Three major rivers create Hennepin County borders on the northwest, south and east side. Those include the Minnesota, Crow, and Mississippi Rivers. In addition, several creeks and streams across Hennepin County have a history of flooding, which have caused damage to property. Some of those include the Minnehaha Creek, and Nine Mile Creek. All these rivers and creeks are susceptible to early spring snow-melt flooding as well as summer and fall storm seasons.

4.2.2.6. Chronologic Patterns

River flooding can occur because of both snowmelt and high precipitation events which makes the flood season start from early spring to early winter. It of course depends on how warm we start to get in the spring how early, to when we start to get below freezing in the winter. For example, if there is more than average snowfall/snow depth tied together a spike in temperatures during the early spring, we are melting snow without having a fully thawed out ground, making soil impervious, which increases the runoff and subsequently increasing chances for flooding.

4.2.2.7. Historical Data/Previous Occurrence B1d

Floods have been documented all the way back to 1776 in Minnesota. However official American records don't begin until 1873. Minnesota has seen twenty-four Disaster Declarations due to flooding, six of which have been in Hennepin County. There have been no other naturally occurring incidents that are within the scope of this plan.

1965 Flooding (DR-188)

- The Mississippi River at Fridley crested at 20 ft. on April 17th, 1965, which was 4 ft. over flood stage.
- On April 15, the Minnesota River at Savage crested at 719.40 ft., over 17 ft. above flood stage (702 ft.), and 7 ft. above major flood stage (712 ft.). A day later April 16th, the Mississippi river at St Paul crested at 26.01 ft., 12 ft. above flood stage (14 ft.) and 9 ft. above major flood stage (17 ft.). The St Croix River at Stillwater followed suit with a record crest of 94.10 ft. on April 18, is 7 ft. above flood stage (87 ft.) and 5 ft. above major flood stage (89 ft.).

1969 Flooding (DR-255)

- The Mississippi River at Fridley crested at 17.50 ft. on April 14, 1969, which was 1.5 ft. over flood stage.
- Crow River crested at 16.5 ft. on April 11, 1969, which is 6.5 ft. over flood stage.

1997 Severe Flooding, High Winds, Severe Storms (DR-1175)

- The Mississippi River at Fridley crested at 17.10 ft. on April 10, 1997, which is 1.1 ft. over flood stage.

- Crow River reached flood stage of 10 feet on 4/4/97 at Rockford which is the river monitoring point. The river crested at 14.4 feet on 4/9/97 which was the fifth highest crest ever recorded. The river subsided to below flood stage on 4/20/97. Substantial flooding occurred at a golf course in the town of St. Michael. (NCDC Storm Events)

2001 Severe Winter Storms, Flooding, and Tornadoes (DR-1370)

- The Mississippi River at Fridley crested twice. First at 16.60 ft. on April 15, 2001, and second at 16.40 ft. on April 28th, 2001, 0.6 and 0.4 ft. over flood stage respectively.
- Four factors contributed to the flooding of 2001: significant autumn precipitation, heavy winter snowfall, less than ideal snowmelt scenario, and record-breaking April precipitation (http://climate.umn.edu/doc/journal/flood_2001/flood_2001.htm). April 16th the Crow River at Rockford, MN crested at 14.5 feet with a peak discharge at 13,100 ft3/s which is 4.5 ft. over flood stage.

2010 Flooding (DR-3310)

- Crow River at Rockford reached 13.99 ft. on March 22, 2010, which was 3.99 ft. over flood stage.

2014 Severe Storms, Straight-Line Winds, Flooding, Landslides and Mudslides (DR-4182)

- Crow River at Rockford crested at 15.08 ft. on June 25th, 2014, which was 5.08 over flood stage.

4.2.2.8. Future Trends B1e

Changes in river flooding can be caused by changes in atmospheric conditions, land use/land cover, and water management. These changes can occur in tandem, or individually which makes it difficult to determine which factor acts as the driving force of changes in river flooding behavior. However, long-term data does show and increase in flooding in the norther half of the eastern prairies and parts of the Midwest. Even with data showing days with heavy precipitation increasing, this trend does not strongly relate to changes, or increases, in river flooding. One conclusion for this is the mismatch of seasons with which the high precipitation events occur and most likely season for flooding in most river basins within our region[8]. For example, the northern Great Plains typically sees peak river flooding during spring snowmelt, however, generally the heaviest daily rainfall events occur during the summer.

When considering the issue of future river flood hazard changes, it is important to recognize that urban and rural land-use impacts, and water management have significant influence on river flood behavior. While precipitation and flooding have been increasing in the northern half of the eastern prairies, general circulation models do not show this as an area expected to have a substantial increase in runoff in the twentieth-century or the twenty-first century forecast.

4.2.2.9. Indications and Forecasting

River Flooding typically occurs hours to days after a high precipitation event. Warnings for river floods can often provide much more lead-time that those for flash flooding.

4.2.2.10. Detection & Warning

The National Weather Service issues flood advisories, watches and warnings[16].

- ***Flood Advisory*:** Thunderstorms have produced heavy rainfall that may result in ponding of water on roadways and in low-lying areas, as well as rises in small stream levels, none of which pose an immediate threat to life and property.
- ***Flood Watch*:** Atmospheric and Hydrologic conditions are favorable for long duration areal or river flooding.
- ***Flood Warning*:** Long duration areal or river flooding is occurring or is imminent, which may result from excessive rainfall, rapid snow met, ice jams on rivers or other similar causes.

4.2.2.11. Critical Values and Thresholds

The National Weather Service uses flood categories to communicate/categorize the severity of flood impacts in the corresponding river/stream reach. The severity of flooding at a given stage is not necessarily the same at all locations along a river reach due to varying channel/bank characteristics or presence of levees on portions of the reach. Therefore, the upper and lower stages for a given flood category are usually associated with water levels corresponding to the most significant flood impacts somewhere in the reach.

The flood categories used by the National Weather Service are:

- ***Minor Flooding*** - minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
- ***Moderate Flooding*** - some inundation of structures and roads near stream. Some evacuations of people and/or transfer of property to higher elevations.
- ***Major Flooding*** - extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.
- ***Record Flooding*** - flooding which equals or exceeds the highest stage or discharge observed at a given site during the period of record. The highest stage on record is not necessarily above the other three flood categories, it may be within any of them or even less than the lowest, particularly if the period of record is short (e.g., a few years). It is also important to note that minor, moderate, major flood categories do not necessarily exist for all forecast points. For example, a location with a permanent levee may begin to experience impacts at moderate flooding level.

4.2.2.12. Prevention

Most prevention methods of river flooding fall under mitigation actions. See Mitigation below for methods of prevention.

4.2.2.13. Mitigation

There are many ways to mitigate flooding hazards. Two techniques are hard and soft engineering mitigation techniques. Hard engineering techniques include building dams, levees, wing dykes, and diversion spillways. Soft engineering techniques include floodplain zoning, afforestation, wet plain restoration, river restoration, and removal of properties in flood prone areas.

4.2.2.14. Response

- Hennepin County Emergency Management Capabilities
- Situation monitoring Station (SMS)
- Immediate Impact Reconnaissance Teams
- Hennepin County Emergency Operations Plan

4.2.2.15. Recovery

Recovery from floods can take weeks to months to years. One complicating factor when it comes to river flooding, is unlike quick disasters (e.g., tornadoes) where you can see the damage immediately, river flooding you must wait for the floodwaters to recede to find out what damage there is to recover from. A lot of the time, the longer the water level stays too high, the more consequences are introduced that you must then recover from.

4.2.2.16. References

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4.3. Meteorological Hazards

4.3.1.	Hazard Assessment: CLIMATE CHANGE

4.3.1.1. Definition



Climate change is a significant and ongoing change in the long-term statistical and/or spatial behavior of weather patterns and variables, as global temperatures rise in response to the intensified combustion of fossil fuels and deforestation, both of which increase concentrations of atmospheric carbon dioxide and other greenhouse gases. The increasing global temperatures have, in turn, added additional moisture to the air through higher evaporations rates, and modified patterns of global atmospheric circulation.

Climatic Background

Hennepin County has a highly variable, continental-type climate with seasonal extremes and a wide range of weather hazards. Its position near the center of the continent, and halfway between the Equator and North Pole, subjects it to a wide variety of air mass types throughout the year. During a single year, Hennepin County will experience heavy snow, frigid wind chills, howling winds, intense thunderstorms, torrential rains, and heat waves, as well as dozens of bright and sunny days.

In addition to extreme variations between our seasons, Hennepin County's climate also can include large variations from one year to the next, or even at decadal and multi-decadal scales. The extremely dry years of 1910, 1936, 1976, and 1988 each were followed within 1-3 years by extremely wet ones. In a six-year span of the 2010s, Hennepin County experienced its warmest November through March on record in 2011-12, its 5th coldest on record in 2013-14, and its 4th warmest on record in 2015-16.

Climate Change in Hennepin County

In Hennepin County, climate change has meant distinct, measurable trends towards warmer, wetter, and more humid conditions on average, even as occasional swings towards dry or cold conditions continue to be part of the climate. As shown in **TABLE 4.3.1A**, county-averaged temperature and precipitation have increased by 3.1° F and 3.0 inches, respectively since 1895. The warmest year, winter, and spring, and the wettest summer and winter, have all occurred since the year 2000. Additionally, nine of the county's 10 warmest years and seven of the 10 wettest years from 1895 through 2023 occurred after 1970, with the vast majority occurring after 1990.

The county's most extreme precipitation events also occurred during this period, with major flash-flooding in 1977, 1987, 1997, 2014, and 2016. Record-level humidity extremes occurred more frequently from 2000 through 2023 than at any other time in 121 years of record.

TABLE 4.3.1A Annual, spring, summer, fall, and winter temperature and precipitation averaged over Hennepin County showing the 1991-2020 average values, the total change from 1895-2023, the maximum values and the minimum values. **Bold** indicates occurrence since the year 2000. Data from Minnesota DNR Climate Trends Tool (https://arcgis.dnr.state.mn.us/ewr/climatetrends/)

Season	Average Temperature (° F)				Total Precipitation (inches)			
	Average, 1991-2020	Change, 1895-2023	Max (year)	Min (year)	Average, 1991-2020	Change, 1895-2023	Max (year)	Min (year)
Annual	45.15	+3.1	**48.98 (2012)**	38.83 (1917)	31.88	+3.0	41.91 (1991)	12.53 (1910)
Spring (Mar-May)	45.11	+2.6	**52.65 (2012)**	37.38 (1907)	8.66	+1.7	14.54 (1938)	2.37 (1910)
Summer (Jun-Aug)	70.02	+1.7	74.57 (1988)	64.43 (1915)	13.11	+1.7	**22.76 (2002)**	4.75 (1936)
Fall (Sep-Nov)	47.72	+2.6	52.74 (1963)	38.62 (1896)	7.55	-0.1	15.54 (1900)	1.42 (1952)
Winter (Dec-Feb)	17.68	+5.0	**25.39 (2001-02)**	4.42 (1935-36)	2.57	-0.3	**5.65 (2022-23)**	0.59 (1958-59)

As shown in **GRAPHIC 4.3.1A**, confidence about the extent to which climate change has influenced changes in the frequency or magnitude of given weather hazards in Minnesota varies considerably. Some hazards appear strongly linked to climatic change while other hazards have yet to show any influence at all. In general, the most notable associations include cold weather extremes becoming less severe or less frequent, and extremes of precipitation becoming more severe or more frequent. Humid heat waves have a moderately-strong and increasing association with climate change, because of increases in humidity. Other common hazards, including tornadoes, hail, and strong thunderstorm winds; drought; and summer high temperature extremes, show little or no long-term change in frequency or magnitude yet.

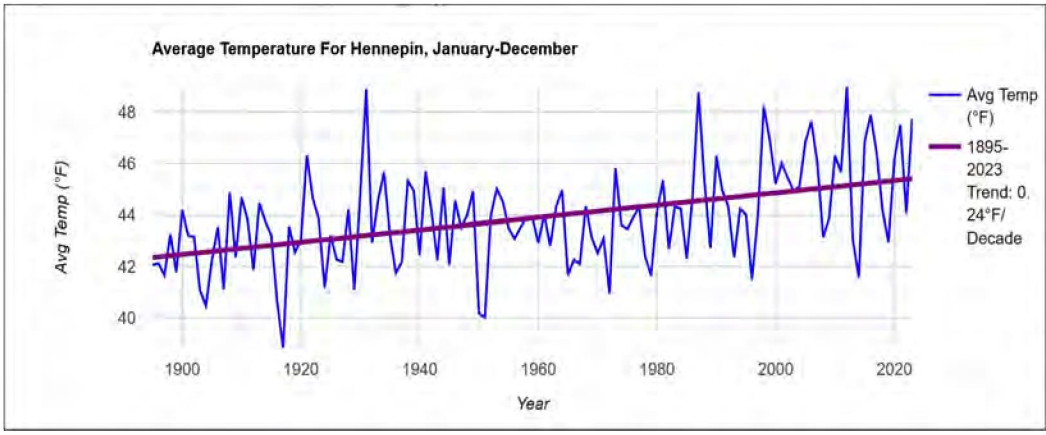
GRAPHIC 4.3.1A Confidence that climate change has already impacted common Hennepin County weather/climate hazards through 2023. Provided upon request by Minnesota State Climatology Office.

Confidence	Hazard	Recent & Current Observations
Highest	Extreme cold	Rapid decline in severity & frequency
	Extreme rainfall and heavy snowfall	Becoming larger and more frequent
Moderately High	Humid heat waves	Some increase in maximum dew point and Heat Index values since 1980
Moderately Low	Tornadoes, hail, thunderstorm winds	Intensity and frequency unchanged, but seasons expanding aggressively
Low	Drought and dry spells	Intense & major episodes in early 2020s but no long-term trend
Lowest	Summer high temperature extremes	Highest temperatures still *well* within historical ranges, and number of hot days not yet increasing

Warming in Hennepin County

County-averaged statistic indicate Hennepin County has warmed a total of 3.1° F since 1895, or at an average rate of +0.24° F per decade, which exceeds global and national averages. As illustrated in **GRAPHIC 4.3.1B**, using the same data source, nine of the 10 warmest years on record—including the warmest year in 2012—have occurred since 1990.

GRAPHIC 4.3.1B Annual temperature, averaged over Hennepin County, 1895-2023, with the trendline showing average rate of change over the period of record. Table at right shows ten warmest years. Data from Minnesota DNR Climate Trends Tool (https://arcgis.dnr.state.mn.us/ewr/climatetrends/).



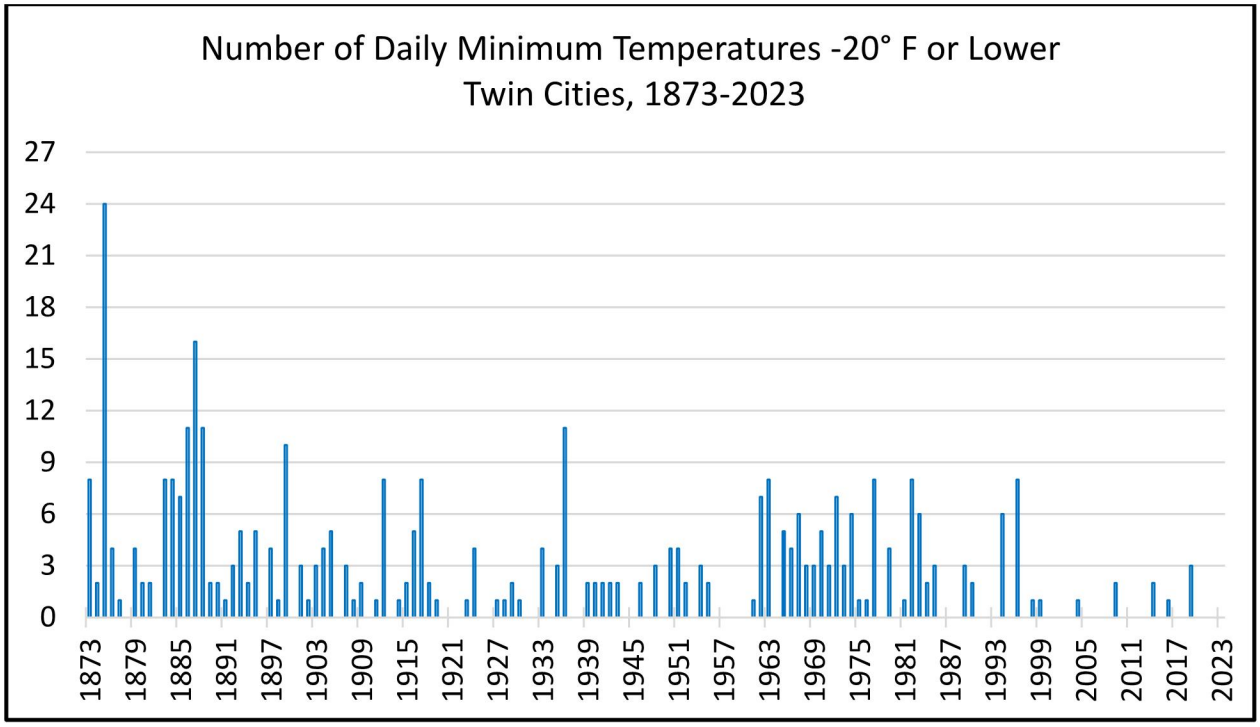
Year	Avg Temp (°F)
2012	48.98
1931	48.88
1987	48.76
1998	48.22
2016	47.87
2023	47.74
2006	47.62
2021	47.5
1999	46.9
2015	46.86

Although temperatures are increasing in every season, winter (December through February) has warmed approximately three times faster than summer (June through August), with a total warming of 5.0° F versus 1.7° F. Daily overnight low temperatures have also increased about three times faster than daily high temperatures. The most extreme differences in warming rates are between winter low temperatures, which have increased by an average of 6.4° F since 1895, and summer high temperatures,

which have shown very slight decreases over that same period.

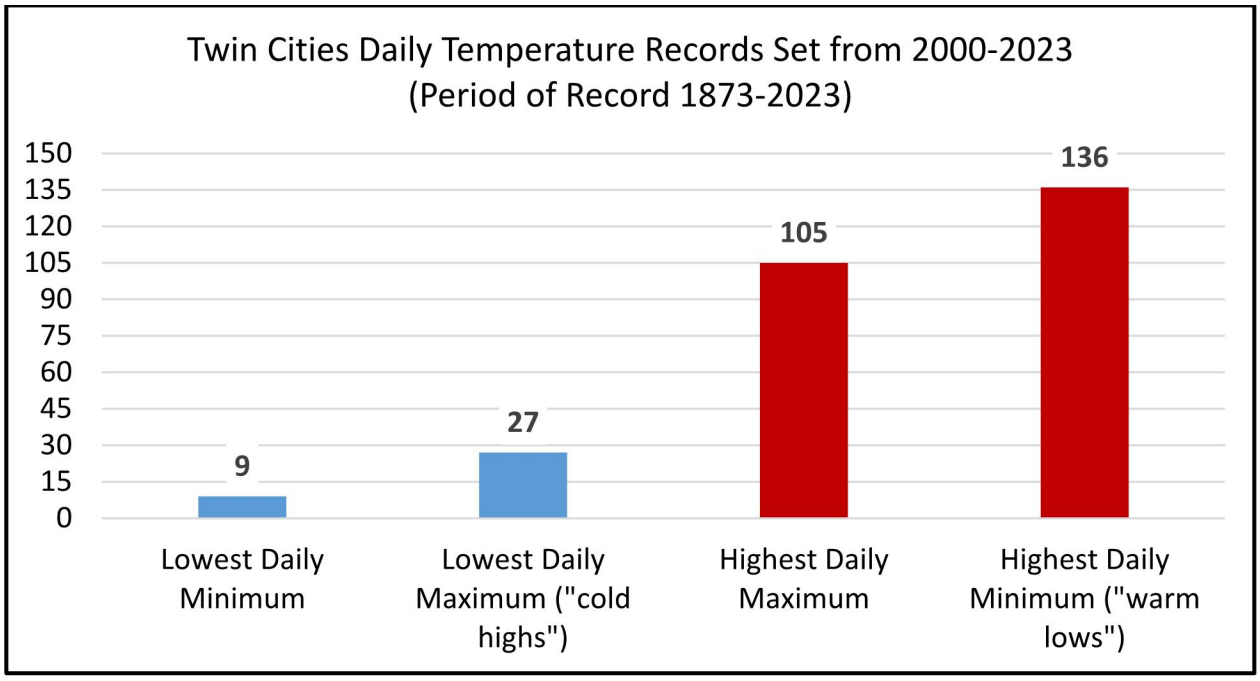
Winter and nighttime-driven warming is consistent across the planet and is especially pronounced in areas with long and severe winters—when surface heat that would normally escape into space is trapped by the growing concentration of greenhouse gases. This warming has reduced the availability and depth of cold air masses, such that cold air outbreaks are not as frequent or severe as they were historically, while mild winter air masses are now more frequent and often warmer than was typical historically. For instance, **GRAPHIC 4.3.1C** shows that daily minimum temperatures of -20° F or lower are now less common in the Twin Cities than in any other period back to 1873.

GRAPHIC 4.3.1C Frequency of -20° F low temperatures in the Twin Cities. Data source: Applied Climate Information System, accessed via https://www.dnr.state.mn.us/climate/historical/acis_stn_meta.html.



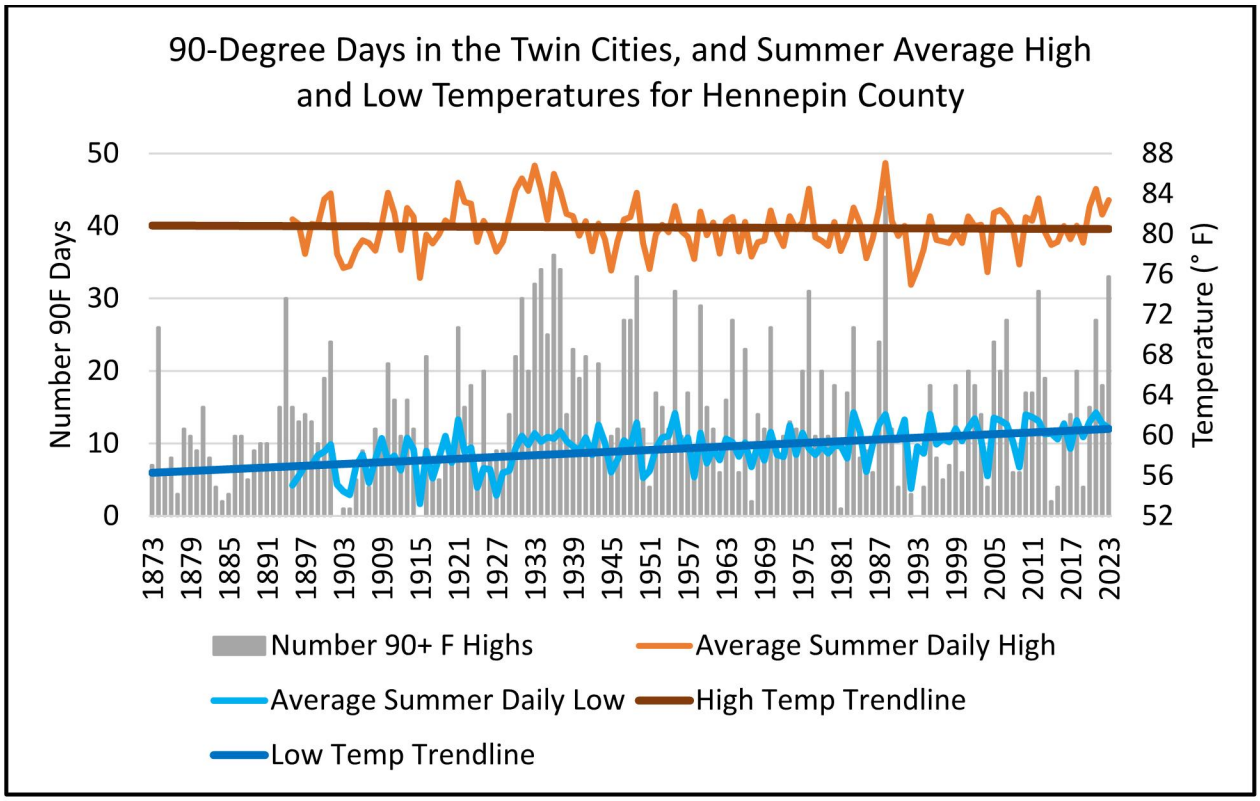
Across Minnesota and the region, this warming has led to far more warm records than cold records being set. Since the year 2000, the Twin Cities airport has set 6.7 times more records for highest daily maximum and highest daily minimum temperature, than for lowest daily minimum and lowest daily maximum temperature (shown in **GRAPHIC 4.3.1D**). These recent years represent just 16% of the station history but account for 33% of the warm records and only 5% of the cold records.

GRAPHIC 4.3.1D Number and types of daily temperature records set from 2000 through 2023 at the long-term Twin Cities observing site, currently at the MSP airport. Source: Threaded Extremes (https://threadex.rcc-acis.org/)



As noted previously, summer temperatures are increasing in Hennepin County, albeit more slowly than winter temperatures. The average summer daily maximum or high temperature (June through August) shows a very slight decrease over time. This observation is matched by the fact that the count of daytime high temperatures reaching or exceeding 90° F in the Twin Cities has shown no trend since peaking in the 1930s. Meanwhile, average summer minimum or low temperatures show have increased by 3.7° F since 1895, which exceeds the rate of annual average warming for the county. Therefore, the summer warming experienced in the county so far is attributable to warmer nights, which result in higher minimum temperatures. **GRAPHIC 4.3.1E** shows summer temperature behavior over in the Twin Cities and Hennepin County.

GRAPHIC 4.3.1E Number of 90° F days per year in the Twin Cities, 1873-2023, along with June through August (summer) average maximum and minimum temperatures for Hennepin County, 1895-2023. Data for Twin Cities accessed via https://www.dnr.state.mn.us/climate/historical/acis_stn_meta.html, and for Hennepin County from https://arcgis.dnr.state.mn.us/ewr/climatetrends/.



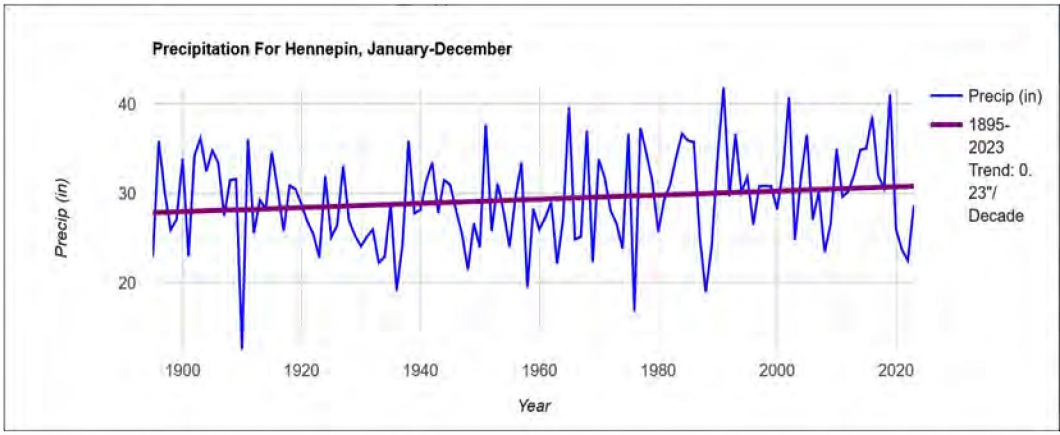
Although summertime high temperatures have not increased over the long-term, there have been signs that high-humidity heat waves are now more common and severe than they were historically (see Humidity sub-section below)

Increased Precipitation

On a county-averaged basis, precipitation in Hennepin County has increased by an average of 3 inches, or just under 10% since 1895, with virtually all that increase occurring since 1970. As shown in **GRAPHIC 4.3.1F**, using the same data source, five of the 10 wettest years on record, including each of the top-3 and four of the top-5, have occurred since 1990. Only one year since 1990 has made the list of 10 driest years (2022 was 10th driest, not shown). The long-term Twin Cities climate station, currently at the International Airport, set all-time annual precipitation records in 2016, and then again in 2019, and finished the 2010s as the wettest decade on record since the 1870s.

Although at least one month from each season has increasing precipitation, the strongest seasonal increases have been in spring and summer, whereas average precipitation during fall and winter hardly changed or decreased slightly from 1895 through 2023. Please refer to **TABLE 4.3.1A**, at the beginning of this chapter, for detailed information about seasonal precipitation in Hennepin County

GRAPHIC 4.3.1F Annual precipitation, averaged over Hennepin County, 1895-2023, with the trendline showing average rate of change over the period of record. Table at right shows ten warmest years. Data from Minnesota DNR Climate Trends Tool (https://arcgis.dnr.state.mn.us/ewr/climatetrends/).



Year	Precip (in)
1991	41.91
2019	41.18
2002	40.83
1965	39.7
2016	38.63
1951	37.73
1977	37.38
1968	37.06
1975	36.7
1993	36.69

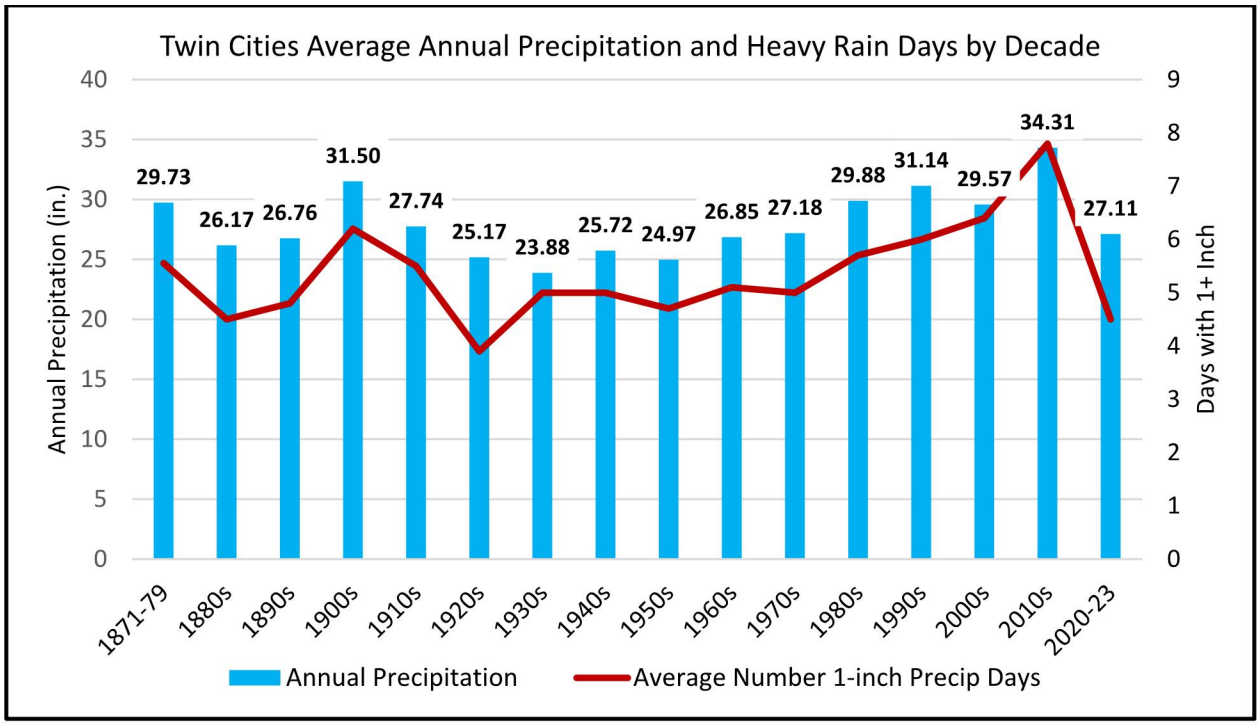
Daily and multi-day extremes of rain have become more common in recent decades as well. Rainfall records for the Twin Cities go back to 1871, but the period since 1970 dominates the heavy rain statistics, with four of the top-six daily rainfall totals occurring during that period, including the two largest events on record—which led to significant and even catastrophic flooding.

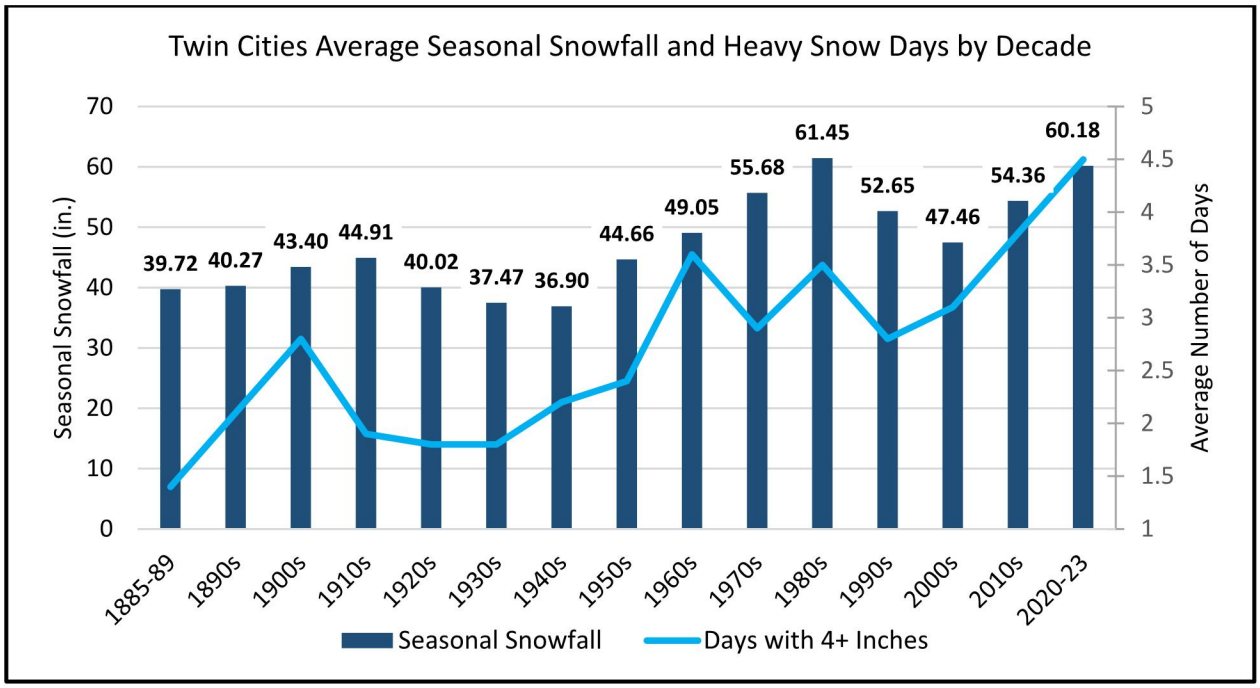
As shown in **GRAPHIC 4.3.1G**, annual precipitation and the number of days with heavy rain, or at least one inch of precipitation, both increased during the most recent several decades.

Seasonal snowfall also has increased and remained historically high during the period of strong winter warming and the great climatic change in Hennepin County. With snowfall records back to 1884-85, each of the top three, tour of the top five, and 14 of the 20 snowiest seasons on record occurred after 1980. Most recently, the 2022-23 winter was third snowiest on record in the Twin Cities, with 90.3 inches. The period 1980-2023 represents just 32% of the station history of the Twin Cities, but accounts for 70% of the top-20 seasonal snowfall totals.

Daily and multi-day snowfall extremes are also more common in recent decades. Eight of the 10 largest daily snowfalls on record occurred after 1980, including each of the top four. **GRAPHIC 4.3.1H** shows how days with heavy snow and seasonal snowfall have hit historical high marks only recently.

GRAPHIC 4.3.1G (top) Annual precipitation and average number of days receiving at least one inch of precipitation, by decade in the Twin Cities. **GRAPHIC 4.3.1H (bottom)** Seasonal snowfall and average number of days with at least 4 inches of snow. Data source, both graphics: Applied Climate Information System, accessed via https://www.dnr.state.mn.us/climate/historical/acis_stn_meta.html.

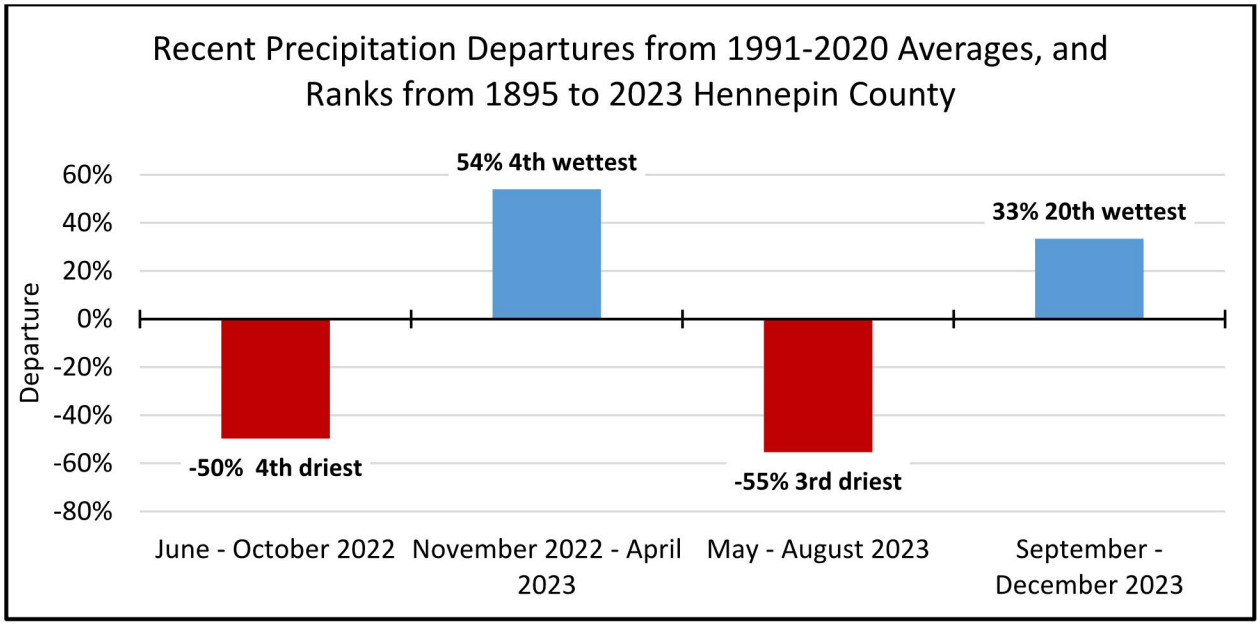




Even though periods of intense growing season drought have defined the climate of the early 2020s in Hennepin County, these dry conditions have not reversed the long-term trend towards more precipitation. In fact, as can be seen in **GRAPHIC 4.3.1G** above, even with the drought episodes, annual precipitation during the early 2020s is still higher than every decade from the 1920s through the 1960s. This is because the dry conditions have been episodic, generally limited to the warm season, and often followed by very wet conditions in the cooler months.

For instance, the six months from May through October of 2022 were the 4th driest on record in Hennepin County, with the US Drought Monitor indicating Extreme Drought, the second-highest level, over much of the county. A very wet period quickly followed it, however, and the six months from November through April 2023 became the fourth wettest on record. Dry conditions set in again, with May through August 2023 ranking 3rd driest on record, followed by much-above-normal precipitation in September and October, and then the third-wettest December on record. This oscillation between wet and dry regimes is illustrated in **GRAPHIC 4.3.1I.**

GRAPHIC 4.3.1I Sequential episodes of very dry and very wet conditions during 2022 and 2023 in Hennepin County. Source: DNR Climate Trends (https://arcgis.dnr.state.mn.us/ewr/climatetrends/).



Humidity

Increased humidity has been notable during all seasons in recent decades. From 2000 through 2023, the Twin Cities long-term climate station measured more daily record-high and fewer daily record-low dew point temperatures (a measure of humidity) than any other time since records began in late 1902. Of the 14 documented days with extreme humidity yielding at least one hourly 80° F dew point reading, 10 have occurred since 1990, and none occurred prior to the 1960s.

Even though the highest air temperatures of summer and the number of 90° or 95° F days has not increased over the long-term, extremely humid conditions have at times combined with hot air masses to yield unprecedented Heat Index values, which measure what the air feels during heat waves. On July 19, 2011, Flying Cloud airport measured a Heat Index of 122°F, while the Twin Cities airport measured 119 °F. On August 22, 2023, another intense heat wave fueled by high moisture and dew points, sent Heat Index values into the upper 110s F across the county, with 120° F recorded at the Hennepin-West Mesonet stations located in Hanover and at the MSP Airport.

Record humidity has not been confined to the summer, when it is most noticeable to humans, but in fact

has been observed throughout the year with increased frequency during recent decades. Most notably, in 2021 latest date a 50° F dew point had ever been recorded at the Twin Cities long-term station advanced 10 days, to December 15th, in 2021, and then 10 more days, to December 25th in 2023. The latest 60° dew point on record was measured on November 10th of 2022. The earliest date to measure 50° F was February 20, 2017, and the earliest 60° F dew point occurred on March 17, 2012.

Increased humidity is not just a human comfort concern; it also has implications for precipitation and severe weather frequency, because water vapor is what fuels precipitating weather systems. The high dew points recorded on December 15, 2021, were associated with an unprecedented winter outbreak of tornadoes and damaging thunderstorm winds in southeastern Minnesota. The December 25, 2023, high dew points were associated with an unusually heavy December rainfall event. The 60° F dew point on March 17, 2012, was matched or nearly matched for several more days, and fueled a rash of rare mid-March severe thunderstorms across Minnesota.

4.3.1.2. Range of Magnitude

Climate change is unlike other hazards because it is not episodic and does not "strike." Rising global temperatures represent a constant and increasing force that is always present, even when it is not obviously detectable in each weather pattern or climatological data set.

The magnitude of climate change is generally measured as the total warming of the earth's atmosphere above "pre-industrial" temperatures, with that period reflecting 1850-1900 averages in some data sets, or simply beginning in 1880 in other data sets. These temperatures are closely, but not exclusively linked to the global concentrations of carbon dioxide, as measured at the Mauna Loa observatory in Hawaii. Carbon dioxide levels have increased annually for decades, but while global temperatures have increased steadily, natural factors, like El Niño and some ocean circulation phenomena, drive normal fluctuations the global heat content.

Virtually all data sets show that the earth has warmed between 1.1° and 1.3° C (2 – 2.3° F), and most show a continued warming rate 0.1 to 0.2° C (.18° to 0.36° F) per decade. These warming magnitudes and rates are smoothed to remove the influence of large short-term variations, including the world-record temperature spikes observed in 2023, when global temperatures exceeded 1.5° C above pre-industrial levels at times, and when the average anomaly was 1.3° to 1.54° C for the year.

Translating the magnitude of warming globally, into weather or climate impacts experienced in Hennepin County is not straightforward. The science of "attribution," or determining how much of a given trend, change, or event, is attributable to human-caused climate change, has largely focused on events that to date have not included the area. These studies usually indicate that climate change is responsible for all, or nearly all long-term warming in non-urbanized areas, and that it enhances or intensifies some types of extreme weather events but does not "cause" them.

Given that the Twin Cities airport climate station is and has always been in an urban, built-up area, we know that some of the temperature increase seen there is because of urban "heat island" effects and not the changing global climate. At rural stations, and in homogenized data sets like the county-averaged one

referenced in other sections in this chapter, the urban warming "bias" is minimized or even non-existent. Rural counties to the west have similar long-term temperature increases to Hennepin County. It is therefore likely that the vast majority of the 3.1° F of average annual warming and the other seasonal warming reported for Hennepin County results from human-caused climate change.

Applying findings from attribution studies in other areas to common hazards in Hennepin County suggests the following:

- Climate change is likely making humid heatwaves in Minnesota more severe by increasing Heat Index values by 4°-6° F over what would have been observed without a warmer global climate. This also has the effect of increasing the probability of occurrence dramatically.
- Extremes of precipitation, including snowfall, may be 10-15% larger because of the higher water content of the atmosphere due to rising global temperatures.
    - Similarly, the damaging snows of December 13-16, 2022, to the north of the Twin Cities may have had two climate changes making them more likely: 1) the increased availability of moisture because of higher global temperatures, and 2) the winter warming that caused the snow to be wetter, heavier, and thus more destructive.
- Out-of-season events that result from unusually warm conditions, like the severe weather outbreak of December 15, 2021, or a record-breaking heat wave in early October of 2023, may have been much more likely because of climate change, and therefore would have been substantially less probable without human-caused warming.
- Any events of these types will become more probably with continued warming, and that continued warming would make larger contributions to future events, meaning potentially greater extremes of precipitation and humid heat waves in the decades ahead.

4.3.1.3. Spectrum of Consequences B2b

In Hennepin County, climate change has led to warmer conditions in general, especially during winter; more precipitation, including during drought years; greater extremes of rain and snow; and more intense humidity-driven heatwaves. Additionally, the seasonal ranges of heatwaves and severe weather events have expanded. Even though year-to-year and multi-year variations will continue, these changes are projected to continue as well, with an enhancement of some hazards as the world warms.

Warmer winter conditions pose some benefits for human comfort and safety but pose recreational risks because of dangerous lake ice that may be unsuitable for fishing and ice skating. Natural systems dependent on cold weather to keep out competitive species and predators also suffer from enhanced winter warming, which can alter ecosystems and natural resources.

Increased rain and snow extremes mean roads and their supporting infrastructure may face increased damages if they are not built to higher design standards. Heavy, wet snow, as occurred in the 2022-23 winter, can damage trees, knock out power, and overwhelm some structures with snow loads.

Greater precipitation totals during wet years also would imply high water levels on area lakes and streams, increasing chances for erosion, pollution from runoff, degraded water quality, stream bank failure, landslides, and residential flooding.

Humid heatwaves pose significant dangers to those working, recreating, or living outside. Increases in these dangerous conditions will affect larger proportions of the population, as the risk moves from those most vulnerable, to the general population, and even those in excellent physical condition.

Following are some consequences expected with climate change in Hennepin County:

- Less reliable and more dangerous lake ice
- More periods of bare/snow-free ground, allowing frost to penetrate to great depths during cold outbreaks.
- Expansion of the heavy rainfall season, leading to enhanced peak stream flows, and altered timing of normal flow regimes.
- Increased runoff and flash-flooding as the largest events intensify and become more common.
- Water infrastructure damage from intense rainfall events
- Agricultural stress, from shifting crop ranges, heat, drought, and extreme rainfall
- More days with high water vapor content and heat index values
- Greater summer cooling costs, more days requiring cooling.
- New invasive species, both terrestrial and aquatic, especially those acclimated to warmer climates or those that were cold weather limited.
- “Hyper-seasonality,” as warm conditions develop during the “off-season,” leading to bouts of heavy rainfall or severe weather, followed by wintry conditions.
- Increase in frequency of freeze-thaw cycles, as winter is increasingly infiltrated by warm conditions.

Some positive benefits of a changing climate might include fewer automobile accidents and damage as more winter precipitation falls in the form of rain rather than snow or ice. However, warmer winters doesn’t necessarily mean rain instead of snow, it could mean more ice storms, which would lead to dangerous driving conditions and power outages due to down power lines. Also, rain falling in the winter can be disastrous if it is followed by sharply colder air and a “flash-freeze.”

Additionally, summertime air temperatures are extremely likely to begin increasing in the decades ahead, and possibly before 2030. When these hotter summers pair with normal dry swings in the climate, they will increase drought severity and water demand, while also increasing the potential for wildfire (see drought section of risk assessment).

Some new research (as of 2023) indicates that extreme windstorms associated with thunderstorms may become more probable, larger, and possibly more intense as the world continues warming. These studies indicate that, as a result, a given extreme wind event may have the ability to affect more people and more property than in the past—not accounting for the growth and the expansion of Hennepin County’s population.

In recent years, smoke from wildfires has degraded air quality, occasionally to dangerous levels in Hennepin County. Climate models project that wildfires and downstream smoke infiltration will become more common as northern forests are weakened by warming winters, more severe heat waves, and even precipitation extremes. Increased smoke particulates are a health hazard for everyone, but disproportionally affects those with respiratory challenges, limited mobility, other health conditions, and those who cannot shelter from the smoke.

4.3.1.4. Potential for cascading effects

Climate change enhances some hazards, so please see chapters on Extreme Heat, Straight-line winds, Extreme rainfall, and non-convective winds, to understand the potential cascades that climate change may enhance or cause.

The most novel group of cascading effects to consider with climate change is when warm conditions produce a meteorological situation previously unheard of or quite rare. Winter severe thunderstorm events, for example, may be more likely as winters continue warming, but to occur, they would almost certainly be accompanied by a powerful low-pressure system capable of producing plunging temperatures and strong winds. Communities facing power outages, debris clean-up, and even search-and-rescue operations may then have to face with cold weather hazards.

4.3.1.5. Geographic scope of hazard B1c

Climate change is a global hazard and influences weather and climate patterns in some way virtually everywhere. In Minnesota, the greatest warming has been in the northern part of the state, and the largest precipitation increases have been in the southeastern and central portions of the state. However, the entire state of Minnesota, including all of Hennepin County is at risk from increased precipitation extremes, more intense humid heat waves, and the seasonal expansion of severe thunderstorms and heat.

4.3.1.6. Chronological patters (seasons, cycles, rhythm)

Warming is occurring year-round, though the most pronounced changes have been during winter. It should be noted that the area's climate exhibits natural high variability, and that variability will continue, even as Minnesota warms. It should also be noted that hazard risk does not necessarily follow the cycle of greatest warming. For instance, damaging rains are far more likely in the summer than the winter.

4.3.1.7. Historical Data/Previous Occurrence B1d

The year 2012 may be thought of as a preview of the years and decades ahead. The 2011-12 winter was warm and short, with bouts of 50s and 60s observed throughout Minnesota during January. March that year saw 8 record high temperatures in Minneapolis, and 8 days above 70 degrees. Throughout the region, March 2012 obliterated long-standing daily and monthly temperature records.

The warmth continued through the remainder of the spring and into the summer, with over 30 days above 90 degrees in parts of Hennepin County, and 2 days above 100 at MSP. This was the first summer with multiple 100-degree readings since the summer of 1988.

Others may consider the late 2010s to be representative of the future, because:

Based on the Midwest chapter from the *2014, 2018, and 2023 National Climate Assessment*, a review of other recent research into the region, and analyses of quality-controlled, nationally standardized, and publicly available data, the recent trends can be described as follows.

- Bouts of extreme cold in Hennepin County and throughout Minnesota and the region are now at an all-time low in terms of both frequency and severity. Of all changes, the loss of cold weather extremes has the strongest link with climate change.
- Extreme rainfall episodes have become both more intense and more frequent, and Minnesota has seen seven "mega-rainfall" events since the year 2000. Changes in extreme rainfall behaviors are strongly linked to climate change.
- A general increase in annual and seasonal snowfall has been punctuated by an uptick in the size and frequency of large snowfall events. This is likely related to the presence of warmer air and more water vapor during winter, which provides more energy to passing low pressure systems capable of producing snow.
- Severe thunderstorms and tornadoes pose challenges to long-term analyses because of changes in reporting procedures and detection technologies over time. That said, Minnesota has been in a pronounced severe weather lull since the summer of 2011, which followed a very active spring and record-setting year for tornadoes in 2010. Confidence in the link between climate change and observed severe weather trends is low. However, the severe weather season has expanded aggressively in recent years, with record-early tornadoes in Minnesota on March 6, 2017, and record late tornadoes (by 30 days) on December 15, 2021.
- Humid heat waves have increased in severity and frequency, in response to higher humidity. Summertime high temperatures and the number of hot days has not changed yet.
- Despite three straight years of significant growing season drought in 2021-2023, Hennepin County still does not have a long-term trend towards increased drought frequency or severity.

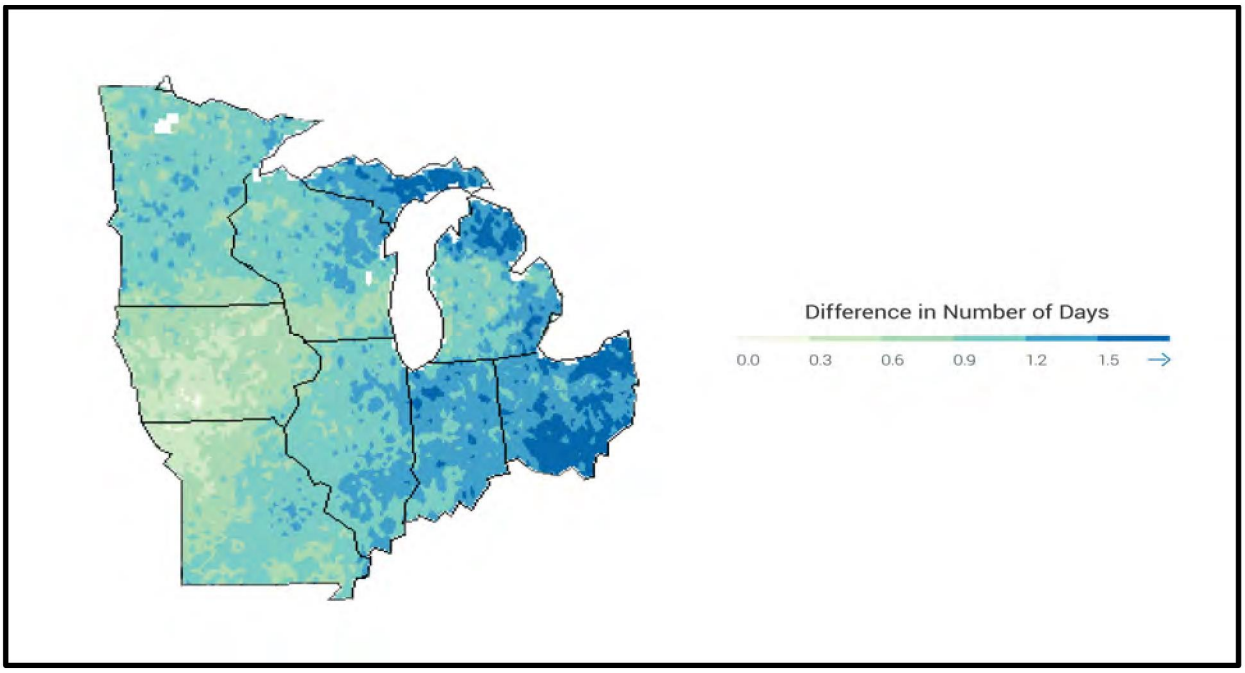
These are just some examples of the effects of climate change in Hennepin County.

4.3.1.8. Future trends/likelihood of occurrence B1e

Projections of future climates from multiple sources indicate that the area is likely to continue to see a rapid erosion of winter extreme cold temperatures, and it is expected that Hennepin County will fail to reach previously common benchmarks by increasingly large margins.

Extreme rainfall is projected to increase, but it should not be expected to do so on a year-after-year basis. Instead, climate change is increasing the long-term frequency and magnitude of these events, meaning that storms of a certain size may come every 10-20 years instead of every 50 years. By mid-century, the area should receive an additional 3-8 days per decade with rainfall in the top 2% of the historical distribution (**GRAPHIC 4.3.1J**). Thus, the expectation is that unprecedented rainfall events will occur at some point this century, but their likelihood in the next decade will be limited by their overall statistical rareness.

GRAPHIC 4.3.1J Average difference in number of days per year by mid-century (2040-2070) with rainfall in upper 2% of distribution.

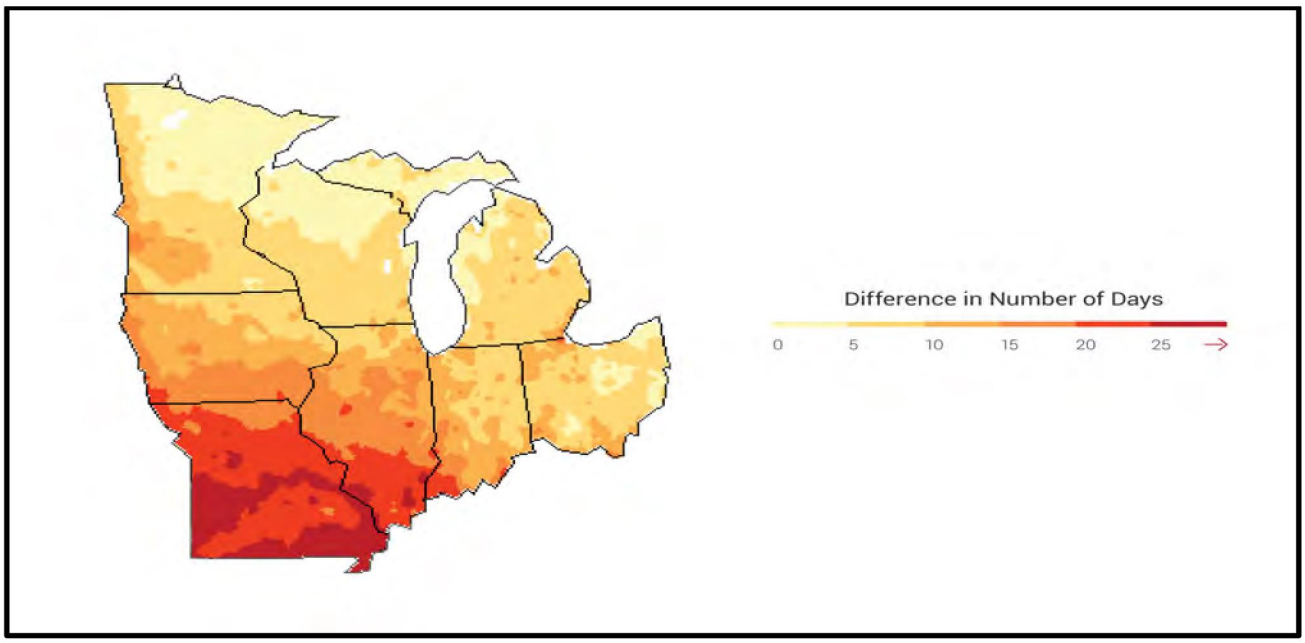


Snowfall extremes should continue to increase as well, although the warming of winter in general and the effect of increased winter rains should eventually begin decreasing seasonal snowfall. However, even the most aggressively warm model scenarios show that snow will be a major if not dominant winter precipitation through much of the century.

Severe convective storms and tornadoes are unlikely to remain at the current low incidence rates, and a "rebound" appears likely within the next decade, based on historical frequency alone. The association between this rebound and climate change will remain unclear, however. It is increasingly clear that severe convective storms will have expanded seasonal and geographic ranges. It is possible, based on new research, that extreme straight-line thunderstorm winds will be larger and/or more intense as the climate continues warming.

Humid heat waves have already begun increasing in response to greater available humidity. Projections indicate that summer temperatures are likely to increase significantly in Minnesota as well during the 21st century. It remains unclear when these trends would begin, given a lack of any recent trends toward increasing summertime high temperatures. However, projections indicate that by mid-century, the Twin Cities should expect 5-10 additional days per year above 95° F, which would more than double current frequencies **(GRAPHIC 4.3.1K)**

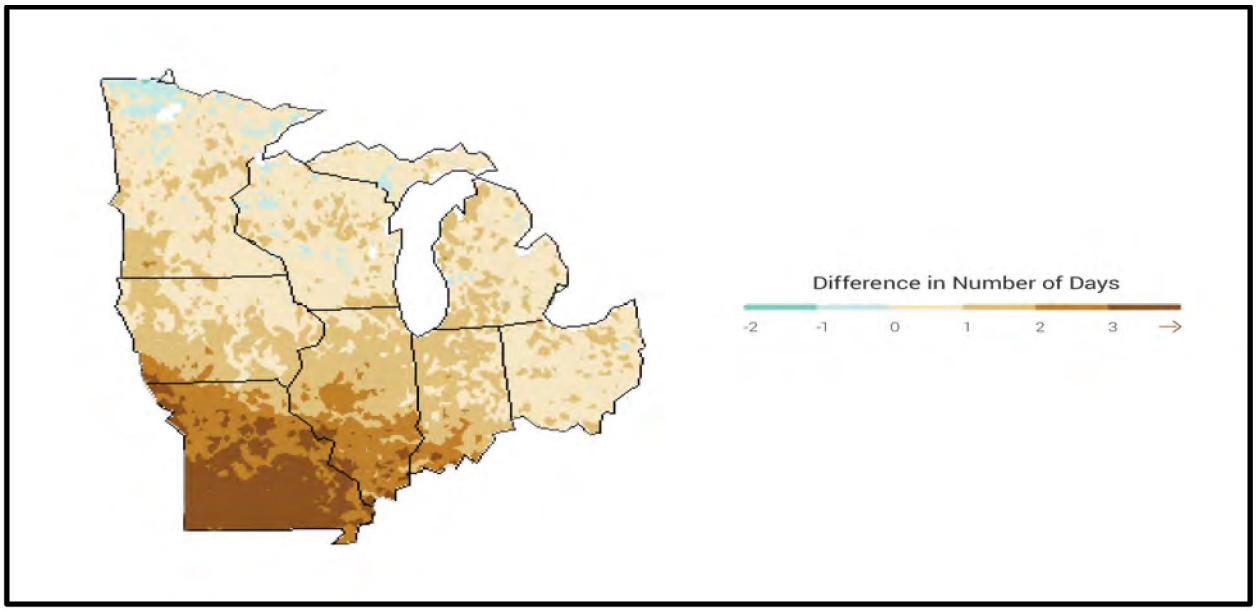
GRAPHIC 4.3.1K Difference in number of days per year by mid-century (2040-2070) maximum temperatures above 95° F.



Like severe convective storms, drought has shown no trend towards increasing in frequency, severity, duration, or areal coverage in recent decades. This is because the increases in precipitation have overwhelmed even recent significant drought episodes.

Projections, however, indicate that drought will at a minimum become more severe in the future—when it occurs. This increase would be in response to the inevitable increase in summertime high temperatures. It remains unclear whether the actual frequency of drought conditions will increase. Projected increases in the number of consecutive dry days during dry spells suggest that drought frequency may increase, in the form of short, "flash" drought episodes, as have been common in the early 2020s (**GRAPHIC 4.3.1L**).

GRAPHIC 4.3.1L Difference in number of *consecutive* days per year by mid-century (2040-2070) with less than 0.01 inches of precipitation. An increase in this variable is associated with an increase in the chance of drought in the future.



Projected changes in the same weather hazards that were shown and discussed previously are shown in **GRAPHIC 4.3.1M**, along with confidence associated with the projections. Highest scientific confidence is in the continued warming of winter, the continued loss of cold weather extremes, and continued increases in extreme rainfall, leading to occasional unprecedented events. Increases heat waves are projected with high confidence, because of both the increases in humidity already ongoing, and the increases in summer temperature extremes projected unanimously by climate models. With these increases in heat extremes, drought becomes somewhat more likely too, as described above; the severity of drought should increase as summer temperatures do, but it is unclear whether drought frequency will increase. As the century wears on, heavy snow events may continue being more extreme, but they should become less frequent as winter warms even more. Confidence remains moderately low with severe thunderstorms in general, even though seasonality will continue changing.

GRAPHIC 4.3.1N combines information known about observed and projected climate trends in Minnesota.

GRAPHIC 4.3.1M Confidence that various common Minnesota weather hazards will be impacted by climate change through 2070.

Confidence	Hazard	Expectations through 2070
Highest	Extreme cold	Continued rapid decrease in severity and frequency
	Extreme rainfall	Unprecedented events more common
High	Heat waves	Summer high temperatures, maximum dew point and heat index values all projected to increase
Moderately High	Drought	Increased severity likely as summer heat increases; frequency and duration projections unclear
Moderately Low	Heavy snowfall	Greater extremes, but events less frequent as winter rain increases
Moderately Low	Tornadoes, hail, thunderstorm winds	Intensity and frequency unclear but continued seasonal expansion and larger "outbreaks" possible

GRAPHIC 4.3.1N Confidence that various common Minnesota weather hazards will be impacted by climate change beyond 2026.

Climate changes observed and projected in Minnesota		
Climate Parameter	Observations through 2023	Projections (2041-2070)
Winter temperatures	**Increasing** rapidly, with loss of cold extremes	**Continued increases**, with narrowing of winter season
Rainfall	**Increasing** all seasons, with more extreme and damaging events	**Increases likely,** but timing and seasonality uncertain
Snowfall	**Increasing**, with more extreme and damaging events	**Seasonal decreases likely,** but some **increases possible** for extreme events
Summer temperature extremes and heat waves	**No long-term trend** for high temperature records, but hot season expanding and humid heat waves **increasing**	**Significant increases expected** in summer temperature extremes by 2050; continued increases in humid heat waves
Drought	**No long-term trend** despite intense & major episodes in early 2020s	**Increased severity likely** as summer heat increases; **projections unclear** for frequency and duration
Tornadoes, hail, thunderstorm winds	**Trends unclear,** but seasons and geographic ranges expanding	**Projections unclear** for frequency and intensity, but continued seasonal expansion and more "outbreaks" possible

4.3.1.9. Indications and Forecasting

Climate change is known to be ongoing and is continuously monitored by climatologists, atmospheric scientists, chemists, biologist, physicists, oceanographers, geologists, and many others. This includes the study of greenhouse gas concentrations, global temperatures, historical events, complex interactions between varying earth systems, and building forecasting models to make sophisticated global, regional, and local projections.

The state of the climate and the state of climate science are monitored and reported regularly by thousands of scientists in an array of fields and summarized in assessment reports provided by the Intergovernmental Panel on Climate Change (IPCC) and by the US Global Change Research Program.

4.3.1.10. Detection & Warning

The same scientists who contribute to the body of research summarized in the national and global assessment reports also issue statements and warnings regarding the trajectory of the climate and the steps needed to change that trajectory, and/or to protect ourselves against potentially dire consequences of not changing that trajectory.

While there are no warnings for climate change like tornado warnings, or flash flood warnings, the IPCC effectively issues warnings with the release of its reports. Some scientists also often issue warnings individually or as smaller groups. The overwhelming consensus among climate scientists is that the climate is changing faster than we can manage and that without fast reductions in greenhouse gas emissions, we will face severe consequences from heat waves, rising sea levels, larger storms, and greater extremes in general.

4.3.1.11. Critical values and thresholds

Climate change is an ongoing phenomenon that manifests itself through the persistent change in the statistical behavior of climatic variables. Although no critical values and thresholds exist in Minnesota, the following indicators represent rare and/or uncharted territory in Hennepin County, and would indicate climate change mileposts:

- February ice-out, Lake Minnetonka; earliest on record is March 11, 1878
- Lack of zero or colder temperature at MSP; has not happened yet, and fewest such readings was two in 2001-02
- Winter average temperature above 27° F --has only happened once, during “year without a winter” of 1877-78
- Low temperatures failing to reach -10° F. Previously it was -20° F, and then -15°F, but it we now commonly fail to reach these thresholds.
- No subzero high temperature all winter
- Summertime minimum temperatures in excess of 80 degrees
- 90° F in March, 70° F in December or February
- Tornadoes or severe convective storms at any time from November through February

4.3.1.12. Prevention

Preventing climate change requires global coordination and massively reducing the amount of coal, oil, and natural gas burnt for personal, municipal, industrial, and vehicular purposes. However, in the mitigation section you will find strategies to reduce the effects as well as adaptation examples for the changing climate.

Hennepin County has a comprehensive Climate Action Plan that includes ambitious goals to reduce greenhouse gas emissions across the county to “Net Zero” (no emissions, or all emissions balanced by reductions) by 2050. While this alone cannot stop climate change, it represents the type of action needed on a larger scale to do so.

4.3.1.13. Mitigation

In climate change studies and policy, "mitigation" refers to prevention of the climate change specifically through reducing greenhouse gas concentrations globally. The term "adaptation" generally refers to protecting systems and communities from the changing climate.

Hennepin County's Climate Action Plan lays out steps for not only reducing the greenhouse gas emissions that lead to heat retention and rising global temperatures, but also to adapt the county to the changing climate in a manner intended to improve resiliency and equity, while reducing vulnerabilities.

The plan has specific goals to:

- Protect and engage people, especially vulnerable communities.
- Enhance public safety.
- Increase the resilience of the built environment and protect natural resources.
- Reduce emissions in ways that align with core county functions and priorities.
- Partner in ways that can be most impactful.

The overall risks of future climate change impacts can be reduced by limiting the rate and magnitude of climate change by efforts to reduce or prevent emission of greenhouse gases.

Adaptation and mitigation are complementary strategies for reducing and managing risks of climate change. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behavior. It can be as complex as a plan for a new city, or as a simple as improvements to a cook stove design. Efforts underway around the world range from high-tech subway systems to bicycling paths and walkways. Protecting natural carbon sinks like forests and oceans or creating new sinks through green agriculture are also elements of mitigation. Adaptation examples are shown in **Table 4.3.1B**.
Table 4.3.1B.

Category	Examples
Human Develop.	Improved access to education, nutrition, health facilities, energy, safe housing & settlement structures, & social support structures; Reduced gender inequality & marginalization in other forms.
Poverty Alleviation	Improved access to & control of local resources; Land tenure; Disaster risk reduction; Social safety nets & social protection; Insurance schemes.
Livelihood Security	Income, asset & livelihood diversification; Improved infrastructure; Access to technology & decision- making fora; Increased decision-making power; Changed cropping, livestock & aquaculture practices; Reliance on social networks.
Disaster Risk Management	Early warning systems; Hazard & vulnerability mapping; Diversifying water resources; Improved drainage; Flood & cyclone shelters; Building codes & practices; Storm & wastewater management; Transport & road infrastructure improvements.

Ecosystem Management	Maintaining wetlands & urban green spaces; Coastal afforestation; Watershed & reservoir management; Reduction of other stressors on ecosystems & of habitat fragmentation; Maintenance of genetic diversity; Manipulation of disturbance regimes; Community-based natural resource management.
Spatial or land-use planning	Provisioning of adequate housing, infrastructure & services; Managing development in flood prone & other high-risk areas; Urban planning & upgrading programs; Land zoning laws; Easements; Protected areas.
Structural/Phy	***Engineered & built-environment options***: Sea walls & coastal protection structures; Flood levees; Water storage; Improved drainage; Flood & cyclone shelters; Building codes & practices; Storm & wastewater management; Transport & road infrastructure improvements; Floating houses; Power plant & electricity grid adjustments.
	Technological options: New crop & animal varieties; Indigenous, traditional & local knowledge, technologies & methods; Efficient irrigation; Water-saving technologies; Desalinization; Conservation agriculture; Food storage & preservation facilities; Hazard & vulnerability mapping & monitoring; Early warning systems; Building insulation; Mechanical & passive cooling; Technology development, transfer & diffusion.
	Ecosystem-based options: Ecological restoration; Soil conservation; Afforestation & reforestation; Mangrove conservation & replanting; Green infrastructure (e.g., shade trees, green roofs); Controlling overfishing; Fisheries co-management; Assisted species migration & dispersal; Ecological corridors; Seed banks, gene banks & other *ex situ* conservation; Community-based natural resource management.
	Services: Social safety nets & social protection; Food banks & distribution of food surplus; Municipal services including water & sanitation; Vaccination programs; Essential public health services; Enhanced emergency medical services.
Institutional	***Economic options***: Financial incentives; Insurance; Catastrophe bonds; Payments for ecosystem services; Pricing water to encourage universal provision and careful use; Microfinance; Disaster contingency funds; Cash transfers; Public-private partnerships.
	Laws & regulations: Land zoning laws; Building standards & practices; Easements; Water regulations & agreements; Laws to support disaster risk reduction; Laws to encourage insurance purchasing; Defined property rights & land tenure security; Protected areas; Fishing quotas; Patent pools & technology transfer.
	National & government policies & programs: National & regional adaptation plans including mainstreaming; Sub-national & local adaptation plans; Economic diversification; Urban upgrading programs; Municipal water management programs; Disaster planning & preparedness; Integrated water resource management; Integrated coastal zone management; Ecosystem-based management; Community-based adaptation.
	Educational options: Awareness raising & integrating into education; Gender equity in education; Extension services; Sharing indigenous, traditional & local knowledge; Participatory action research & social learning; Knowledge-sharing & learning platforms.

Social	***Informational options***: Hazard & vulnerability mapping; Early warning & response systems; Systematic monitoring & remote sensing; Climate services; Use of indigenous climate observations; Participatory scenario development; Integrated assessments.
	Behavioral options: Household preparation & evacuation planning; Migration; Soil & water conservation; Storm drain clearance; Livelihood diversification; Changed cropping, livestock & aquaculture practices; Reliance on social networks.
Spheres of change	***Practical***: Social & technical innovations, behavioral shifts, or institutional & managerial changes that produce substantial shifts in outcomes.
	Political: Political, social, cultural & ecological decisions & actions consistent with reducing vulnerability & risk & supporting adaptation, mitigation & sustainable development.
	Personal: Individual & collective assumptions, beliefs, values & worldviews influencing climate-change responses.

4.3.1.14. Response

- *See Hennepin County Emergency Operations Plan*

4.3.1.15. Recovery

Because it is very difficult to link a specific event to climate change, it is difficult to discuss recovery as it pertains to climate change versus each individual event as in other hazards. Please refer to the other hazard sections to review recovery from the specific hazard.

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4.3.2.	Hazard Assessment: TORNADO

4.3.2.1. Definition



A tornado is defined as a violently rotating column of air that reaches from a wall cloud or updraft base of a severe thunderstorm to the ground. Most tornadoes occur in severe thunderstorms, but not all severe thunderstorms will contain tornadoes. Tornado development depends on either condensed moisture from above and/or dust or debris from the surface to become visible. The wind speeds, width, duration, and length of travel of tornadoes vary widely. The degree of destruction depends on both the strength of the tornado and of what has been hit. Tornadoes may form alone or in some instances they may have satellites or twins that are in proximity. Some regions may experience several tornadoes that form during a few hours in a phenomenon called an outbreak. Outbreaks that repeat over several days are called an outbreak sequence.

4.3.2.2. Range of Magnitude

Tornadoes can appear in a variety of shapes and sizes ranging from large wedge shapes with a diameter greater than a mile down to thin rope like circulations. The strongest tornadoes can have wind speeds more than 200 mph. Tornado wind speeds are estimated after the fact based on the damage they produce. Tornadoes are characterized on a scale of 0 (weakest) to 5 (strongest) according to the Enhanced Fujita (EF) Scale. The original Fujita Scale was devised in 1971 by Dr. Ted Fujita of the University of Chicago. The scale gives meteorologist the ability to rate from F0 to F5 based upon the type and severity of damage that the tornado produced. At that time, there were very few actual measurements of tornado wind speeds that he could relate to the damage, but Dr. Fujita used them together with a lot of insight to devise approximate wind speed ranges for each damage category.

In subsequent years, structural engineers have examined damage from many tornadoes. They use knowledge of the wind forces needed to damage or destroy various buildings and their component parts to estimate the wind speeds that caused the observed damage. What they found was that the original Fujita Scale wind speeds were too high for categories F3 and higher, which may have led to inconsistent ratings, including possible overestimates of associated wind speeds.

With these inconsistent ratings in mind, a panel of meteorologists and engineers convened by the Wind Science and Engineering Research Center at Texas University devised the new Enhanced Fujita Scale, which became active as of February 1, 2007. The EF Scale incorporates more damage indicators and degrees of damage than the original “F” Scale, allowing more detailed analysis and better correlation between damage and wind speed. You can see both scale charts below **TABLE 4.3.2A**.

TABLE 4.3.2A Fujita Scale

Fujita Scale		Enhanced Fujita Scale* * In use since 2007	
F–0	40–72 mph winds	EF–0	65–85 mph winds
F–1	73–112 mph	EF–1	86–110 mph
F–2	113–157 mph	EF–2	111–135 mph
F–3	158–206 mph	EF–3	136–165 mph
F–4	207–260 mph	EF–4	166–200 mph
F–5	261–318 mph	EF–5	>200 mph

The follow are records from around the County as well as Hennepin County.

Maximum wind speed

- United States
  - 318 MPH (Moore, OK, May 3, 1999)
- Hennepin County
  - 166-200 (estimated)

Maximum width

- United States
  - 2.6 miles (El Reno, OK Tornado, May 31, 2013)
- Hennepin County
  - 880 Yards (St. Louis Park, May 22, 2011)

Longest track

- United States
  - 235 miles (Tri-State Tornado, March 18, 1925)
- Hennepin County
  - Hennepin: 70.9 Miles (June 23, 1952)

Fastest forward motion:

- United States
  - 73MPH (Tri-State Tornado, March 18, 1925)
- Hennepin County
  - 30 MPH (Champlin-Anoka Tornado, June 18th, 1939)[4]

Largest outbreak

- United States
  - 211 tornadoes in 24 hours (SE US outbreak, April 27, 2011)
- Hennepin County
  - 3 tornadoes in 3 hours (May 6, 1965)

Longest duration

- United States
  - 3.5 hours (Tri-State Tornado, March 18, 2915)

Greatest pressure drop.

- United States
    - 100 milibars (Manchester, SD, June 24, 2003). *An unofficial drop of 194 millibars was noted from the Tulia, TX tornado on April 21, 2007.

Costliest tornado

- United States
    - $2.9 billion (Joplin, MO, May 22, 2011)

Deadliest tornado

- United States
    - 695 killed (Tri-State Tornado, March 18, 1925)

Deadliest modern-day tornado

- United States
    - 158 killed (Joplin, MO, May 22, 2011)

Deadliest tornado outbreak

- United States
    - 747 killed (Tri-State Outbreak, March 18, 1925)

Deadliest modern-day outbreak

- United States
    - 324 killed (SE US Outbreak, April 25-28, 2011)

4.3.2.3. Spectrum of Consequences B2b

The consequences from tornadoes can range from minor damage and injuries to complete destruction and death. Please see the chart below (**TABLE 4.3.2B**) that correlates the EF rating scale with the expected damage seen.

TABLE 4.3.2B EF Rating Scale

EF Rating	Wind Speeds	Expected Damage	
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.	 
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.	 
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.	 
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.	 
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.	 
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.	 

4.3.2.4. Potential for Cascading Effects

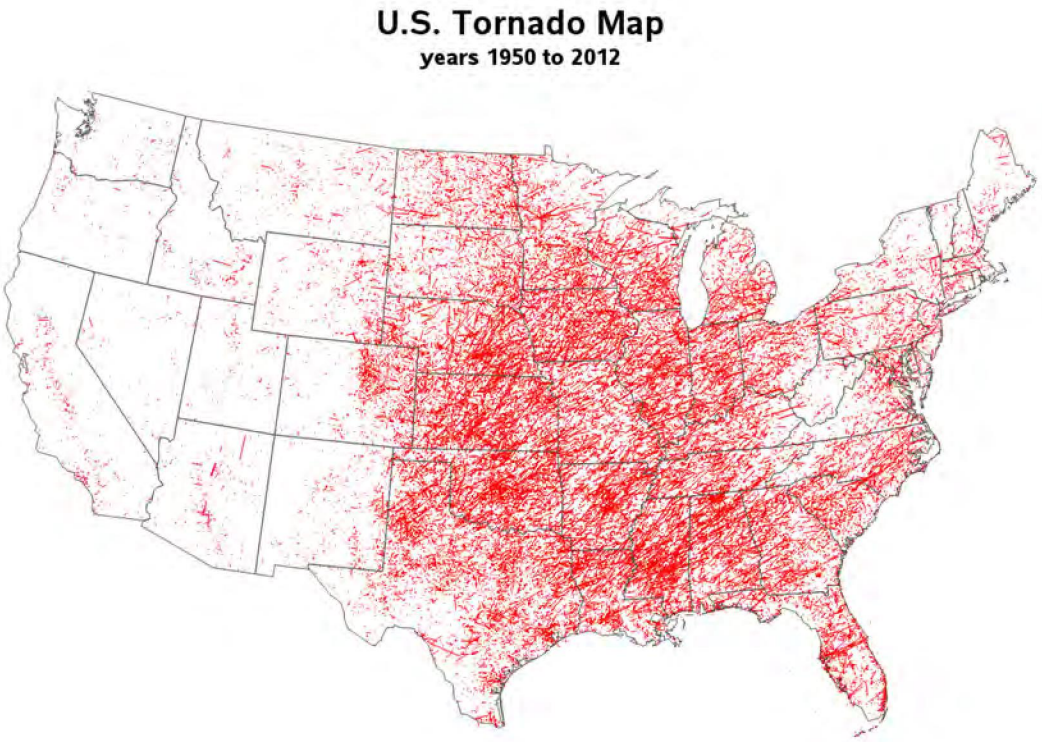
Beyond the destruction and lives that tornadoes leave behind, there are many cascading events or hazards that can follow. If a tornado takes out a power source and there is expected extreme temperatures to follow, you have now increased the number of people vulnerable to extreme heat or cold event consequences. A lack of power impacts the ability of people to remain warm or cool and may also disable medical equipment. If a tornado disrupts farming is, anyway, this can lead to food shortages and/or disrupt the food chain. As debris is deposited anywhere and everywhere from a tornado, this can lead to water contamination, and a fire hazard with lumber from houses, buildings and trees amongst damaged power lines and gas leaks.

Another consequence is the economy impact. Indirect losses that occur from the destruction of a tornado are hard to estimate directly after an event. Losses could include lost production, sales, incomes and labor time, increased commute times and transportation costs from goods having to be rerouted, decreased tourist activity, and utility disruptions. Some people might lose their jobs all together. The decreased economic activity also results in lost taxable receipts and uses up federal disaster relief funds to help the clean-up, repair, and replacing of loss assets. Loss of production an also result in surging prices due to shortages. A well-known example of this occurred when refineries were affected by a tornado in the southern United States in 2011, which caused gas prices to rise.

4.3.2.5. Geographic Scope of Hazard B1c

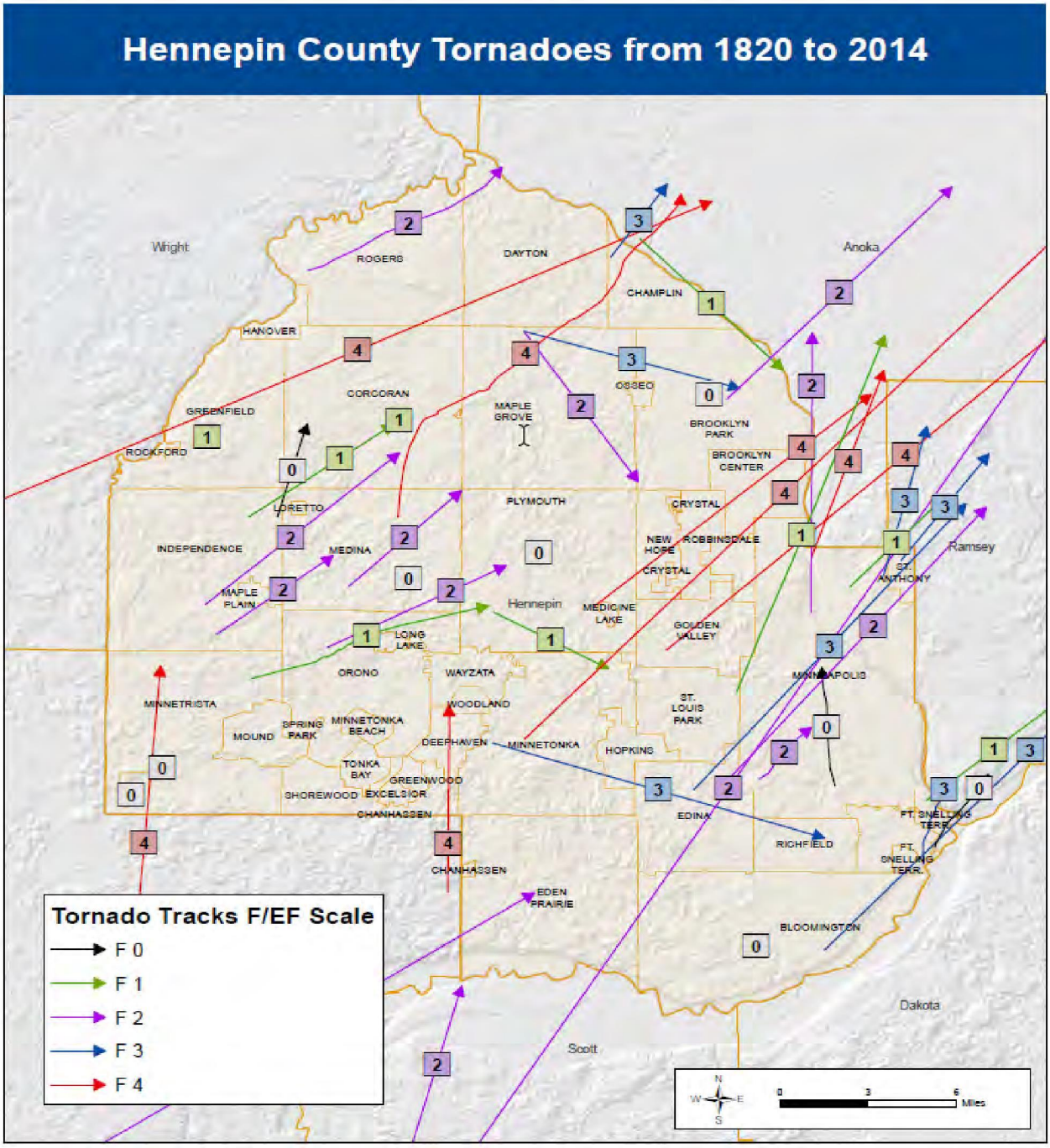
The United States has the highest incidence of tornadoes worldwide, with more than 1,000 occurring every year. This is due to the unique geography that brings together polar air from Canada, tropical air from the Gulf of Mexico, and dry air from the Southwest to clash in the middle of the country, producing thunderstorms and the tornadoes. The illustration below (**GRAPHIC 4.3.2A**) provides all tornadoes that have occurred from 1950-2012 as plotted by the Storm Prediction Center.

GRAPHIC 4.3.2A National Tornado Occurrence Map 1950-2012



The illustration below (**GRAPHIC 4.3.2B**) provides all tornadoes that have occurred from 1820-2014 as listed by Hennepin County Archives.

GRAPHIC 4.3.2B Hennepin County Tornado Occurrence map 1820-2014

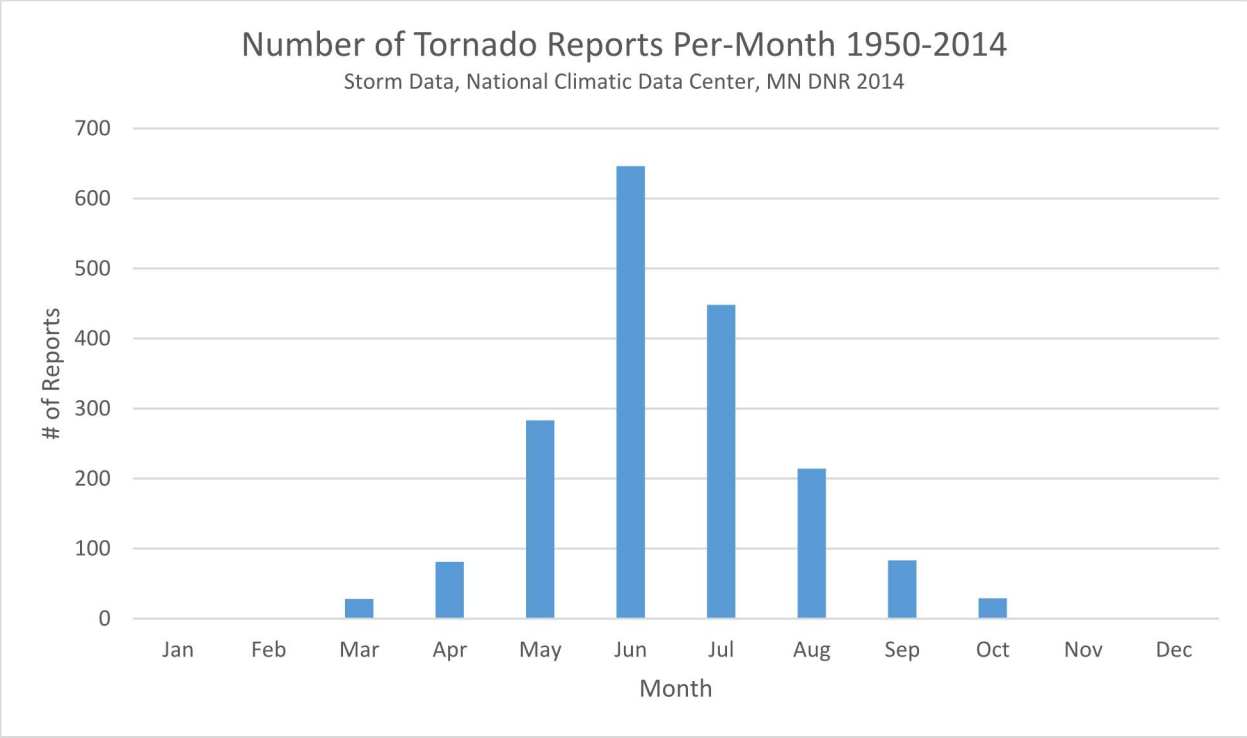


4.3.2.6. Chronological Patterns

Tornadoes can occur during any time of day and any time of year. However, most tornadoes have occurred in the afternoon hours and during the months of May through August. The graphic below (**GRAPHIC**

4.3.2C) shows the tornado reports nationally from 1950-2014. You can see in the chart that tornadoes occur (and are reported) more typically starting in April through September with the greatest months being June and July. These two months are typically identified as Minnesota's tornado season.

GRAPHIC 4.3.2C



4.3.2.7. Historical Data/previous occurrence B1d

Native peoples in tornado-prone areas such as Hennepin County experienced tornadoes and developed oral traditions to explain them. The first written record of an American tornado is from July 8, 1680, in Cambridge, MA. The first officially recorded tornado in Minnesota was sighted near Fort Snelling in Hennepin County on April 19, 1820. Because tornadoes are more numerous in the United States than any other nation, tornadoes have been studied here more than anywhere else. In 1882, the U.S. Army Signal Corps assigned Sgt. John Finley to investigate weather conditions that form tornadoes. Technology limits made the early understanding of tornado anatomy difficult. The adoption of radar revolutionized the study and forecasting of tornadoes. The first US Weather Bureau radar in Minnesota was installed at the Minneapolis-Saint Paul International Airport in the early 1960s. Air Force meteorologists issued the first tornado forecast in March 1948. The US Weather Bureau followed suit by 1952. Important advancements in understanding tornadoes were made by Theodore Fujita who studied tornado formation and damage across the Midwest in the 1960s and 70s. Modern era radar was installed at the Twin Cities office of the National Weather Service in 1996.

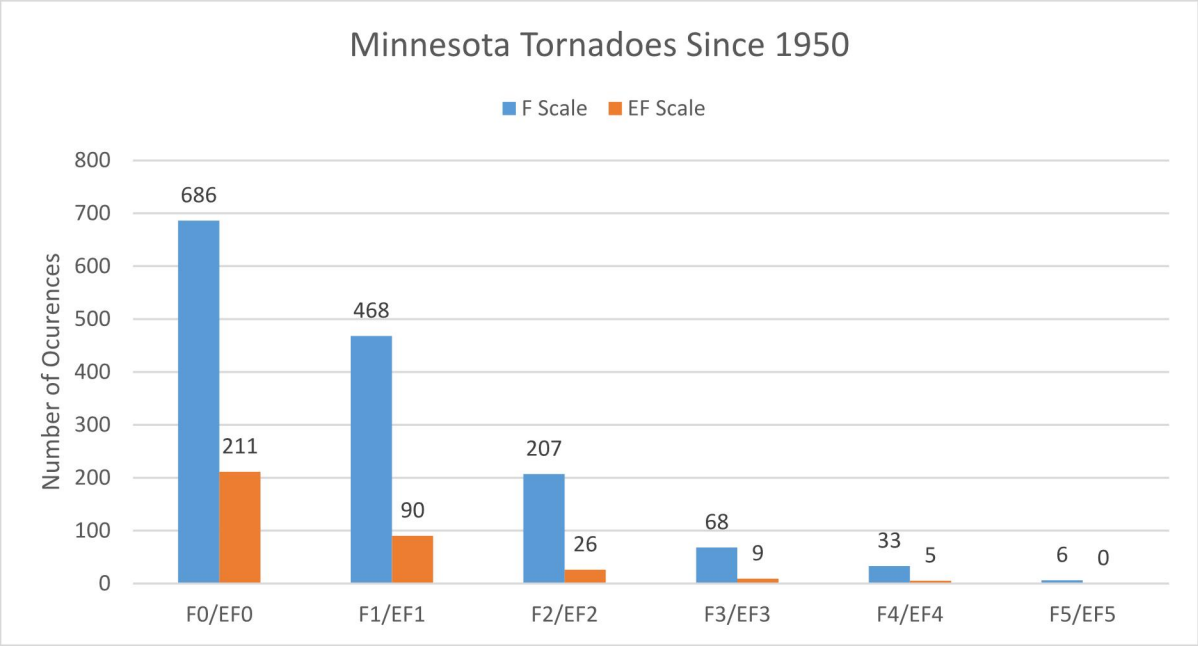
In Minnesota and Hennepin County, the record of tornado sightings encompasses nearly 200 years from records kept at Fort Snelling. The local newspaper record, which often contain notices of weather events, goes back over 160 years. In general, early reports are incomplete and may contain some factual errors.

As settlement and population density increased, human interactions with tornadoes also increased. Reports became more numerous. **GRAPHIC 4.3.2D** and **GRAPHIC 4.3.2E** depict standardized and reliable tornado data in Minnesota and in Hennepin County extending back to 1950. Advanced technology has made detection easier and resulted in more reports of weak tornadoes.

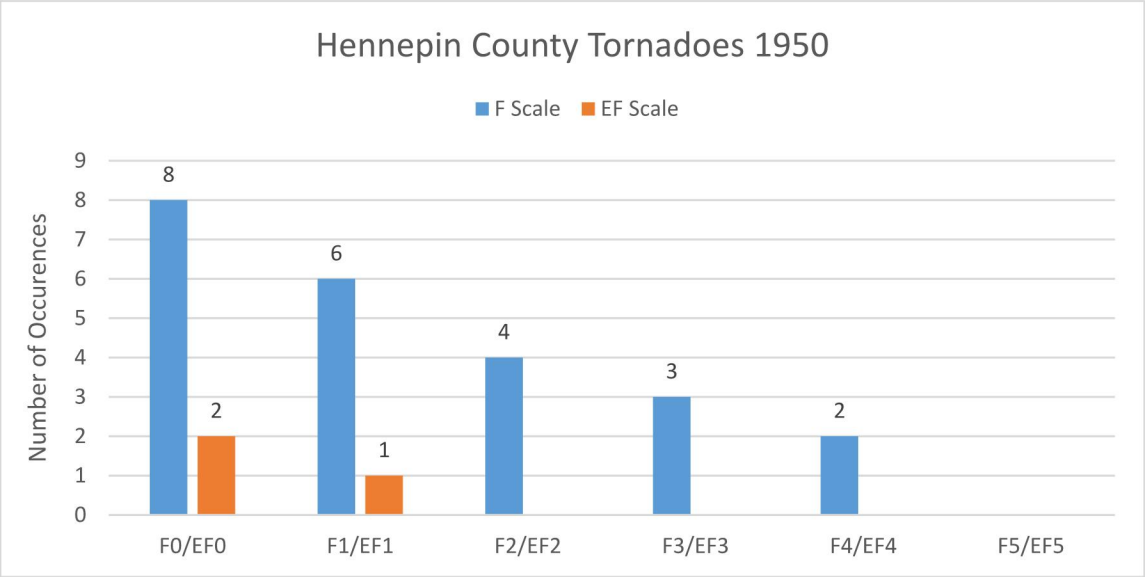
- May 22, 2011
- May 6, 1965

There have been no other incidents identified.

GRAPHIC 4.3.2D



GRAPHIC 4.3.2E



4.3.2.8. Future Trends B1e

When looking at trends of tornado occurrences, one must keep in mind how reporting has changed over the last decade as well as population increase. With more people covering a larger geographical area than 100 years ago, there is bound to be more reports of tornadoes occurring because people are there to see them. There seems to be no trend since 1954 of the occurrences of F1 and stronger tornadoes and increase in tornado reports results from an increase in the weakest tornadoes, F0. If just looking at stronger events being reported, you can run into the problem of changes in tornado damage assessment procedures in trend identification.

Taking out changes in population and reporting measures, there is less trend in the number of tornadoes per year, as in there doesn't seem to be a growing number of tornadoes each year, or less for that matter. Research does show there seem to be more extreme swings in tornadoes per year. While years have always varied in terms of number of tornadoes, they generally fell between a certain range. In the past decade however, researchers have started seeing toad counts that have deviated well outside of that range. Another trend researchers are seeing is the number of tornado days seems to be decreasing, while the number of tornadoes per day has been increasing.

Researchers have also been looking into trends on when the 'tornado season' starts. The average start days of tornadoes is March 22nd, and that has not changed (tornado season start is defined as first 50 tornadoes of F1/EF1 strength have been reported). However, there have been later and early starts to the season in recent years. Seven of the 10 earliest tornado starts have occurred since 1996, and four of the latest starts occurred between 1999 and 2013 of 60 years of records.

4.3.2.9. Indications and Forecasting

National responsibility for developing tornado indications and forecasts rests with the National Oceanic and Atmospheric Administration/National Weather Service's Storm Prediction Center (SPC) in Norman, Oklahoma. The SPC issues daily Convective Weather Outlooks. These outlooks give general categories that explain the chances/risk of tornadoes each day. As conditions look to develop more favorable for tornadic storms to occur, the SPC will issue Mesoscale Discussions (MDs). MDs contain a graphical depiction of the mesoscale convective developments, an area affected line, concerning line, valid time, a summary paragraph summary, and a paragraph for a technical discussion. There are five categories of concern issued with the MD:

- Severe Potential…Watch Unlikely (5 or 20%)
- Severe Potential…Watch Possible (40 or 60%)
- Severe Potential…Watch likely (80 or 95%)
- Severe Potential…Tornado Watch likely (80 or 95%)
- Severe Potential…Severe Thunderstorm Watch Likely (80 or 95%)
- Severe Potential…Watch Needed Soon (95%)

After an MD is issued, SPC will monitor conditions and if tornadic potential still is likely, they will issue a tornado watch. A tornado watch is issued when atmospheric conditions are favorable for the development of severe thunderstorms capable of producing tornadoes. On average, Hennepin County is included in 4 tornado watches each year. In addition to the SPC's information about potential for tornadoes, the National Weather Service Forecast Office will issue Hazardous Weather Outlook (HWO) based on their thoughts for the potential of tornadoes occurring. In this discussion, they will highlight the best time, and generally geographic location for storms to occur.

4.3.2.10. Detection and Warning

National responsibility for detection and warning of tornadoes falls on the local National Weather Service's Weather Forecast Offices (WFO). The local WFO for Hennepin County is in Chanhassen, MN. One of the systems the WFO uses to detect tornadoes is RADAR. There are two RADAR sites that the Chanhassen WFO uses, the NEXRAD WSR-88D and the Terminal RADAR. The NEXRAD WSR-88D is located at the Chanhassen WFO office, and the Terminal RADAR is in Woodbury and is used daily for incoming aircraft. There are many different products that the NWS can use from these RADARS that help them detect whether a storm has a tornadic signature to it.

Another avenue that the WFO uses are spotter reports, or reports from emergency managers. In the metro region, there is an organized amateur radio group called Metro SKYWARN that teach SKYWARN spotter classes to amateur radio operators so they can make reports directly to the local WFO. Hennepin County Emergency Management also trains internal SKYWARN spotters to report to the Hennepin County Emergency Operations Center during activations or directly to the local WFO.

If the WFO sees evidence that there is a tornado either on the ground, or the potential, they will issue a tornado warning. A tornado warning means a severe thunderstorm has developed and has either produced a tornado or radar has indicated the presence of atmospheric conditions conductive to tornado development. On average, Hennepin County is in a tornado warning between 30 and 45 minutes a year. Once a tornado warning has been issued, there are a variety of notification systems that notified

automatically in which they then send off the notification of tornado warning as well: Wireless Emergency Alerts (WEA), Outdoor Warning Sirens, Digital Message Signs, IPAWS, and NOAA Weather Radios. In addition to the automatic notification, television and radio station may also begin to broadcast the warning information.

4.3.2.11. Critical Values and Thresholds

According to NOAA, there is no single critical threshold values to confirm or predict the occurrence of tornadoes of a particular intensity without looking at damage. The critical values of the F & EF tornadoes scales can be seen above in the *Range of Magnitude* section.

4.3.2.12. Prevention

There is nothing you can do to prevent a tornado from occurring. However, you can prevent some of the consequences from occurring by being prepared. It is crucial to always be aware of the weather forecast and if there is a possibility of severe weather. Further, having multiple methods of receiving weather alerts from official sources is also important.

4.3.2.13. Mitigation

While there is no way to prevent a tornado from occurring, you can prevent some of the consequences from occurring by being weather aware for life safety, build safe rooms for sheltering or retrofit walls to safe room standard. Here are some of the ideas from the FEMA Mitigations Handbook

Education and Awareness Programs:

- Conduct outreach activities to increase awareness of tornado risk and impacts.
- Educate citizen through media outlets.
- Conducting tornado drills in schools and public buildings
- Teaching schoolchildren about the dangers of tornadoes and how to take safety precautions.
- Distributing tornado shelter location information
- Supporting severe weather awareness week
- Promoting use of National Oceanic and Atmospheric Administration (NOAA) Weather Radios.

Construction of Safe Rooms:

- Requiring construction of safe rooms in new schools, daycares, and nursing homes.
- Encouraging the construction and use of safe rooms in homes and shelter areas of manufactured home parks, fairgrounds, shopping malls, or other vulnerable public structures.
- Encouraging builders and homeowners to locate tornado safe rooms inside or directly adjacent to houses to prevent injuries due to flying debris or hail.
- Developing a local grant program to assist homeowners who wish to construct a new safe room.

Require Wind-Resistant Building or Retrofitting Techniques:

- Structural bracing
- Straps and Clips Anchor Bolts
- Laminated or impact-resistant glass.
- Reinforcement pedestrian and garage door

4.3.2.14. Response

Hennepin County Emergency Management Capabilities

- Situation monitoring Station (SMS)
- HCEM Immediate Impact Reconnaissance Teams
- Mutual Aid

4.3.2.15. Recovery

There are two types of recovery, short term, and long term. Initial short-term recovery can be getting the power back on or cleaning up debris. There are many things to consider when talking about long-term recovery. Depending on the extend of the tornado and location, large, wooded areas can pose a fire threat, so damaged trees and branches need to be managed. Another important consideration is business recovery. It took Joplin 3 years to be able to re-build their hospital and high school. Other businesses have been shown the struggle for one or more years after a disaster. Another consideration of recovery is the mental recovery of not only victims, but of the rescue workers that responded and helped during the initial short-term recovery process.

4.3.2.16. References

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4.3.3.	Hazard Assessment: WIND, EXTREME STRAIGHT-LINE

4.3.3.1. Definition



Extreme straight-line winds are thunderstorm winds that exceed 70 mph and can reach or exceed 100 mph. Along with damage potential to trees, power lines, vehicles and structures, these winds pose risks to life and safety.

Most thunderstorms produce gusty winds from downdrafts of air flowing from the tops of the storm. Some thunderstorms produce winds of 58 mph or stronger, officially making them "severe" by National Weather Service standards.

Occasionally, severe thunderstorms will produce destructive winds that far exceed the 58-mph threshold. These winds are often referred to as "straight-line winds," to differentiate them from the cyclonic, turning winds of a tornado. Extreme straight-line winds can indeed produce tornado-like damage.

Extreme thunderstorm winds can be highly localized, or widespread along an arc of storms extending dozens of miles or concentrated locally in numerous individual cells within a line or cluster of storms. The duration of straight-line winds at a given location can be as brief as 30 seconds or can last upwards of 30 minutes. The storms producing the extreme winds may cover just 30 miles, or they may track for hours and cover hundreds of miles.

The latter case represents an important class of extreme thunderstorm winds called "derechos." A *Derecho* is an extreme, widespread, and long-lived windstorm, usually associated with bands of rapidly moving showers or thunderstorms variously known as bow echoes, squall lines, or quasi-linear convective systems. If the swath of wind damage extends for more than 240 miles, includes wind gusts of at least 58 mph along most of its length, and several, well-separated 75 mph or greater gusts, then the event may be classified as a derecho.

In general, derechos follow two basic types: *Progressive Derechos* tend to form on the northern edge of a steamy air mass, and the derecho is usually associated with one primary, very intense thunderstorm cell that follows the boundary of the hot air. These derechos have the greatest potential for catastrophic damage, and given enough instability, there is almost no limit to the intensity of their thunderstorm winds.

Serial Derechos, by contrast, tend to form to the west of warm and unstable air masses, often along cold fronts, and often in the presence of very fast winds aloft. These instances lead to long, arcing, fast-moving lines of storms with many different cells, any of which can harness the strong winds aloft and produce damaging winds. These derechos can produce widespread damage because of all the "candidate" storm cells, but they generally lack the destructive potential of progressive derechos.

Hennepin County has been affected by numerous extreme straight-line windstorms, including derechos. Every decade from the 1950s through the 2010s had multiple extreme thunderstorm wind events within

the county.

4.3.3.2. Range of magnitude

Maximum wind speeds:

- Hennepin:
  - Measured 100 mph, Wold-Chamberlain Field (MSP), July 20, 1951
  - Measured 86 mph at Flying Cloud Airport, on 15 July 1980
  - Estimated over 100 mph on July 3, 1983
- Other Twin Cities Metro:
  - 110 mph sustained, gust 180 mph, St. Paul, Aug 20, 1904
- Minnesota:
  - 121 mph, Donaldson, MN, September 1, 2011
  - 117 mph, Alexandria, July 19, 1983
- Region:
  - 128 mph (Northeast of Madison, WI May 31, 1998)
  - 126 mph, Atkins, IA, August 10, 2020 (140 mph estimated from damage surveys)

Maximum width: 100 miles (Kansas – The "Super Derecho of May 8, 2009)
Longest track: 1300 miles (The Boundary Waters-Canadian Derecho July 4-5, 1999)
Longest duration: 22 hours (The Boundary Waters-Canadian Derecho July 4-5, 1999)
Costliest US Derecho: $7.5 Billion (The Iowa-Midwest Derecho of August 10, 2020)
Deadliest US Derecho: 73 killed (The "More Trees Down" Derecho July 4-5, 1980)

4.3.3.3. Spectrum of Consequences B2b

Extreme thunderstorm winds and derechos are most common in the warm season and pose risks to those involved in outdoor activities. Campers or hikers in forested areas are vulnerable to being injured or killed by falling trees. Boaters risk injury or drowning from storm winds and high waves that can overturn boats. Trees around lakes pose risks to walkers, joggers, and cyclists. At outside events such as fairs and festivals, people may be killed or injured by collapsing tents and flying debris. Additionally, anyone caught outside may be injured by flying debris. Any person without adequate shelter is at significant risk in extreme thunderstorm winds.

Occupants of cars and trucks also are vulnerable to being hit by falling trees and utility poles. Further, high profile vehicles such as semi-trailer trucks, buses, and sport utility vehicles may be blown over.
Even those indoors may be at risk for death or injury during derechos. Mobile homes may be overturned or destroyed, while barns and similar buildings can collapse. People inside homes, businesses, and schools are sometimes victims of falling trees and branches that crash through walls and roofs; they also may be injured by flying glass from broken windows. Finally, structural damage to the building itself (for example, removal of a roof) could pose danger to those within.

Throughout Hennepin County, and especially in suburban and urban areas, electrical lines are vulnerable to high winds and falling trees. In addition to posing a direct hazard to anyone caught below the falling lines, wind damage to the power infrastructure can result in massive, long-lasting power outages.

Hundreds of thousands of people may lose power for a week or more, as happened most recently in 2013.

In addition, unlike the localized damage produced by a tornado, often covering the equivalent of one square mile, extreme thunderstorm wind damage can be widespread, affecting tens or even hundreds of square miles within the county. As a result, repairs often require substantial effort, with additional delays related to shortages in supplies.

Extreme straight-line winds also can expose socio-economic vulnerabilities among Hennepin County's diverse and growing population. Derechos and severe thunderstorms can strike quickly, posing serious challenges to the elderly, or anyone with limited mobility who is caught outside. Those new to the region who are unfamiliar with severe weather, how to access information about it, and how to respond, may be caught off-guard and unprepared for the dangerous winds. Language barriers also may prevent some people from getting vital information as the storm is approaching. Anyone without adequate shelter will be subject to all the risks of being outside during dangerous thunderstorm winds. In general, extreme thunderstorm winds pose greater threats to disadvantaged populations that may lack the resources others have to anticipate, plan for, seek shelter from, and recover from extreme straight-line winds.

4.3.3.4. Potential for cascading effects

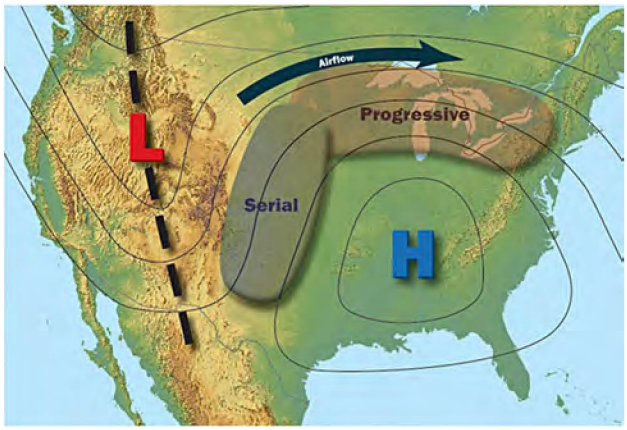
- *Flash Flooding* - On occasion, the convective system responsible extreme wind damage will stall, back-build, or regenerate, producing excessive rainfall. In other cases, the storm may simply unload enormous quantities of rainfall. On July 1, 1997, a complex of thunderstorms produced 80-110 mph winds and extensive damage from Wright into western Hennepin County, while dropping 3-5 inches of rain in 60-90 minutes over much of the area. The rains flooded every type of road in the county, submerging vehicles and significantly delaying emergency vehicles deployed to respond to the extreme wind event.

- *Power Outages and Arctic Outbreaks* – Dangerously cold air had never been considered a serious concern in relation to extreme thunderstorm winds and derechos, which tend to form during the warm season. On December 15, 2021, however, a historic outbreak of intense thunderstorm winds and tornadoes struck southeastern Minnesota, knocking out power for 1-3 days as temperatures in the 10s F settled into the region.

  Any extreme straight-line wind occurring outside the usual warm season, and particularly between November and March, may pose significant cold weather risks in its aftermath. Without power, electrical baseboard heat will not operate, nor will many appliances, security systems, electronic devices, or lights.

- *Power Outages and Intense Heat* – Some of the most intense summer thunderstorm winds and the explosive class of "progressive derechos" tend to occur on the fringes of major heat waves. The heat and deep moisture often pool near the boundary that promotes the development of thunderstorms, and those ingredients act to fuel the intensification of the storms and the development of destructive winds.

  When thunderstorm winds damage the electrical infrastructure during or prior to intense heat waves, residents are left without the benefit of air-conditioning while having to deal with intense heat. This sort of cascading effect occurred in the Ohio Valley and eastern US on June 29, 2012, when a derecho traveled for 700 miles, impacting 10 states and Washington, D.C. An estimated 4 million customers lost power for up to a week. The region impacted by the derecho was also during a heat wave, which claimed 34 lives in areas without power following the derecho.



This map illustrates the large-scale meteorological environment favorable for progressive and serial derechos on the northern or western fringe of a high-pressure area associated with a major heat wave over central and eastern United States.

Wildland Fires – Extreme straight-line winds and derechos can obliterate millions of trees across miles of forest due to the extreme winds associated with them. This increases fuel loads on forests and escalates the risk of wildland fire.

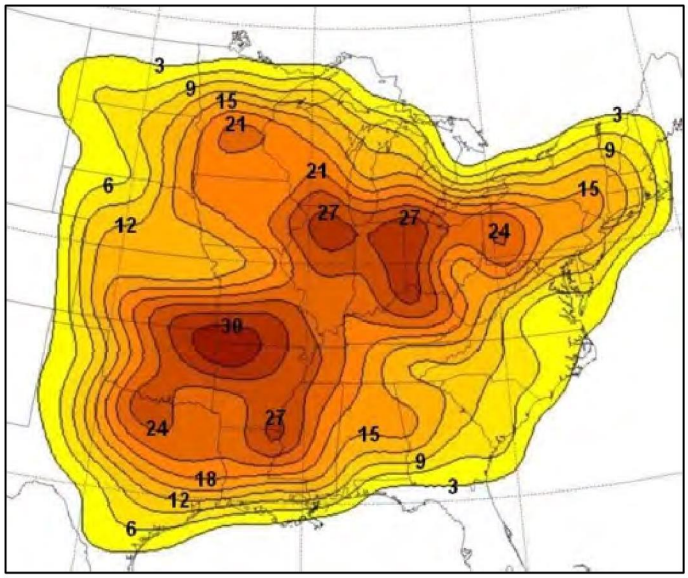
Tornadoes – Extreme straight-line winds and tornadoes can and do occur with the same convective system at times. In addition to the December 15, 2021, event discussed above, damaging straight-line winds and tornadoes also occurred near each other in or close to Hennepin County on July 3, 1983, July 1, 1997, and September 21, 2005.

The tornadoes may occur with isolated supercells ahead of the derecho producing squall line, or they may develop from storms within the squall line itself. Tornadoes have occurred with serial derechos, as on December 15, 2021, and on May 12, 2022, in southwestern Minnesota, and they have also occurred with progressive derechos, as on July 3, 1983.

Blizzards – It has yet to be documented in Minnesota, but any cold-season derecho is likely to be associated with a vigorous low-pressure system and it would be possible for not just cold air, but intense snow and wind, to follow damaging thunderstorms within 6 to 48 hours.

4.3.3.5. Geographic Scope of Hazard B1c

Hennepin County is within a high-frequency corridor for extreme thunderstorm winds and derechos that covers much of the eastern half of the US. Every part of the county has experienced significant damage from unusually intense thunderstorm winds. Within the county, there are no favored areas. Winds estimated to 80 mph hit downtown Minneapolis in April of 1986, tearing a hole in the roof of the Metrodome. Winds at least that strong winds have hit every corner of the county, with 100 mph winds measured at the international airport in 1951, and winds likely well over 100 mph striking the northern suburbs in July of 1983.



Approximate number of times "moderate and high intensity" (MH) derechos affected points in the United States during the years 1980 through 2001. Areas affected by 3 or more derecho events are shaded in yellow, orange, and red.

Nationally, derechos most commonly occur along two axes. One track parallels the "Corn Belt" from the upper Mississippi Valley southeast into the Ohio Valley; the other extends from the southern Plains northeast into the mid-Mississippi Valley. During the cool season (September through April), derechos are relatively infrequent but are most likely to occur from east Texas into the southeastern states. Although derechos are rare west of the Great Plains, derechos occasionally do occur over interior portions of the western United States, especially during spring and early summer.

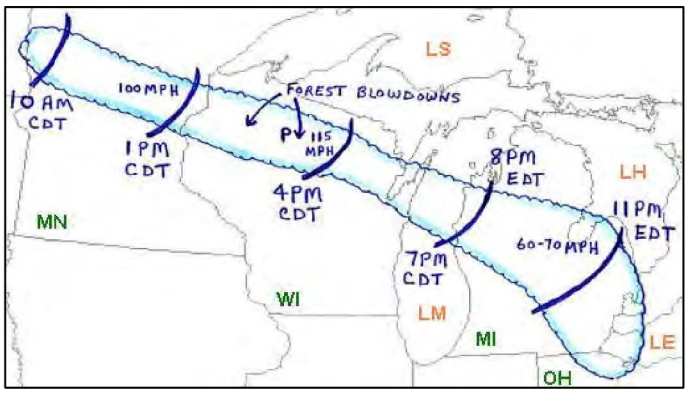
The highest annual frequencies of occurrence appear along the "Corn Belt," from Minnesota and Iowa into western Pennsylvania, and in the south-central states, from eastern parts of the southern Plains into the lower Mississippi Valley. However, the frequencies vary by season. During the warm season (May through August), derecho events are most frequent in the western part of the Corn Belt. During the remainder of the year (September through April), the maximum frequencies shift south into the lower Mississippi Valley

4.3.3.6. Chronologic patterns (seasons, cycles, rhythm)

Extreme straight-line winds and derechos in the United States are most common in the late spring and summer (May through August), with more than 75% occurring between April and August. The seasonal variation of derechos corresponds rather closely with the incidence of thunderstorms. However, as noted above, Minnesota (and neighboring states) experienced extreme straight-line winds qualifying as a derecho on December 15, 2021.

4.3.3.7. Historical data/previous occurrence B1d

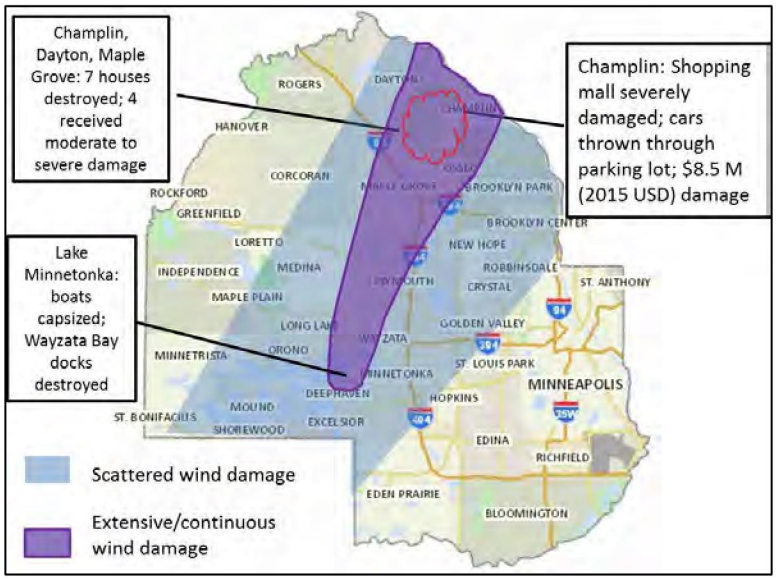
The Independence Day Derecho of 1977



Although it did not affect Hennepin County, the "Independence Day Derecho of 1977" formed over west central Minnesota on the morning of Monday, July 4th. As the derecho moved east-southeast, it became very intense over central Minnesota around midday. From that time through the afternoon, the derecho produced winds of 80 to more than 100 mph, with areas of extreme damage from central Minnesota into northern Wisconsin.

The derecho continued rapidly southeast across parts of Lower Michigan during the evening, producing winds up to 70 mph and considerable damage before finally weakening over northern Ohio around 1:30 AM on Tuesday, July 5th. This event was notable for affecting recreationist and travelers out enjoying the Independence Day holiday.

West Metro to Northern Wisconsin Derecho of 1983



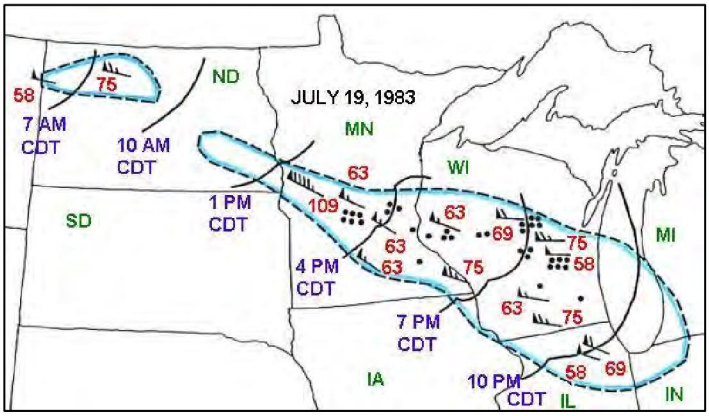
On July 3, 1983, between 12:30 and 13:20 local time, a complex of extremely severe thunderstorms affected a southwest to northeast swath of Hennepin County. Damage was most extensive from eastern Lake Minnetonka, through Maple Grove and Champlin. The storms continued into Anoka County and produced the Twin Cities area's most recent EF-4 tornado in Andover (most recent as of January 2024).

Extreme straight-line winds caused significant damage in a southwest-to-northeast swath across Hennepin County. The storm complex raced northeastward into Wisconsin during the next few hours, and aerial surveys conducted by the University of Chicago found over 150 linear miles of continuous EF-1-equivalent straight-line wind damage, with pockets of EF-2 damage—stretching from Carver County to Ashland, Wisconsin. The National Weather Service Issued "Very Severe Thunderstorm Warnings" for the storm, to indicate winds in excess of 75 mph, and sirens sounded throughout Hennepin County.

This storm remains (as of 2024) the most destructive severe convective storm event in the Twin Cities Metropolitan Area, since the May 6, 1965, tornado outbreak.

The I-94 Derecho of 1983

Around dawn on the morning of Tuesday, July 19, 1983, well north of warm/stationary front over South Dakota and northern Iowa, a bow echo moved out of northeast Montana and began producing damaging winds in northwest North Dakota. This would be the beginning of a noteworthy progressive derecho event that would move across the northern Great Plains and upper Mississippi Valley and reach the Chicago metropolitan area by late evening.



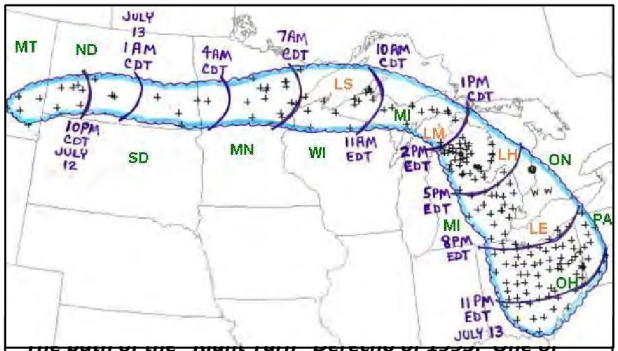
The path of the 1983 I-94 Derecho as it crossed over six states on July 19, 1983.

As the convective system's cold pool continued to deepen and elongate east-southeastward with the mean cloud-layer flow, it ultimately reached the warm front as that boundary advanced slowly north across eastern South Dakota and southern Minnesota. This meeting occurred during the early afternoon over west central Minnesota, and likely accounts for the appreciable increase in storm strength observed around that time as the convection became surface based. At this time the storm system also expanded in scale, evolving into a squall line with two and sometimes three bow echo segments as it continued across Minnesota and later Wisconsin, with Interstate 94 near its central axis.

Winds over 100 mph were recorded at the airport in Alexandria, Minnesota, Minnesota, where planes and hangers were damaged and destroyed. The storm continued to produce much damage as it moved east-southeast across south central and southeast Minnesota; approximately 250,000 customers lost electrical power in the Minneapolis/St. Paul area, a record at that time. Thirty-four people were injured in Minnesota and Wisconsin from this storm. Of these injuries, 12 were from mobile homes being blown over, and eight were from falling trees.

The Northwoods/ "Right Turn" Derecho of 1995

During the late afternoon of Wednesday, July 12, 1995, thunderstorms formed over southeast Montana and began producing winds that damaged homes and barns. As the storm system moved east across North Dakota, vehicles were overturned, and a grain bin was destroyed. Measured winds reached 70 mph at Bismarck, ND. As the system approached Fargo during the early morning of July 13th, it became a well-defined bow echo storm with measured winds of 91 mph at the Fargo airport. The



The path of the "Right Turn" Derecho of 1995. One of three derechos to occur on consecutive days across Northern Minnesota.

derecho was becoming a "high end" event.

The derecho took a track similar to one of the previous nights, producing significant damage for the second night in a row from southeast North Dakota eastward across northern Minnesota to western Lake Superior. Damage was extreme across Minnesota, with over five million trees blown down and many buildings damaged, and some destroyed. Six campers were injured from the falling trees during the pre-dawn hours. Trucks with plows were needed to clear many of the roads, and some areas were without power for a week. Damage totaled well over $30 million in 1995 dollars.

Extreme Thunderstorm Winds and Other Hazards, July 1, 1997
A complex of very intense thunderstorms moved out of South Dakota during the afternoon and approached the Twin Cities during the early evening, producing multiple tornadoes rated up to F-3 (now EF-3), along with destructive winds that spread from central Minnesota into Wright, Sherburne, Hennepin, and Anoka counties and beyond. Although not long enough to qualify as a derecho, this storm was as destructive over a path that was over 100 miles long and 10 miles wide in some areas.

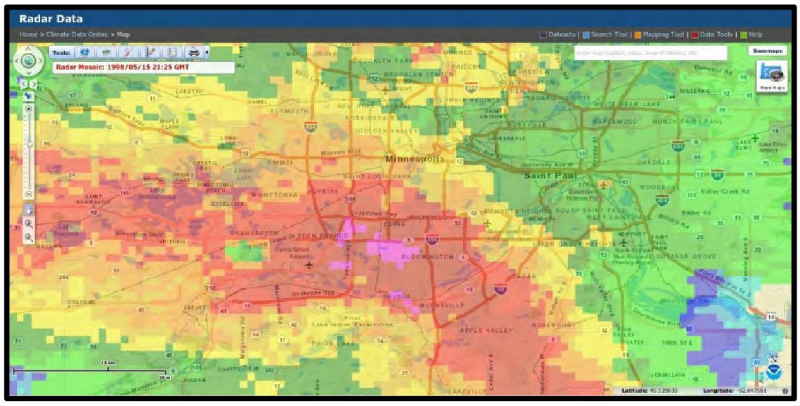
Wind gusts estimated from 85 to 110 mph damaged small airports and planes; destroyed homes and garages; snapped or uprooted tens of thousands of trees; flipped trailers and mobile homes; blew down headstones in cemeteries; and produced over 100,000 power outages in the western and northern Twin Cities area, including Hennepin County.

The storms also produced extreme rainfall rates, exceeding the threshold for 200 or even 500-years storms at the 1 and 2-hour duration, as 3-5 inches of rain occurred in 60-90 minutes. The rains overwhelmed drainage capacity across Hennepin County and stranded or submerged vehicles on parts of Interstates 94, 394, 494, 694, 35-W, along with parts of US Highways 10, 169, and 212, and literally dozens of other state, county, and smaller roads. The intense flash-flooding hampered emergency responses in the parts of the county damaged by winds.

Hail Derecho, May 15, 1998
A severe squall line developed in western Texas around midnight and raced northeastward, making it to south-central Kansas by daybreak, southwestern Iowa by mid-morning, and the Twin Cities area by 16:00 local time. The storms produced widespread damaging wind along the 1000-mile-long track, and reached peak intensity in Iowa, Minnesota, and Wisconsin, with fast-moving tornadoes and 1-2” hail driven by 60-80 mph winds.

This was an unusual extreme wind event, qualifying easily as a derecho, but not fitting easily into the “progressive” or “serial” categories. This is among the only known damaging thunderstorm events in Minnesota history to have originated in Texas.

The storms produced a record number of power outages in Minnesota (the record has since been broken twice), and snapped or uprooted thousands of trees in Hennepin County alone (with estimates of over 1000 trees killed in Ramsey County). A tornado tracked from Roseville into Blaine, at an estimated speed of 80 mph, causing significant damage to homes. The majority of the damages, however, were from wind-driven hail, which broke windows, damaged roofs, bent garage doors, and forced automobile dealerships in Bloomington to submit claims for their entire outdoor inventories.



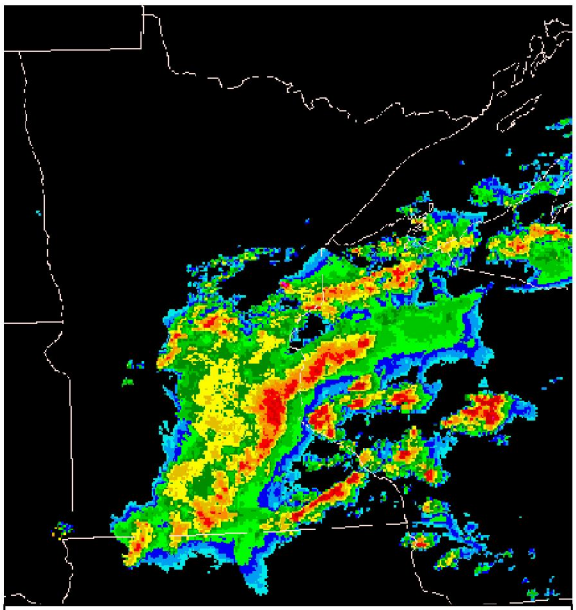
Radar at 16:25 local, as bowing hail core entered central Twin Cities on May 15, 1998

The compound hail and wind damage from this storm produced over a billion dollars, adjusted for inflation, in home, automobile, and business property insurance claims.

The largest hail reported in the Twin Cities was 2 inches, and most reports were in the 1-1.5” range. However, the intense straight-line winds turned the hail into dangerous projectiles, and produced far more damage than would normally be expected.

The Southern Great Lakes Derecho of 1998

During the early evening of Saturday, May 30, tornado-producing supercells over eastern South Dakota merged and became a squall line that moved east into southern Minnesota. As the squall line crossed southern Minnesota it evolved into a bow echo system that expanded in scale and raced east across the southern Great Lakes before finally dissipating over central New York after sunrise on Sunday, May 31st. This bow echo system produced one of the most dangerous and costly derecho events in the history of the Great Lakes region. The "Southern Great Lakes Derecho of 1998" adversely affected millions of people on the weekend after Memorial Day. Many casualties and record amounts of damage occurred.



The Southern Great Lakes Derecho as it moved over Hennepin County On Saturday, May 30th.

The bow echo system began to produce significant wind damage over south-central Minnesota about 10 p.m. Saturday evening. As the system moved rapidly eastward it grew south into northern Iowa and caused damaging winds over most of southeast Minnesota and northeast Iowa. Many trees and power lines were blown down and several farm buildings were damaged or destroyed.

The most intense damage occurred near the northern end of the bow echo system in Minnesota, from Sibley and McLeod Counties eastward across southern portions of the Minneapolis/St. Paul metropolitan area. Along this band, winds greater than 80 mph were measured; in some areas, estimated speeds reached 100 mph. Tens of thousands of trees were blown down, 500,000 customers lost power, two semi-trailer trucks were overturned, two apartment building roofs were blown off, and 100 boats were destroyed. In addition, over 100 homes were destroyed or badly damaged, and over 2000 others received some damage. Twenty-two people were injured, and damage to property was estimated to be about $48 million in 1998 U.S. dollars...with $35 million dollars of that damage occurring in Dakota County alone.

In summary, while crossing southern Minnesota and northeastern Iowa, the derecho event caused about $50 million in 1998 U.S. dollars of damage, left about 600,000 customers without power, and injured twenty-two people. In some areas, power was not restored until nearly a week after the event.

Boundary Waters – Canadian Derecho

On July 4, 1991, a major derecho in the BWCAW, known as the Boundary Waters-Canadian Derecho, lasted for more than 22 hours, traveled more than 1,300 miles, and produced wind speeds averaging nearly 60 mph, peaking at 80-100 mph. The blowdown caused widespread devastation with casualties both in Canada and the United States. The storm front initiated as large complex of thunderstorms in South Dakota. The storm moved west to east snapping tree trunks in half that pulled power lines down with them in Cass, Crow Wing, Itasca and Aitkin Counties. After blowing down trees on 1,300 acres on the Chippewa National Forest and dropping heavy rains that eroded 9,000 acres of shorelines, the storm continued into northeast Minnesota.

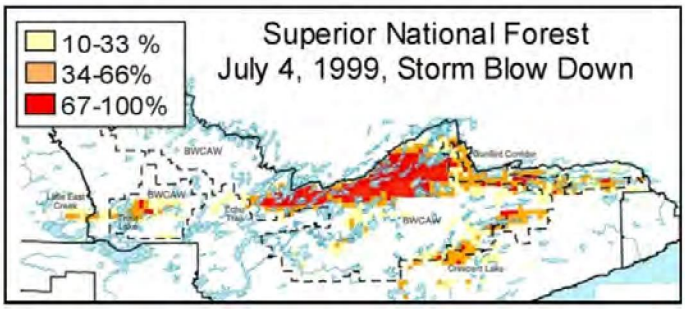


Figure 2. Percentage of trees blown down in Superior National Forest in northeast Minnesota on July 4, 1999. Scale: 1" = 15 miles. (Courtesy of USDA Forest Service, Superior National Forest)

The storm entered the Arrowhead region of northeastern Minnesota in the early afternoon. Here, winds of 80 to 100 mph resulted in injuries to about 60 canoe campers and damage to tens of millions of trees within 477,000 acres of forest land on the Superior National Forest in the course of leveling a swath 30 miles long and 4 to 12 miles wide. The storm affected approximately 477,000 acres (16 percent of the Superior National Forest). The BWCAW sustained the heaviest damage in a line from Ely to the end of the Gunflint Trail.

Other Notable or Recent Extreme Thunderstorm Wind Events

- **September 21, 2005 (Hennepin County)**—Large, slow-moving supercell thunderstorms produced large hail, tornadoes, and extreme downburst winds in Anoka and northern Hennepin County, with wind gusts estimated up 100 mph in Brooklyn Center, where a man was killed by falling trees.
- **September 20, 2018 (southern Minnesota)—**A line of fast-moving thunderstorms, like a serial derecho but not traveling far enough to qualify, produced nearly continuous and severe damage as tornadoes and straight-line winds ravaged communities in south-central and southeastern Minnesota, including Waseca, Owatonna, Faribault, Northfield, and Cannon Falls. National Weather Service surveys indicated straight-line winds exceed 100 mph.
- **July 19 (central Minnesota and July 20, 2019 (southern Minnesota)—**An intense heat wave with Heat Index values to 115° F fueled a derecho that tracked 490 miles from central Minnesota into Michigan. The next day, as the heat dome settled southward, another derecho tracked 860 miles from western South Dakota, through southern Minnesota, Wisconsin, and northern lower Michigan, crossing the damage path of the previous day's extreme winds in Wisconsin.
- **August 10, 2020 (Iowa and Midwest) –** One of the most extensive and destructive mainland storm events in US history, an extreme derecho tracked from the Iowa/Nebraska border to the Indiana/Ohio border, reaching maximum intensity in eastern Iowa, where winds gusted over 100 mph over an unusually large area, with 80-120 mph gusts lasting over 30 minutes in areas near Cedar Rapids.
- **December 15, 2021 (Southeast Minnesota and Midwest)** – By far the latest-in-the-season severe weather outbreak in Minnesota, this serial derecho traveled from southern Nebraska into Wisconsin, producing widespread 75 mph winds and 22 tornadoes across south-central and southeastern Minnesota, damaging buildings and homes, uprooting trees, and knocking out power. One man near Rochester was killed by straight-line winds. This event set a record back to 2004 for most reports of hurricane-force (74 mph) wind gusts. The storms were followed quickly by a strong cold front the dropped temperatures into the 20s and 10s F, as extreme non-convective winds associated with a powerful low-pressure area spread over the region.
- **May 12, 2022 (Corn Belt into western Minnesota)–** Another powerful serial derecho with wind gusts of 85 to over 100 mph required just six hours to track from southern Nebraska to the Brainerd Lakes area of Minnesota. This massive event produced a dust storm from the dry conditions in western and central Minnesota, along with extensive damage to towns and rural properties. As of October 2023, this event was estimated to have produced over three billion dollars in damage across the region.

4.3.3.8. Future trends/likelihood of occurrence B1e

For decades, the science was inconclusive about the connection between climate change and extreme thunderstorm winds or derechos, suggesting and trends in the frequency or intensity of these dangerous hazards would be short-lived and attributable primarily to "normal" variations in weather and climate patterns.

Recent research, however, has suggested that a warming climate can influence the size and/or intensity of derechos and other extreme thunderstorm wind events. Physical modelling simulations of the August

2020 derecho in Iowa revealed that while the storm would not necessarily have produced stronger winds in a warmer world, the likelihood of a stronger nearby heat wave would have allowed the damaging winds to cover more area and last longer.

Another investigation of extreme straight-line wind occurrences showed an observed increase both their intensity and their areal coverage in the United States as the climate has warmed and theorized a 7.5% increase in intensity for each additional degree C (1.8 degrees F) of warming.

Similarly, a study of a lethal 2022 Mediterranean derecho showed that the marine heat wave in its vicinity that helped fuel it was itself made substantially more likely and more intense by rising global temperatures. This marine heatwave contributed substantial intensity and wind energy to the thunderstorm complex, which simulations showed would have been of “ordinary” strength in the absence of climate change.

Taken together, these studies suggest that the changing climate can make extreme straight-line thunderstorm winds and derechos larger, longer lasting, and in some cases, more intense. As the climate continues warming, therefore, a given extreme straight-line wind event may be more likely to affect Hennepin County and neighboring areas.

4.3.3.9. Indications and Forecasting

National responsibility for developing tornado indications and forecasts rests with the National Weather Service’s Storm Prediction Center (SPC) in Norman, Oklahoma, and the local National Weather Service office in Chanhassen.

4.3.3.10. Critical Values & Thresholds

Winds in a derecho must meet the National Weather Service criterion for severe wind gusts (greater than 57 mph) at most points along the derecho path. Most other extreme straight-line wind events are well above this threshold as well. In stronger derechos, winds may exceed 100 mph.

Based on current warning criteria and analysis of local and regional storm events, the following thresholds apply:

- 58+ mph: Entry level for “severe.” Some damage to trees and powerlines.
- 70+ mph: outdoor warning sirens activated in Hennepin County; significant tree and electrical infrastructure damage, with structural damage possible.
- 80+ mph: Wireless Emergency Alerts (WEAs) triggered; structural and vehicular damage likely; risks from airborne debris.
- 100+ mph: tornado-like damage expected, with secondary damage from debris-bombardment.

4.3.3.11. Preparedness

Hennepin County Emergency Management employs meteorologists who monitor the potential for extreme straight-line winds and communicate with an array of county personnel as conditions warrant.

Those planning to be outdoors for a significant length of time must be aware of the weather forecasts, especially if well-removed from sturdy shelter. Preparation means staying "connected" via television, radio, NOAA Weather Radio, or social media. Extreme straight-line winds rarely occur without warning,

although warning lead times may be comparatively limited during the early stages of storm development. Emergency water and food supplies, can openers, batteries, and flashlights should be on-hand in case of power disruptions.

4.3.3.12. Mitigation

Education and Awareness Programs

- Educating homeowners on the benefits of wind retrofits such as shutters and hurricane clips.
- Ensuring that school officials are aware of the best area of refuge in school buildings.
- Educating design professionals to include wind mitigation during building design.

Structural Mitigation Projects – Public Buildings & Critical Facilities

- Anchoring roof-mounted heating, ventilation, and air conditioner units
- Purchase backup generators
- Upgrading and maintaining existing lightning protection systems to prevent roof cover damage.
- Converting traffic lights to mast arms.

Structural Mitigation Projects – Residential

- Reinforcing garage doors
- Inspecting and retrofitting roofs to adequate standards to provide wind resistance.
- Retrofitting with load-path connectors to strengthen the structural frames.

4.3.3.13. Recovery

Recovery from extreme straight-line winds can take weeks as power outages from these storms can be extensive. A widespread event, or one in densely populated areas, may require search-and-rescue operations, which can be hampered when fallen trees or downed power lines block critical routes. Utility and infrastructure repair needs can exceed local resources and staff availability. Homes and businesses often require extensive repairs, bottlenecking the supply of contractors who provide such work, and opening the door to out-of-state and even predatory contract services who exploit the desperation and confusion often associated with disaster recovery.

Hennepin County Emergency Management Capabilities:

- Situation Monitoring Station (SMS)
- Virtual Situation Monitoring Station (VSMS)
- Damage Assessment Teams.

Hennepin County Emergency Plans:

- Hennepin County Emergency Operations Plan

4.3.3.14. References

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4.3.4.	Hazard Assessment: HAIL

4.3.4.1. Definition

Hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the thunderstorm where they are continuously lofted and form into hail. They eventually become heavy and fall to the ground. Hail can cause billions of dollars of damage to structures, cars, aircraft, and crops, and can be deadly to livestock and people.



Large hail, source NSSL (http://www.nssl.noaa.gov/education/svrwx101/hail/)

Damaging hail is associated with severe thunderstorms, and is often found in proximity to strong winds, torrential rainfall, and even tornadoes.

Supercell thunderstorms are responsible for most Minnesota hail reports more than 1.5 inches in diameter, and nearly all reports in excess of 2.5 inches. These supercell thunderstorms may or may not be tornadic at the time of hail production. Damage becomes significantly more likely as hail size increases because the impact factor increases exponentially with incremental growth **(Table 4.3.4A).**

Table 4.3.4A Hail diameter and impact. From Marshall et al. (2001).

Hail Diameter	1”	2”	3”
Impact (foot-lbs)	<1	22	120

4.3.4.2. Range of magnitude

Largest hail stones reported.

- Hennepin:
  - 3-inch diameter, Minneapolis, August 11, 2023
  - 3-inch diameter, Independence, August 5, 2019
  - 4-inch diameter, Bloomington, Richfield, South Minneapolis, July 8, 1966
- Adjacent counties:
  - 4-inch diameter, Delano, Wright County, August 5, 2019
  - 4.25-inch diameter, New Prague, Scott County, August 24, 2006

  - 4-inch diameter, northern Anoka County, June 14, 1981
  - 4-inch diameter, Zimmerman, Sherburne County, August 27, 1990
- Minnesota:
  - 6-inch diameter, between Edgerton (Pipestone County) and Chandler (Murray County), July 4, 1968
  - 6-inch diameter, near Worthington, Nobles County, July 28, 1986
- US: Record diameter of 8” recorded at Vivian, SD, on July 23, 2010.

Costliest hail event

- May 15, 1998: $950 million USD in 1998 dollars (~3.1 billion in 2023) from damages in Minnesota resulting from hail, straight-line winds, and isolated tornadoes. Vast majority of losses were from wind-driven hail, which destroyed thousands of new and used vehicles, roofs and siding on thousands of homes.

4.3.4.3. Spectrum of consequences
B2b



Significant mobile home damage from hail. Source: NSSL

Ultimately, the thunderstorm strength governs the size of hailstones and dictates the amount of time a given area will be exposed to them. Hail falling in small “popcorn” thunder- storms that form with weak instability and low shear tends to be short-lived and sub severe (less than 1” diameter), although in rare instances can be up to golf ball-sized (1.75”). Hail in fast-moving squall-lines tends to be short-lived and similar in size, although intense winds may turn the hail into dangerous and damaging projectiles. In large and/or slow-moving supercell thunderstorms, hail can fall for up to 30 minutes at a given location, and the high instability and shear producing these storms also often yields golf ball-or-larger hail stones. Although somewhat rare, regenerating supercell thunderstorms may produce multiple hailfalls over a given location during a single event.

Hail over one inch in diameter may produce small “dimples” or “pocks” on vehicle exteriors. At 1.5 inches, damage to roofing materials becomes common. At sizes greater than 2”, windshields and rear windows are often cracked or shattered, vehicle bodies damaged badly, residential windows may be broken, residential siding welted, and many varieties of roofs badly damaged (**Table 4.3.4B**) for an example of roof damage thresholds).

Although fatalities are uncommon, injuries to the head, shoulders, back, and arms are not. Severe bruising, often in multiple locations, is the most typical type of injury. Drivers and passengers of vehicles also may have cuts and lacerations from flying glass.

Table 4.3.4B. Damage onset thresholds for various roofing materials. From Marshall et al. (2002).

Type of Roofing Product (all ages)	Hailstone Size in.	mm.
3-tab asphalt shingles	1.00	25
30 yr. Laminated shingles	1.25	32
Cedar shingles	1.25	32
Medium cedar shakes	1.50	38
Fiber-cement tiles	1.50	38
Concrete tiles	1.75	44
Built-up gravel roofing	2.50	63

Large hailstorms also tend to halt traffic and may require snow removal equipment to clear area roads. An early morning hail event in November of 1999 caused traffic jams and spinouts in Eden Prairie, and snowplows were needed to clear over 2 inches of accumulated hailstones from I-494. ‘

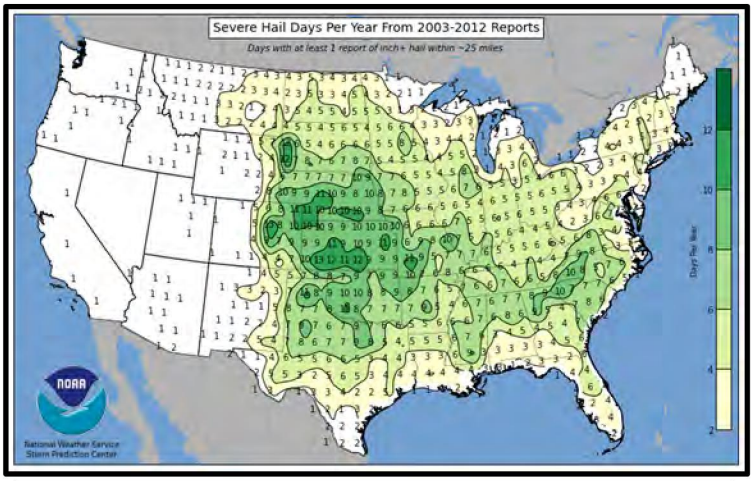
Although the human toll from hail tends to be much lower than from tornadoes and straight-line winds, hailstorms are often costlier, because of the costs associated with cosmetic damages to residences, vehicles, and businesses. Severe crop damage is also common, with soybeans and corn especially susceptible to damages from wind-blown hail. Hail rarely causes infrastructural damage.

4.3.4.4. Potential for cascading effects

The consequences of hail are generally limited to the duration of the hail event, providing few options for cascading effects. However, large, and damaging hail events tend to be associated with strong or severe thunderstorms that produce or can produce other convective weather hazards, which can exacerbate or compound the impacts. The large hail core in a tornado-producing supercell thunderstorm is often very near the tornado itself. Thus, hail damage victims are at risk of becoming tornado victims as well. High situational awareness is therefore required during large hail. Any person caught outside during a hailstorm is also at significant risk from excessive rainfall and lightning. Any building or vehicle with shattered windows is also more susceptible to flying debris through those now open windows as well.

4.3.4.5. Geographic scope of hazard B1c

Minnesota is north and east of the spatial hail frequency maximum within the US, which stretches from southwestern South Dakota, into Nebraska, Kansas, Oklahoma, Colorado, and Texas.

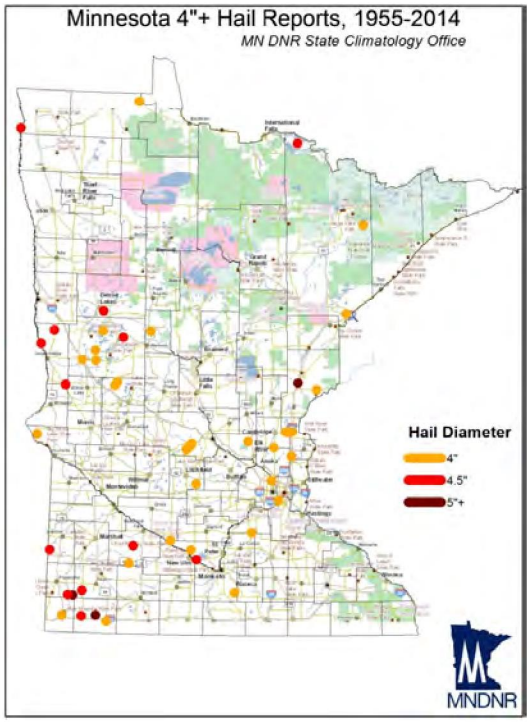


Average number severe hail days, 2003-2012, from Storm Prediction Center WCM Page.

Within Minnesota, hail tends to be most common in the southern and western portions of the state, although large and damaging hail has been observed in every county. The map of all known 4" hail reports since 1955 does show a preference for western and southern Minnesota, but also shows a clustering of reports near the Twin Cities, where more people are available to observe and report hail.

4.3.4.6. Chronologic patterns (seasons, cycles, rhythm)

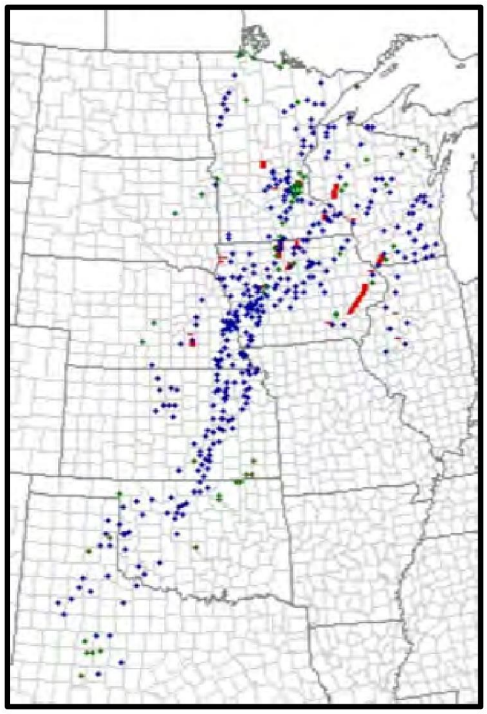
Most years, Hennepin County sees at least one large hail event. The seasonal hail threat coincides with the thunderstorm season, generally from April through September, with a notable peak in frequency in June and July. Severe hail has been reported as early as March in Hennepin County, and as early as February in greater Minnesota. Hail was observed with thunderstorms in the Twin Cities on December 16, 2015, though no damage was observed. Damaging hail in Hennepin County has been reported in November and has occurred several times during October.



4"+ hail reports in Minnesota, from DNR State Climatology Office

4.3.4.7. Historical (statistical) data/previous occurrence

***May 6, 1965**: Most widespread, intense, and long-lasting hail event on record in Twin Cities.* Although May 6, 1965, is best known for its devastating tornadoes in the Twin Cities, the storms also produced destructive hail for an unusually long duration and over an unusually large area. Hail the size of ping pong balls, golf balls, tennis balls and baseballs were reported throughout the evening, in association with both the tornadic storms and the many non-tornadic thunderstorms cells. The largest hail stones were reported in Hennepin County, generally inside what is now the 494-694 corridor. Hail reports were received before the first tornado confirmations, and well after even the last suspected tornado, and the hail event lasted approximately six hours. Many areas were hit by tornadoes early in the evening, and destructive hail later in the evening, and some locations were hit by three distinct waves of hail larger than golf balls. Locations in Hennepin County reporting golf ball or larger hail include Minneapolis, Bloomington, St. Louis Park, New Hope, Brooklyn Center, Maple Grove, Brooklyn Park, Edina, Deephaven, Crystal, and Eden Prairie.

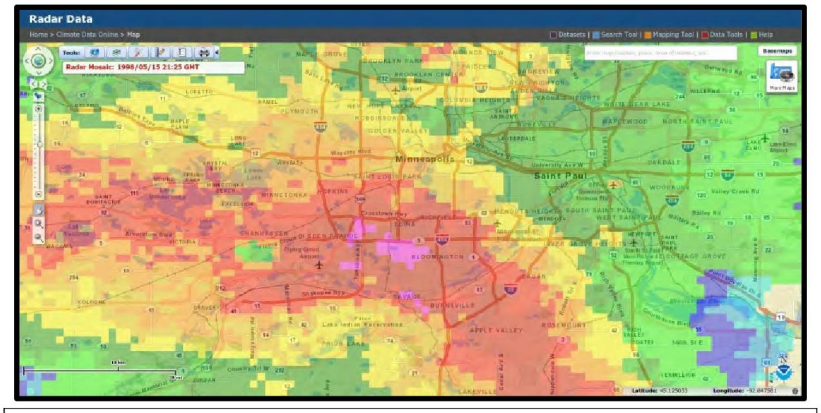


Wind (blue), hail (green), and tornadoes (red) reported on May 15, 1998. Generated from Severe Plot 3.0 (see references).

***May 15, 1998**: Derecho hailstorm*

A severe squall line developed in western Texas around midnight and raced northeastward, making it to south-central Kansas by daybreak, southwestern Iowa by mid-morning, and the Twin Cities area by 16:00 local time. The storms produced widespread damaging wind along the 1000-mile-long track, and reached peak intensity in Iowa, Minnesota, and Wisconsin, with fast-moving tornadoes and 1-2” hail driven by 60-80 mph winds.

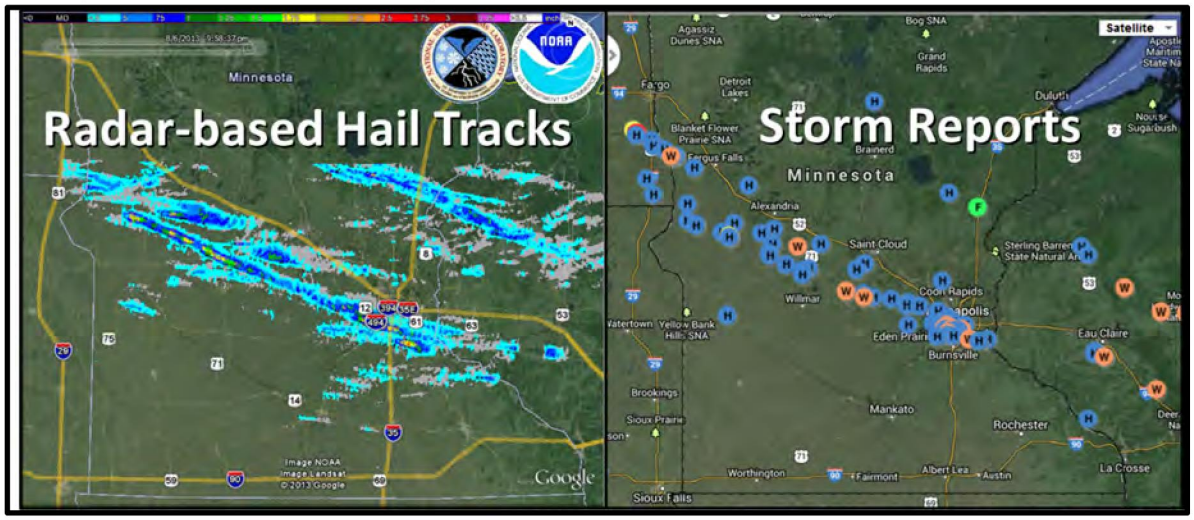
The storms produced a record number of power outages in Minnesota (the record has since been broken twice), and snapped or uprooted hundreds of trees in Hennepin County alone (with estimates of over 1000 trees killed in Ramsey County). A tornado tracked from Roseville into Blaine, at an estimated speed of 80 mph, causing significant damage to homes. Most of the damages, however, were from the hail, which broke windows, damaged roofs, bent garage doors, and forced automobile dealerships in Bloomington to submit claims for their entire outdoor inventories.



Radar at 16:25 local, as bowing hail core entered central Twin Cities

The largest hail reported in the Twin Cities was 2 inches, and most reports were in the 1-1.5" range. However, the intense straight-line winds turned the hail into dangerous projectiles, and produced far more damage than would normally be expected.

August 6, 2013: The National Night Out Storm



Radar and report-based hail tracks. Source Minnesota State Climatology Office

On an evening when many Minnesotans were outside at neighborhood block parties, a powerful supercell thunderstorm moved across central Minnesota into western Wisconsin, producing a large swath of severe weather. Most reports were concentrated just south of the I-94 corridor, and the storm caused extensive damage to crops and vehicles.

The National Night Out storm had less wind but somewhat larger hail than the May 15, 1998, storm. Winds were generally confined to 65 mph or less, but hail sizes were typically 1.5 - 2 inches in the core of the storm, which covered the southwestern third of Hennepin County. Damage to roofs and vehicles was common from Maple Plain, through the Lake Minnetonka area, into Eden Prairie and Bloomington. Damages were not quantified locally, but Aon-Benfield counted $1.25 billion in damages from storms over the northern and central US on August 5-7, noting that Minnesota and Wisconsin were hardest-hit.



Damage to squad car. Image courtesy Eden Prairie Police Department

An additional significant hail event occurred on August 11, 2023. However, that incident did not have as high of impacts as the other events already described.

4.3.4.8. Future trends/likelihood of occurrence B1e

Research into hail frequencies in a changing climate has been somewhat limited, though modelling efforts have suggested that the frequency of hail may decrease at the expense of more days with straight-line winds, because the atmosphere may favor higher instability but lower-shear profiles as the equator-to-pole temperature gradients weaken (Brooks 2013). Other research has suggested there may be fewer hail days, but more significant events on the days with hail. The bottom line is that significant hailstorms, some significant, are still to be expected into the future.

4.3.4.9. Indications and Forecasting

Like other severe weather hazards, national responsibility for hail monitoring and forecasting lies with the National Weather Service's Storm Prediction Center (SPC) in Norman, Oklahoma. The SPC uses three different "products" that detail in anticipation of a severe weather event:

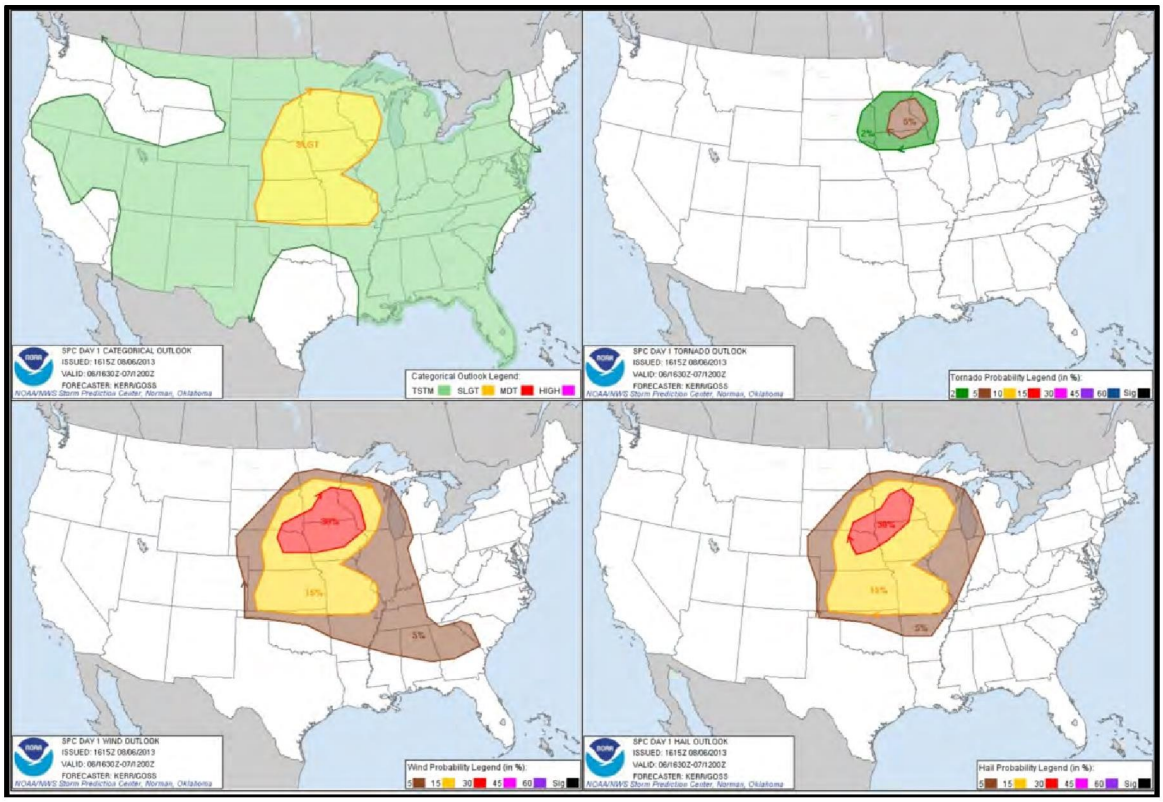
> **Convective Outlooks** are spatial products that assign risk categories for severe weather and quantify the varying risk for hail (and other hazards) each day, along with an explanation of the basis for the risk categories assigned. Outlooks are issued for Day 1 (day of), and days 2-8. Only Day-1 outlooks contain hail-specific probabilities. "Day 1" outlooks are issued at 01:00, 08:00, 11:30, 15:00 and 20:00 (all times CDT). For Day 1, risk categories include Marginal, Slight, Enhanced, Moderate, and High. These risk categories are assigned based on the probabilities of severe weather (or a particular hazard) occurring with 25 miles of a point. (As shown in **Table 4.3.4C**)

Table 4.3.4C

Day 1 Outlook Probability	TORN	WIND	HAIL
2%	MRGL	Not Used	Not Used
5%	SLGT	MRGL	MRGL
10%	ENH	Not Used	Not Used
10% with Significant Severe	ENH	Not Used	Not Used
15%	ENH	SLGT	SLGT
15% with Significant Severe	MDT	SLGT	SLGT
30%	MDT	ENH	ENH
30% with Significant Severe	HIGH	ENH	ENH
45%	HIGH	ENH	ENH
45% with Significant Severe	HIGH	MDT	MDT
60%	HIGH	MDT	MDT
60% with Significant Severe	HIGH	HIGH	MDT

SPC probabilistic risk table with corresponding outlook categories

Risk categories and probabilities are displayed on maps as color contours. The image below shows the slight risk and probabilities of specific hazards at the 15:00 CDT outlook, just hours ahead of the National Night Out storm.

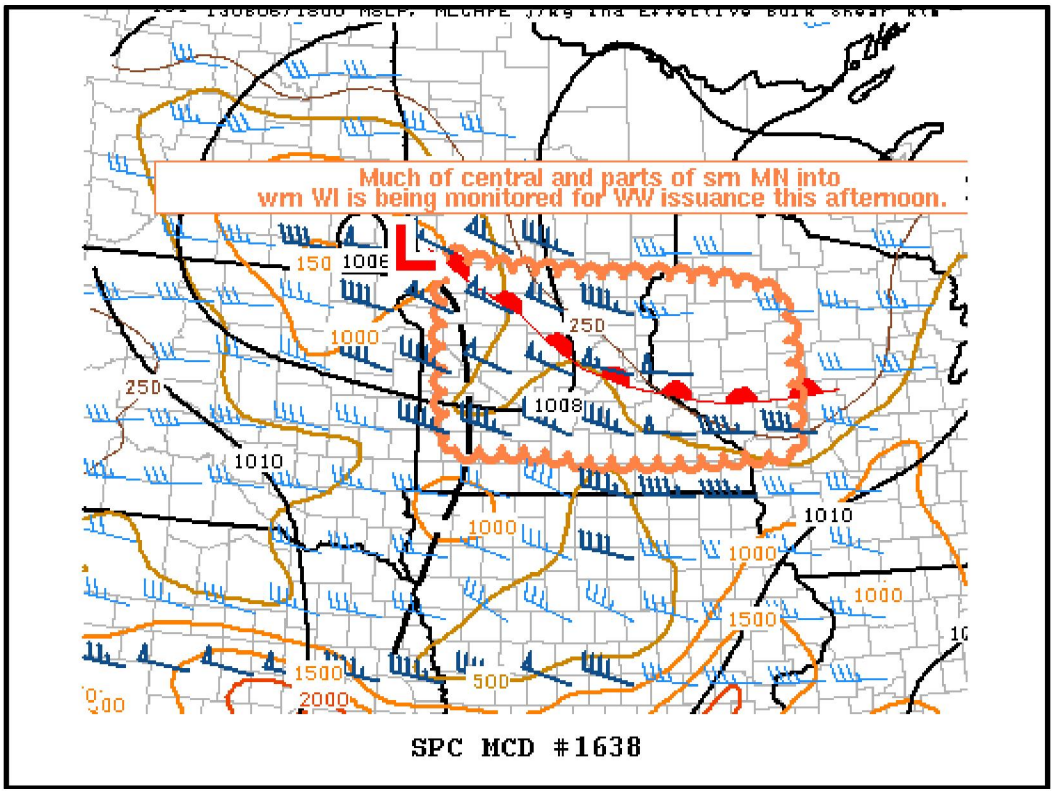


Convective outlook (upper left), tornado (upper right), severe wind (lower left), and hail probabilities on august 6, 2013. From SPC's severe weather events database.

Mesoscale Discussions (MDs) are used to identify a particular area of concern within a risk area, often when storms have developed or are expected to, and to communicate the possibility that a watch may be issued. The MD will be tagged with a statement of likelihood regarding the issuance of a Watch, as follows:

Severe Potential…Watch Unlikely (5 or 20%)
Severe Potential…Watch Possible (40 or 60%)
Severe Potential…Watch likely (80 or 95%)
Severe Potential…Watch Needed Soon (95%)

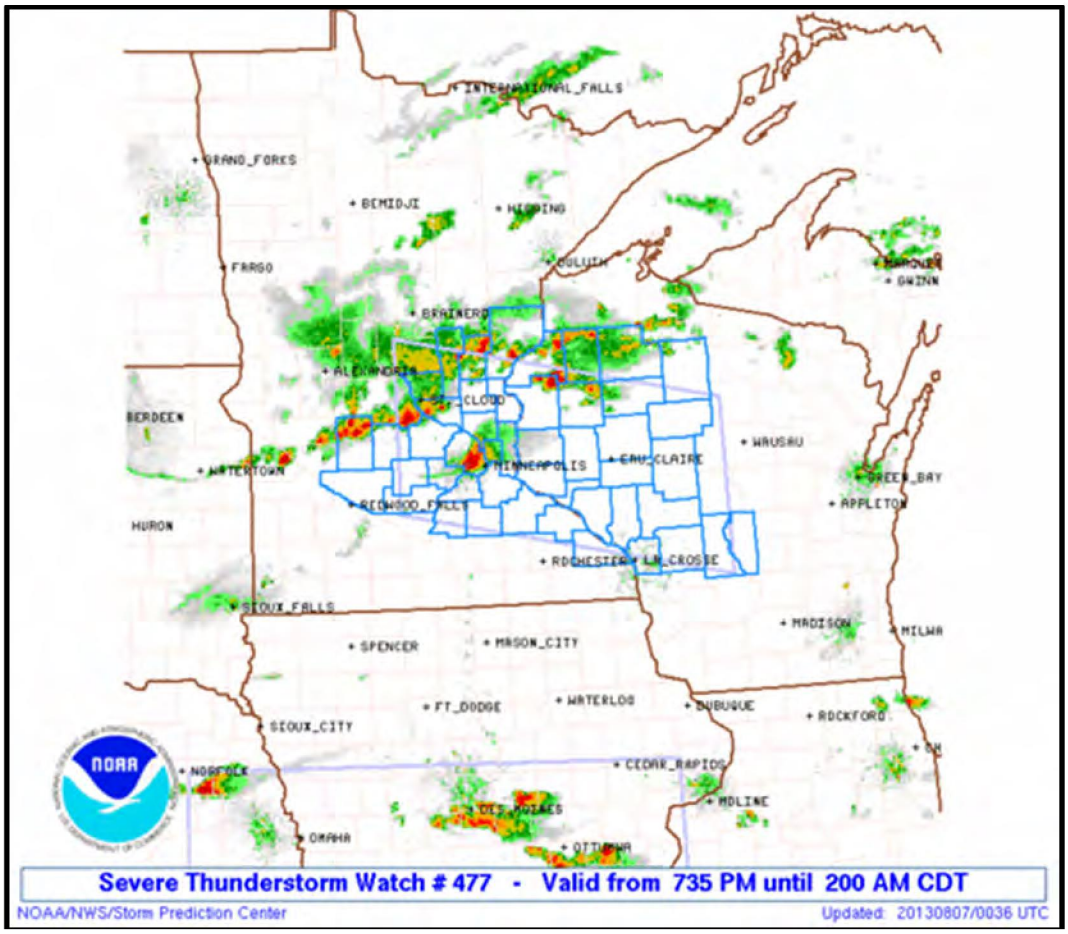
MDs can also be used to communicate additional concerns or trends during an ongoing event. Like Convective Outlooks, MDs are both graphical and textual. The following MD graphic was issued after the 15:00 CDT Convective Outlook, in anticipation of a watch issuance.



Mesoscale Discussion graphic issued in anticipation of National Night Out severe weather event

Watches are issued when atmospheric conditions are favorable for the development of severe weather. They are more geographically specific than Convective Outlooks, and they have defined geographic boundaries, as well as start and end times. Typically, a watch will cover about 50,000 square miles--slightly more than half the size of Minnesota--and will last between 5 and 8 hours. Tornado watches are used when conditions favor development of tornadoes, in addition to other forms of severe weather. Severe thunderstorm watches are used when the tornado risk is relatively low and hail or strong winds are expected. Large hail can be expected with both types of watches, and neither connotes a greater or lesser risk of hail.

The National Night Out hail even was initially covered by a Tornado Watch, which was replaced by a Severe Thunderstorm Watch after a few hours, when it became apparent there was not enough low-level moisture or shear to produce tornadoes, but plenty instability aloft and mid-level shear to produce large hail and strong winds. Below is the Severe Thunderstorm Watch outline with radar overlay.



Severe thunderstorm Watch outline with radar overlay on August 6, 2013

In addition to the SPC's information and products, the local National Weather Service Forecast Office issues a Hazardous Weather Outlook (HWO), generally 1-2 times per day, as situations warrant, to share thoughts about the potential for severe weather, including hail. These outlooks often discuss likely timing and locations.

4.3.4.10. Detection & Warning

Local responsibility for detecting and warning citizens about severe hail lies with the National Weather Service forecast office in Chanhassen. The primary means to communicate urgent storm location and timing information is with Severe Thunderstorm and Tornado Warnings. These warnings indicate that severe weather is imminent and will be affecting the warned area for a specified period of time. As with watches, hail can be expected in both Severe Thunderstorm and Tornado Warnings, and neither is a better indicator than the other of hail risk.

The NWS uses a combination of trained spotters and radar to detect severe hail. NWS Chanhassen has a RADAR site for remote monitoring of hail-containing storms--the NEXRAD WSR-88D in Chanhassen. Numerous tools and algorithms enable NWS staff in Chanhassen to use this system for identification of severe hail in thunderstorms.

Spotter reports, reports from emergency managers, and increasingly, reports from social media also help forecasters in Chanhassen assess the severity of ongoing storms.

4.3.4.11. Critical values and thresholds

The National Weather Service considers hail to be severe if it equals or exceeds one inch in diameter. The NWS will issue a severe thunderstorm warning with a "Considerable" tag when hail is expected to be 1.75 inch in diameter or greater or will issue a severe thunderstorm warning with a "Destructive" tag when hail is expected to be 2.75 inches in diameter or greater which would trigger a Wireless Emergency Alert for those in the warning area. Because impact increases exponentially with incremental increases in hail size, larger hailstones pose a significantly greater risk to safety and property. Therefore, spotters are trained to use common objects to make estimates about the size of hailstones. It should be noted that few hailstones are ever measured. Instead, they are often observed, compared to the common objects, and then the size is inferred from the size of the stated objects. Thus, reported hail sizes are almost always crude estimates. **Table 4.3.4D** summarizes the common objects used as hail size references, along with the approximate diameter. The diameters, and often not the common objects, will be preserved in the Storm Events Database.

Table 4.3.4D

Hailstone size	Measurement		Updraft Speed	
	in.	cm.	mph	km/h
bb	< 1/4	< 0.64	< 24	< 39
pea	1/4	0.64	24	39
marble	1/2	1.3	35	56
dime	7/10	1.8	38	61
penny	3/4	1.9	40	64
nickel	7/8	2.2	46	74
quarter	1	2.5	49	79
half dollar	1 1/4	3.2	54	87
walnut	1 1/2	3.8	60	97
golf ball	1 3/4	4.4	64	103
hen egg	2	5.1	69	111
tennis ball	2 1/2	6.4	77	124
baseball	2 3/4	7.0	81	130
tea cup	3	7.6	84	135
grapefruit	4	10.1	98	158
softball	4 1/2	11.4	103	166

4.3.4.12. Prevention

Hailstorms cannot at present be prevented and should be considered an occasional risk within Hennepin County.

4.3.4.13. Mitigation

Hailstone size comparisons of commonly reported reference objects.

The risks of being killed or injured by hail are greatest when hail is very large and/or wind driven. Thus, awareness of conditions that could lead to severe weather and hail, and having a plan of retreat if storms approach is of primary importance.

As with all storms, the safest place to be when it's hailing is inside, in a sturdy structure, away from windows. Even though cars often lose windows and contain some flying glass, they may be safer than being outside, if the travel distance to the vehicle is reasonable. If no shelter or vehicle is available, retreat to lower ground, if possible, stay away from trees, which pose a lightning risk, and by covering the head to avoid potentially lethal impacts from large hail.

On the road, many drivers make choices that ultimately compromise the safety of other motorists. Driving into hail at highway speeds increases a hailstone's momentum (and therefore impact) substantially. Thus, if it begins hailing while driving, slow down and look for potential shelter options off the road. There may be none, but slowing down will reduce the impact of hail to the vehicle, reducing the risk for damage, and potential injury from shattered glass. If slowing down does not adequately reduce the risks, pull completely off the road, never under an overpass, and stop.

4.3.4.14. References

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NOAA/*NWS, JetStream - Thunderstorm Hazards: Hail* http://www.srh.noaa.gov/jetstream/tstorms/hail.htm

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Storm Prediction Center (SPC), *Storm Prediction Center WCM Page,* http://www.spc.noaa.gov/wcm/

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4.3.5.	Hazard Assessment: LIGHTNING

4.3.5.1. Definition

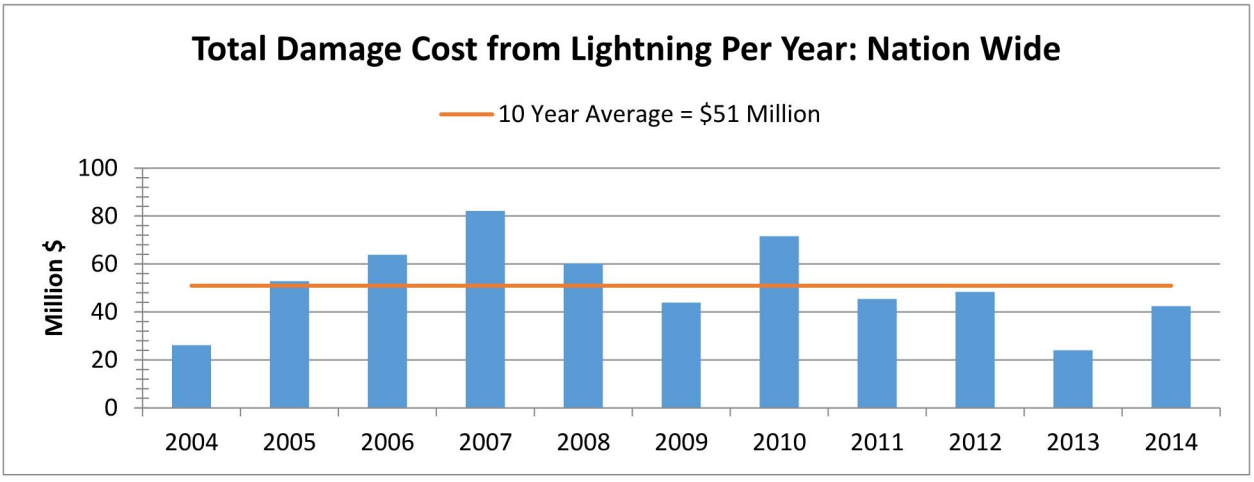


Lightning is one of the oldest observed natural phenomena on earth. It has been seen in volcanic eruptions, extremely intense forest fires, surface nuclear detonations, heavy snowstorms, in large hurricanes, and most commonly, thunderstorms. Lightning is essentially an electrical current where electrostatic discharges between the cloud and the ground, other clouds, within a cloud, or with the air. Within a thunderstorm, many small bits of ice (frozen raindrops) bump into each other as they move around in the air. Those collisions create an electric charge. The positive charges, or protons, form at the top of the cloud and the negative charges, or electrons, form at the bottom of the cloud. Since opposites attract, that causes a positive charge to build up on the ground beneath the cloud. The ground's electrical charge concentrates around anything that sticks up, such as metal conductors, tall buildings, people, or trees. The positive charge coming up from these points eventually connects with the negative charge reaching down from the clouds, and that is when you see the lightning strike.

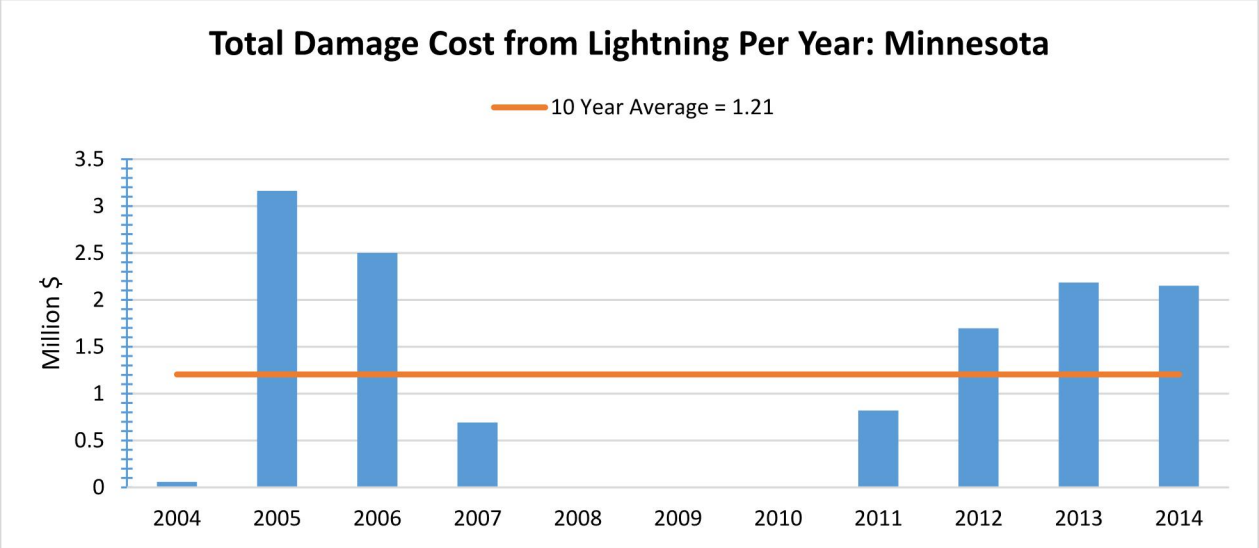
4.3.5.2. Range of Magnitude

The magnitude of lightning is incredibly variable from storm to storm. Typically, when discussing magnitude of lighting, one is concerned mostly with lighting strikes that hit the ground. **GRAPHICS 4.3.5A and 4.3.5B** are using data from the National Climatic Data Center, which show the reported costs from lightning for the past 10 years.

GRAPHIC 4.3.5A



GRAPHIC 4.3.5B



4.3.5.3. Spectrum of Consequences B2b

Lightning strikes are the leading causes of wildfires and have been responsible in the past for some of the most devastating fires in the southwest United States. According to Storm Data, Minnesota ranks 28th in the United States in lightning deaths from 1959-2012. Lightning is not only a threat to public safety, but also a threat for public and private structures because of the large number of structural fires started from lightning each year. Lightning can have direct and/or indirect effect, depending on whether it strikes a structure directly or not. The effects depend greatly on the conductivity of the materials the electricity travels through.

Material	Consequence
Electrical	Electrical voltages created by electrical discharges dissipated in the ground that is struck by lightning.
Thermal	Substantial damage and injuries from fires, burns, and destruction caused by a major release of heat.
Electrodynamic	Forces of attraction occur between parallel conductors that are traversed by currents in the same direction create mechanical stresses and strain.
Electromagnetic	The lightning current induces extremely high voltage and an extremely strong electromagnetic field that generate very powerful electric pulses that can damage sensitive electronic devices.
Electrochemical	Corrosion due to currents circulating through buried conductors
Acoustic (Thunder and	Windowpanes can be shattered a few meters from the point of impact.

Pressure Waves)	
Physiological	From simple dazzling to being struck dead by lightning, with a range of effects in between: Nervous shocks, various forms of blindness, deafness, blacking out, and momentary or prolonged comas.

A common misconception of people being killed from lightning is because they were struck. Most lightning injuries and deaths are causes by mechanisms other than direct lightning strikes. Only 3-5% of lightning strike victims take a direct strike. 3-5% of lightning victims are contact injuries where the person is touching or holding an object to which lightning attaches, such as indoor wired telephones or plumbing that transmits current to the person. 30-35% of injuries are caused by a side flash, also called splash. Side flashes occur when lightning hits an object such as tree or building and travels partly down that object before a portion jump to a nearby victim. Most injury (50-55%) come from ground current. Ground current arises because the earth is not a perfect conductor. Ground current effects are more likely to be temporary, slight, and less likely to produce fatalities. However multiple victims and injuries are more frequent from ground current. Another 10-15% of injury occur from upward leaders. Upward leaders are upward discharges of lightning, which almost always occur from towers, tall buildings, or mountain tops.

A direct consequence to the body is an intense shock can severe impair most of the body's vital functions. Cardiac arrest is common. Commonly when there is a strike that affects the heart directly, there is a massive shutdown. With every beat the heart depolarizes and changes its electrical signal. In addition, people can develop problems days, weeks, or months after being struck or being close to a lightning strike.

4.3.5.4. Potential for Cascading Effects

Lightning strikes that hit the ground, called cloud to ground strikes, can have a vast array of consequences. One of the most common cascading events is when a lightning strike causes a fire to start, which can then spread to homes, or produce wildland fire. Another consequence would be if lightning strikes a transformer and people are without power for days, those people could be at risk for heat illnesses if hot and humid conditions persist.

When lightning strikes a building, transients are generated on adjacent power, data, telephone and/or RF lines. As these transients pass through electronic equipment on their way to earth, they can cause both immediate damage and longer-term component degradation. However, the problem goes far beyond a direct strike. Today our electronic systems are intrinsically connected to the outside world, not only by mains power cables, but also through data and telephone lines, RF feeders, etc. Transient over voltages from lightning activity up to 1 km away can destroy equipment inside a building, even when the building itself has not been struck. As transients can be induced onto any conductive cable-overhead or underground, the power, data, telephone, or RF lines leaving a building to join the main network or even running between buildings can provide a way in for transients looking for a path to earth. Lightning simply striking the ground, or even cloud-to-cloud lightning, induces a transient overvoltage on those cables, allowing access directly into the electronic heart of that theoretically protected building. The following is a list of possible secondary consequences following a lightning event.

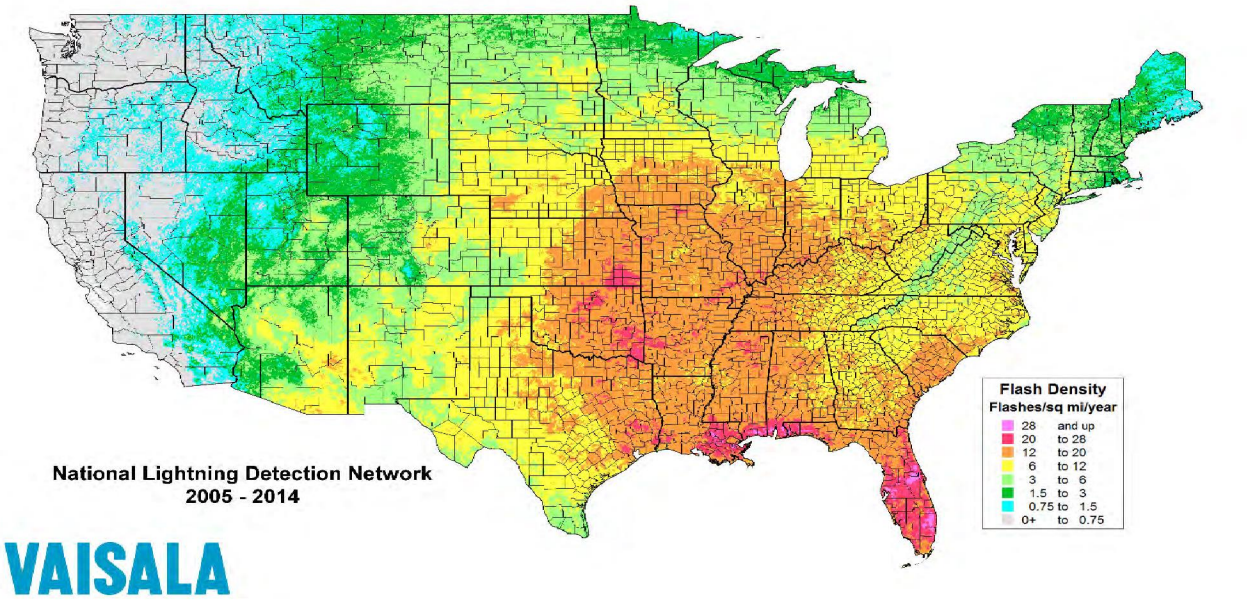
- Downtime and disruption
- Hardware damage

- Software corruption
- Data loss
- Lost production

4.3.5.5. Geographic Scope of Hazard B1c

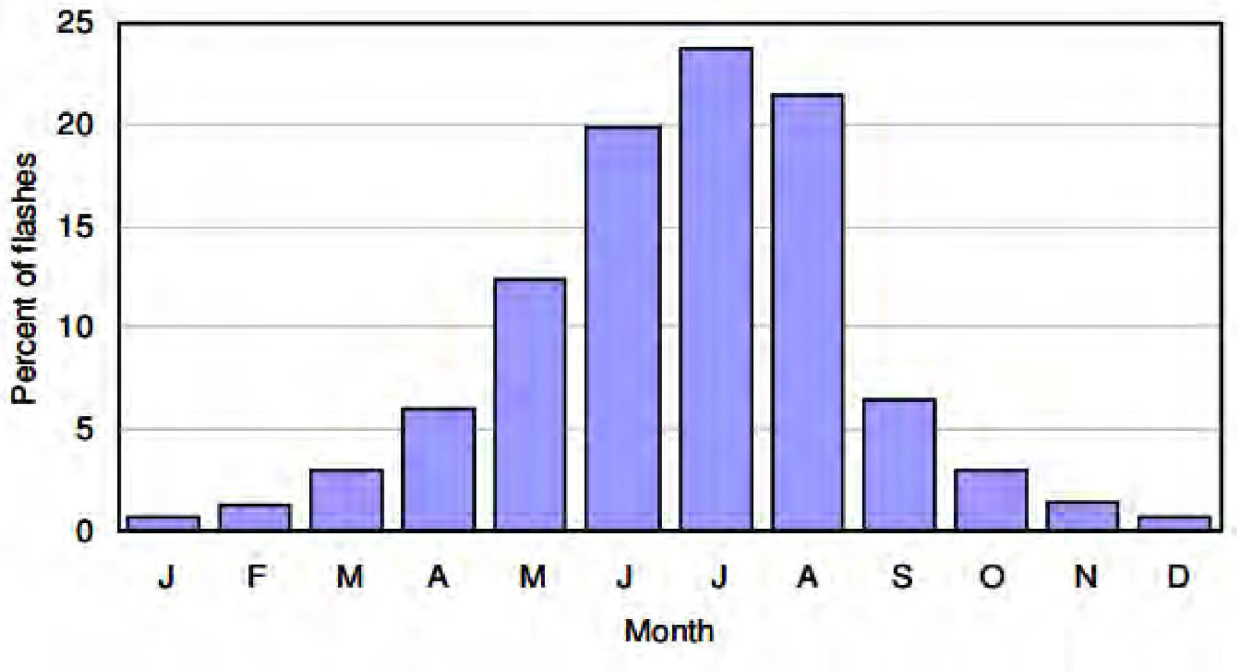
As mentioned, lightning is one of the oldest observed natural phenomena on earth and has been seen in many different types of natural phenomena. This means lightning occurs across the world, including the United States, and of course, Minnesota. Individual lightning strikes are relatively small in geographic scope. However, when an area has a storm filled with lightning, or multiple storms filled with lightning, you can have a large geographic area being affected all at the same time. **Graphic 4.3.5C** shows Flash Density map from Vaisala which shows the flashes per square mile per year for the entire United States.

Graphic 4.3.5C



4.3.5.6. Chronologic Patterns

Lightning can happen any time of year, however it is more prominent with spring and summer months as this is when most of the convective weather occurs.



4.3.5.7. Historical Data B1d

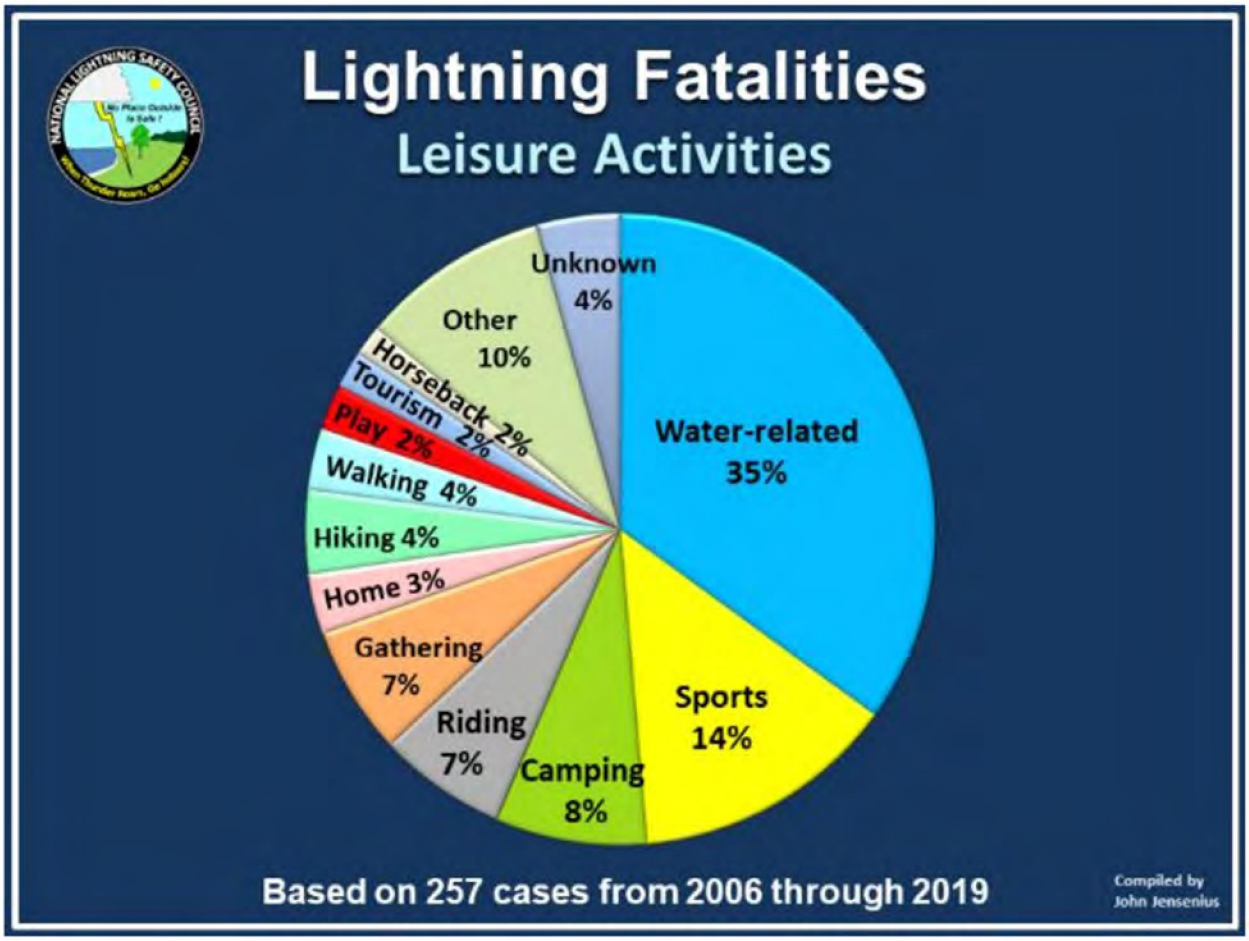
Lightning is a usual occurrence in thunderstorms across the State and Hennepin County each year. Every year, about four percent of Minnesota structural fires are caused by natural events, one can infer these natural events to be lightning related. The National Climatic Data Center states that there have been $700,000 dollars in damage and 6 injuries due to lightning strikes in Hennepin County since August of 1995. From 1959-2014, Minnesota has had 64 lightning fatalities in the state.

Historically, data shows us that leisure-related activities are the greatest source of lightning fatalities. From a study that looked at lightning deaths from 2006 through 2013, fishing contributed to the most lightning deaths with 11% of all deaths.

See **GRAPHIC 4.3.5D** for the top 11 activities that contributed most the lightning deaths during this period. This is consistent with a study that was published in 1999 that looked at lightning casualties and damages from 1959 to 1994 in the United States.

There have been are no other lightning related incidents that are within the scope of this plan.

GRAPHIC 4.3.5D Lightning Fatalities



4.3.5.8. Future Trends B1e

Some studies have shown changes in lightning associated with seasonal or year-to-year variations in temperature, but there have not been any reliable studies conducted to indicate future trends of occurrence until recently. A study looked at two variables, precipitation, and cloud buoyancy and how they might be a predictor of lightning (see more in the indications and forecasting section for predicting and forecasting lightning). The scientists found that on average, climate models predict a 12 percent rise in cloud-to-ground lightning strikes per temperature degree increase in the contiguous U.S. This is roughly a 50 percent increase by year 2100 if earth continues to see the expected seven-degree Fahrenheit increase in temperature. While this is a step into looking into the future trends of lightning as our climate continues to change, less is known about the exact locations on where strikes will increase.

4.3.5.9. Indications and Forecasting

“Lightning is caused by the charge separation within clouds, and to maximize separation, you have to lift more water vapor and heavy ice particles into the atmosphere” (Romps, 2014). It is known that the faster the updrafts, the more lighting, in addition, the more precipitation, the more lighting. How fast the updraft of the convective clouds is determined by the convective available potential energy (CAPE) which is measured by radiosondes, balloon-borne instruments, released by each weather forecast office (WFO)

twice a day. CAPE is essentially how potentially explosive the atmosphere is. In essence, where forecasters see high CAPE values, and high-water vapor content in the atmosphere is where expected lightning and thunderstorms are to occur.

4.3.5.10. Detection & Warning

Currently, there are no official alert or warning products that are issued by the National Weather Service for just lightning. There are, however, certain programs that can be used that have lightning detection. One of the leading lightning detection companies across the United States is Vaisala. Vaisala's Global Lightning Dataset was first launched in September 2009. However, currently there is no way to receive lightning detection data from Vaisala, or other detection sources, without a paid subscription to a specific service. There are also very few, if any, sources that will give you the distinction between cloud to ground lightning, intra-cloud, and cloud to air lightning, partly because the science is just starting to understand how to detect the difference. Hennepin County has installed lightning sensors at select mesonet stations in the Hennepin West Mesonet network which detect lightning strikes within a 20-mile radius. These sensors can provide some information on how close lightning is to cities in Hennepin County.

4.3.5.11. Critical Values and Thresholds

Although there are not watches or warnings for lightning, by using the detection services that available, one can watch how lighting within a storm is changing. In general, if lightning activity is increasing within a storm, one can infer that the storm is strengthening. If lighting activity is decreasing, one can infer that the storm is weakening.

4.3.5.12. Prevention

You cannot prevent lightning from occurring, but you can prevent some of the consequences by being aware of when thunderstorms are forecasted as well as being aware of the potential cascading consequences that can accompany the lightning. If a person sees lightning or hears thunder, they should go inside immediately.

4.3.5.13. Mitigation

While there is no way to prevent lightning from happening, there are mitigation strategies to help protect from the effects of lightning. First is protecting critical facilities and equipment by installing protection devices such as lightning rods and grounding on communications infrastructure, electronic equipment, and other critical facilities. Another way to mitigate for lightning is through educational and awareness programs. Developing brochures to hand out at festivals, or with monthly water bills is one of the popular strategies. Additionally, teaching schoolchildren about the dangers of lightning and how to take safety precautions is another way to reach the parents at home as well.

4.3.5.14. Response

Quick response when it comes to effects from lightning is crucial. When someone is struck or is affected by a near strike, ground current, first aid and CPR is crucial. However, CPR must continue for a long time because it takes a long time for the heart to beat again, the diaphragm to function, and even longer for the brain to reboot and control vital organ functions. People who go into cardiac arrest from lightning have a 75 percent mortality rate. Quick response is also needed when lighting causes a fire.

Whether it is a structure fire or grass/wildland fire, the more spread, the more damage. Please see the Wildland Fire section of this hazard assessment for more information about response.

4.3.5.15. Recovery

Assessing the damage is the first part of the recovery process. People who are victims of a strike or near strike ay not ever fully recovery and may continue to have issues the rest of their lives. However, the faster the treatment they can get immediately, the faster recovery they will see.

4.3.5.16. References

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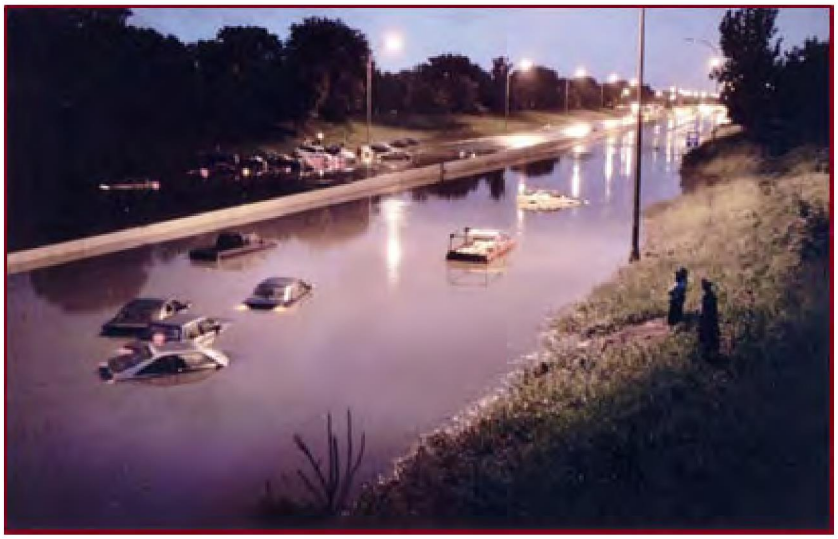
4.3.6.	Hazard Assessment: RAINFALL, EXTREME

4.3.6.1. Definition

Extreme rainfall leads to flash flooding, infrastructural and property damage, and even loss of life. Although the definition varies by application, extreme rainfall events are generally understood to have rates that meet or exceed a given threshold, often tied to storage or drainage capacity.



Cars stranded on I-35 in south Minneapolis after excessive 1-hour rains fell on July 1, 1997.

Virtually all extreme rainfall events in Minnesota are associated with thunderstorms. Short-duration extreme events, in which an unusually large quantity of rain falls in a short amount of time (for example, 3 inches falling in one hour) are often associated with severe supercell thunderstorms, squall lines, and mesoscale convective systems. Long-duration events more than six hours tend to occur in environments favorable for strong thunderstorms, but not favorable for sustained severe weather. In these situations, there is often a stationary boundary allowing regenerating thunderstorms to pass over the same locations, in a process known as “training.”

In forecasting applications, extreme rainfall drives the issuance of National Weather Service flash-flood products based on “flash-flood guidance,” which is a changing, location-dependent value that utilizes pre-existing soil moisture and land cover conditions. Unsaturated soils and ample vegetation require higher precipitation rates to trigger flash-flooding than saturated soils, denuded vegetation, or impervious surfaces.

Extreme rainfall also is critical to hydrologic design of roads, trails, culverts, retention and detention ponds, dams, and other types of infrastructure. Engineers and planners design these facilities to withstand all but some small percentage of all heavy rainfall events. For instance, many non-critical features like small roads and trails are designed to withstand a storm that has a 10% probability in any given year (also known as the 10-year storm). More critical features will often be designed for 100-year rainfall events--those that have a 1% probability in any given year. NOAA Atlas 14 contains the most recent scientific estimates of rainfall amounts for durations from 5 minutes to 60 days, and with recurrence intervals of 1 through 500-years.

4.3.6.2. Range of magnitude

Maximum Rainfall Amounts Observed in Twin Cities, Hennepin County and Minnesota		
Rainfall duration	Hennepin County	Minnesota
24 hours	Official: 10.00 inches, MSP July 23-24, 1987 Unofficial: 12.75 inches, Bloomington, July 23-24, 1987	Official: 15.10 inches, Hokah, Aug 18-19, 2007 Unofficial, La Crescent, 17.21 inches, August 18-19, 2007
5-day	13.80" MSP, July 20-24, 1987	17.45 inches, Hokah, August 18-22, 2007
Monthly	17.90 inches, MSP, July 1987	23.86 inches, Hokah, August 2007

4.3.6.3. Spectrum of consequences (damage scale, common impacts and disruptions, response needs) B2b

The most dangerous result of extreme rainfall is flash flooding, which has numerous consequences, arises from a combination of factors, and is covered in greater depth as its own chapter within this assessment. Other severe hazards are not related to directly flooding. Following is a brief annotated list of common consequences resulting from extreme rainfall:

- Injury, drowning, death: those unable to get to higher ground, and those stuck in vehicles that either failed to navigate or are unaware of high water are at significant risk. Flooded roads, particularly at night, are especially dangerous.
- Infrastructure damage: roads, culverts, drainage basins, bridges, and even dams can succumb to the direct force of heavy flowing water, and to erosion from the ground below. Sewer and wastewater systems may overflow.
- Stalled, stranded, or damaged vehicles. Many vehicle batteries die in high water, causing vehicles to stall. Parked vehicles in low-lying areas may also be inundated and stranded. Water frequently gets inside the vehicles, damaging the electronics and the interior.
- Structural failure: eroding soils from a heavy rain may undermine the structural integrity of houses and buildings, resulting in complete or partial collapse.
- Water damage. Water enters sub-grade floors through small openings and in extreme events can accumulate to inches or even feet on the lowest levels, as municipal sewer systems exceed capacity and water backs up into residential lines. Electrical equipment becomes susceptible to damage, and interior materials may be compromised and may develop dangerous mold or mildew.
- Crop damage: it is common for major extreme rainfall events to damage agricultural fields, often wiping out an entire season's worth of crops.
- Water quality: extreme rainfall washes high level of compounds into area waterways, which may exceed allowable contaminant thresholds for days or even weeks after a major event.
- Recreational loss: extreme rainfall events target the lowest areas first, meaning that lakes and rivers are susceptible to overflow. No-wake laws impede water sports, and overflowing streams and rivers can produce dangerous conditions for canoeing and other human-powered water

activities. Trails and paths near lakes and rivers are often flooded, preventing bicycling, jogging, and walking. Recreational departments will require extra labor hours to return recreational resources to proper working conditions.

4.3.6.4. Potential for cascading effects

Most cascading effects associated with extreme rainfall are identical to those associated with flash-flooding and urban flooding.

Extreme rainfall hazards can easily be compounded by other pre-existing hazards, as well as hazards that develop after an event. In many cases, extreme rainfall--especially of shorter durations--occurs with severe supercell thunderstorms, squall lines, and mesoscale convective systems. Almost by definition, these systems are multi-hazard events. Thus, straight-line downburst winds, large hail, tornadoes, and frequent lightning are often associated with the same storms that produce extreme rainfall rates. Power may be out, which complicates efforts to remove water using sump pumps. This was the case in June of 2013, following a major wind event in the Twin Cities. The July 23-24 super storm produced record-setting and basement-inundating rainfall from storms that also produced heavy damage from tornadoes. There were instances during the evening in which tornado warnings and Flash-Flood warnings were in effect for the same area simultaneously. Seeking shelter in a basement posed flood-related risks.

Extreme rainfall also can play a role in tree mortality, and associated damages to public sidewalks, personal property, and electrical systems. On June 21, 2013, a major tree fall event that was also the largest weather-related power outage in state history, resulted not just from the prolonged downburst winds, but also from intense rains that fell both earlier in the day, and during the storm. Though the winds were 50-60 mph with some higher gusts for over 10 minutes in many places, they produced far more damage than would be expected at those speeds. The severity of tree damage likely resulted from the saturated soils, which provided less resistance than normal, allowing trees to become “loose” and eventually topple.

Whether short or prolonged in duration, extreme rainfall is often associated with summerlike air masses. Thus, extreme rainfall may occur before, during, or after an extreme heat event. Similarly, extreme rainfall can occur during drought conditions, as was the case in 1987.

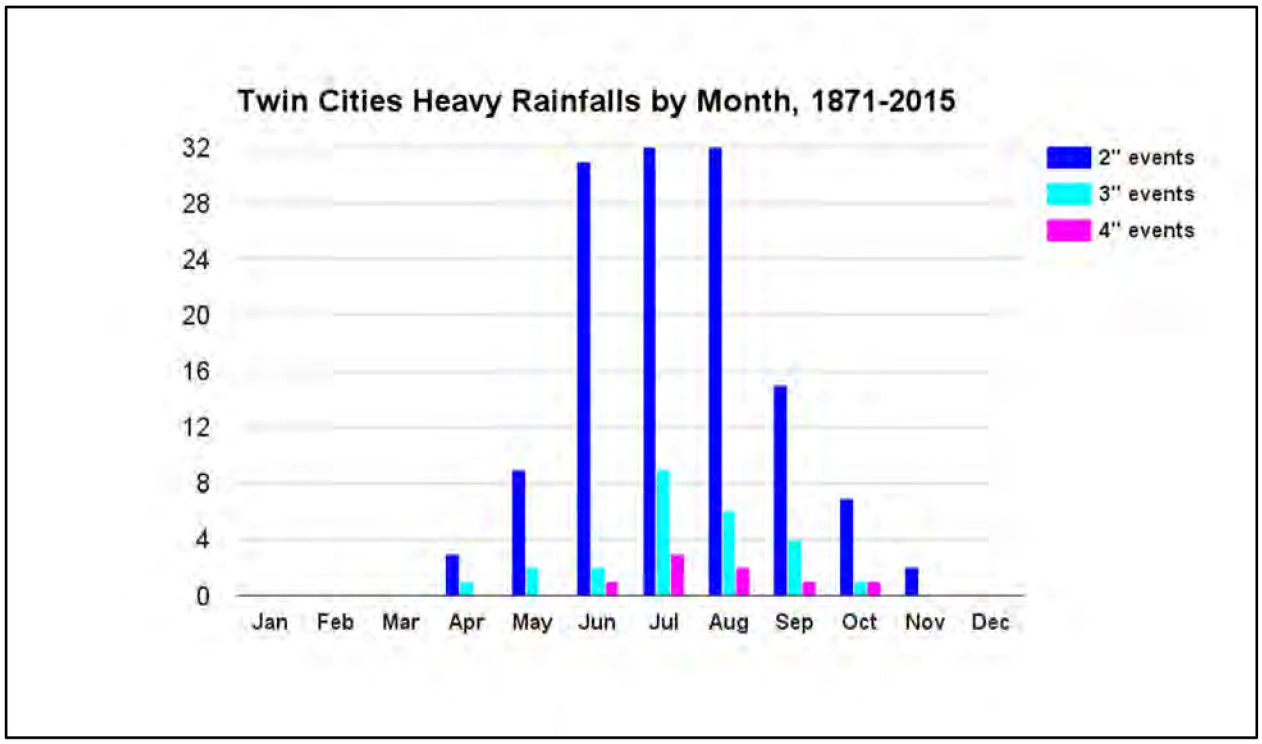
Additional specific cases of high-impact multi-hazard extreme rainfall events will be outlined in the ***Historical (statistical) data/previous occurrence*** section.

4.3.6.5. Geographic scope of hazard B1c

Extreme rainfall rates may cover between 50 and 1500 square miles at a time. After accounting for movement, the total area affected by rainfall more than 3 inches may cover thousands of square miles, with hundreds of square miles receiving over six inches of rain. In exceptionally rare cases, 6-inch rainfall totals may cover an area greater than 1,000 square miles--approximately the size of two Twin Cities area counties. The Minnesota State Climatology Office has documented 12 of these “mega” rainfall events in Minnesota since the mid-1800s. These events are always associated with catastrophic damage and often loss of life.

4.3.6.6. Chronologic patterns (seasons, cycles, rhythm)

Extreme rainfall has been observed from April through November, but peak probabilities are generally from June through August, and to a lesser extent, September. The frequency of 3 and 4-inch rainfall peaks during July.



Graphic of 2, 3, and 4-inch daily rainfall totals in Minneapolis since 1871.

Like other convective weather hazards, extreme rainfall goes through more and less active periods. Hennepin County has at times gone many years between major events. 2014, 2002, and 1997, on the other hand, are relatively recent examples of years with multiple extreme events in the county.

4.3.6.7. Historical (statistical) data/previous occurrence B1d

NOAA Atlas 14 is the definitive source for extreme rainfall estimates and contains the most recent scientific estimates of rainfall amounts for durations from 5 minutes to 60 days, and with recurrence intervals of 1 through 500-years. The following table is for a point selected in central Hennepin County. The top row contains recurrence intervals (or return periods), and the left column is storm durations. The value in bold where they intersect is the likely amount in inches expected for a storm of that duration, at that recurrence interval. The values in parentheses represent the 90% confidence range around the bold value ***Example: For 24-hour rainfall at a 100-year recurrence interval is estimated to be 7.34 inches, and is 90% likely to be between 5.55, and 9.65 inches.***

TABLE 4.3.6A is derived from a statistical technique that utilizes data from multiple stations and is based on observations.

TABLE 4.3.6A Precipitation frequency estimates for a point in central Hennepin County

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.355 (0.282-0.452)	0.420 (0.333-0.535)	0.531 (0.420-0.679)	0.628 (0.494-0.804)	0.767 (0.587-1.01)	0.880 (0.657-1.17)	0.997 (0.720-1.35)	1.12 (0.777-1.54)	1.29 (0.862-1.81)	1.43 (0.926-2.01)
10-min	0.519 (0.413-0.662)	0.615 (0.488-0.784)	0.777 (0.615-0.994)	0.919 (0.724-1.18)	1.12 (0.859-1.48)	1.29 (0.962-1.71)	1.46 (1.05-1.97)	1.64 (1.14-2.26)	1.89 (1.26-2.65)	2.09 (1.35-2.95)
15-min	0.633 (0.503-0.807)	0.749 (0.595-0.956)	0.948 (0.751-1.21)	1.12 (0.882-1.44)	1.37 (1.05-1.81)	1.57 (1.17-2.09)	1.78 (1.29-2.41)	2.00 (1.39-2.75)	2.31 (1.54-3.23)	2.54 (1.65-3.59)
30-min	0.895 (0.712-1.14)	1.07 (0.846-1.36)	1.36 (1.07-1.73)	1.61 (1.27-2.06)	1.97 (1.51-2.60)	2.26 (1.69-3.01)	2.56 (1.85-3.46)	2.88 (2.00-3.97)	3.32 (2.22-4.65)	3.67 (2.38-5.17)
60-min	1.16 (0.925-1.48)	1.38 (1.10-1.76)	1.77 (1.40-2.26)	2.12 (1.67-2.71)	2.64 (2.03-3.52)	3.08 (2.31-4.12)	3.56 (2.58-4.83)	4.07 (2.83-5.62)	4.79 (3.20-6.74)	5.37 (3.49-7.58)
2-hr	1.43 (1.15-1.81)	1.70 (1.36-2.14)	2.18 (1.74-2.76)	2.63 (2.08-3.33)	3.32 (2.58-4.39)	3.91 (2.96-5.20)	4.55 (3.33-6.14)	5.25 (3.69-7.21)	6.25 (4.22-8.75)	7.07 (4.63-9.91)
3-hr	1.59 (1.28-2.00)	1.88 (1.51-2.36)	2.42 (1.94-3.04)	2.93 (2.34-3.71)	3.75 (2.94-4.97)	4.46 (3.40-5.92)	5.24 (3.86-7.07)	6.11 (4.32-8.38)	7.37 (5.01-10.3)	8.40 (5.53-11.7)
6-hr	1.87 (1.52-2.33)	2.20 (1.78-2.73)	2.83 (2.29-3.52)	3.44 (2.77-4.31)	4.43 (3.51-5.83)	5.29 (4.08-6.99)	6.26 (4.66-8.39)	7.33 (5.24-10.0)	8.91 (6.11-12.4)	10.2 (6.78-14.1)
12-hr	2.14 (1.75-2.63)	2.52 (2.06-3.11)	3.25 (2.65-4.01)	3.93 (3.19-4.87)	5.00 (3.98-6.49)	5.92 (4.58-7.71)	6.92 (5.18-9.17)	8.04 (5.78-10.8)	9.64 (6.67-13.2)	11.0 (7.34-15.1)
24-hr	2.50 (2.06-3.05)	2.87 (2.37-3.51)	3.59 (2.95-4.40)	4.28 (3.50-5.25)	5.36 (4.32-6.90)	6.31 (4.93-8.15)	7.34 (5.55-9.65)	8.49 (6.16-11.4)	10.2 (7.09-13.8)	11.5 (7.79-15.7)
2-day	2.92 (2.43-3.53)	3.27 (2.72-3.96)	3.96 (3.28-4.80)	4.63 (3.82-5.63)	5.72 (4.65-7.29)	6.67 (5.27-8.55)	7.74 (5.91-10.1)	8.93 (6.54-11.9)	10.7 (7.51-14.4)	12.1 (8.25-16.4)
3-day	3.17 (2.65-3.81)	3.54 (2.96-4.26)	4.26 (3.55-5.13)	4.95 (4.11-5.99)	6.06 (4.94-7.67)	7.03 (5.58-8.95)	8.11 (6.21-10.5)	9.30 (6.84-12.3)	11.0 (7.82-14.9)	12.5 (8.55-16.8)
4-day	3.37 (2.83-4.04)	3.78 (3.17-4.53)	4.54 (3.80-5.45)	5.27 (4.38-6.34)	6.40 (5.23-8.05)	7.39 (5.87-9.35)	8.47 (6.51-10.9)	9.66 (7.13-12.7)	11.4 (8.08-15.2)	12.8 (8.80-17.2)
7-day	3.88 (3.28-4.61)	4.39 (3.71-5.22)	5.30 (4.46-6.31)	6.12 (5.12-7.31)	7.34 (6.01-9.09)	8.37 (6.67-10.4)	9.46 (7.30-12.0)	10.6 (7.88-13.8)	12.3 (8.78-16.3)	13.7 (9.45-18.2)
10-day	4.38 (3.72-5.17)	4.96 (4.21-5.86)	5.96 (5.04-7.06)	6.84 (5.75-8.13)	8.12 (6.65-9.97)	9.17 (7.33-11.4)	10.3 (7.94-13.0)	11.4 (8.50-14.7)	13.1 (9.34-17.2)	14.4 (9.98-19.1)
20-day	5.96 (5.11-6.97)	6.66 (5.71-7.80)	7.84 (6.69-9.20)	8.83 (7.50-10.4)	10.2 (8.42-12.3)	11.3 (9.11-13.8)	12.4 (9.68-15.5)	13.6 (10.2-17.3)	15.1 (10.9-19.7)	16.3 (11.4-21.5)
30-day	7.35 (6.33-8.54)	8.19 (7.05-9.52)	9.54 (8.19-11.1)	10.7 (9.10-12.5)	12.2 (10.1-14.6)	13.3 (10.8-16.1)	14.5 (11.3-17.9)	15.6 (11.7-19.7)	17.1 (12.4-22.1)	18.3 (12.9-24.0)
45-day	9.15 (7.93-10.6)	10.2 (8.84-11.8)	11.9 (10.3-13.8)	13.2 (11.3-15.4)	15.0 (12.4-17.7)	16.3 (13.2-19.5)	17.5 (13.7-21.4)	18.7 (14.1-23.4)	20.2 (14.6-25.8)	21.2 (15.0-27.7)
60-day	10.7 (9.31-12.3)	12.0 (10.4-13.8)	14.0 (12.1-16.2)	15.6 (13.4-18.1)	17.6 (14.6-20.7)	19.0 (15.5-22.7)	20.4 (16.0-24.7)	21.6 (16.3-26.9)	23.1 (16.8-29.4)	24.1 (17.1-31.3)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

The 100-year recurrence value for 24-hour rainfall is the most frequently cited value, and indeed, many structure are designed for such an event. It is, however, important to note that shorter durations of excessive rainfall can also overwhelm systems, and many have therefore been designed for 1, 3, or 6-hour thresholds. Structural, civil, and hydrological engineers can provide further information on exceedance thresholds used for infrastructure elements. Additionally, heavy rainfall over longer durations can overwhelm systems, even when exceptional hourly rainfall rates are lacking.

Extreme rainfall, therefore, should be anticipated on a variety of timescales, and not just measured by daily or 24-hour rainfall only. Radar estimates and automated rain gauges help forecasters understand rainfall quantities for shorter and longer durations, and noteworthy rainfall events of many duration-magnitude combinations have affected Hennepin County.

July 23-24, 1987, Super Storm

The heaviest rainfall ever officially recorded at a Twin Cities weather station fell between about 18:00 CDT on 23 July and about 02:00 CDT on 24 July 1987. During this eight-hour interval, observers at the Twin Cities International airport station measured an even ten inches of rain (9.15 inches of which fell in a five-hour period). In addition to the heavy rainfall, the 23-24 July storm spawned an F3 tornado near Goose Lake in Hennepin County and produced extensive damage in Maple Grove and Brooklyn Park. Damage in other areas was extensive, largely the result of flooded homes and businesses, ruptured storm sewers, and washed out or inundated streets and highways. Two flood related deaths were reported, and property damage was estimated to be in excess of $30 million (1987 dollars).

The 23-24 July storms occurred along an outflow boundary that had separated extremely warm, moist air to the south and east and much cooler, drier air immediately to the north and west. The interaction of these air masses produced intense thunderstorms with extremely heavy rainfall over the southwestern portion of the Twin Cities on 20-21 July 1987, two days prior to the 23-24 July outbreak. Rainfall amounts during this event included 3.83 inches at the Twin Cities airport station, 9.75 inches near Shakopee and 7.83 inches at the neighboring community of Chaska.

The 23-24 and 20-21 July storms, together with the rainfall produced by thunderstorms earlier and later in the month, brought unprecedented July rainfall to the Twin Cities area. The International airport station recorded 17.91 inches, approximately six times the July normal. An unofficial monthly total of 19.27 inches was recorded in west Bloomington.

Ironically, July 1987's excessive rainfall came in the middle of a prolonged period of subnormal precipitation. Precipitation had been below normal for every month from October 1986 through June 1987 and, following about six weeks of wet weather in July-August 1987, the drought returned. Extreme dryness prevailed during much of the ensuing year with a near record dry June and record warmth during the summer of 1988.

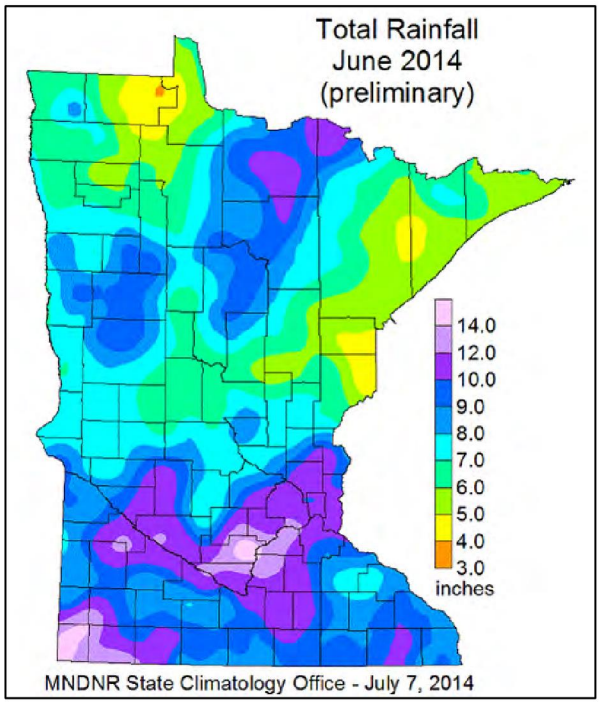
July 1, 1997, Derecho and Flood

An intense mesoscale system containing supercells and a fast-moving squall line tore through the central and northern Twin Cities area during the evening, producing extensive wind damage and catastrophic flooding. Numerous tornadoes rated up to F3, were reported from the Willmar area, through Wright and Sherburne Counties. Non-tornadic winds more than 100 mph knocked out power, severely damaged structures, and snapped and uprooted trees in Wright, Anoka, Sherburne, and northern Hennepin counties.

As the storm complex moved into the central portions of the Twin Cities, it produced some of the heaviest one-hour rainfall ever measured in Minnesota. 3-4 inches fell within one hour over the central and eastern parts of Hennepin County, as well as adjacent portions of Ramsey and Anoka counties. I-35 and I-94 were closed south of downtown Minneapolis and standing water more than 10 feet in some areas prompted boat rescues in south Minneapolis and Richfield. Edison High School in northeast Minneapolis sustained major flood damage, and hundreds of homes and residential complexes were severely damaged by inundation.

Late May through June 2014 - repeated/persistent heavy rainfall events

A persistently wet pattern punctuated by numerous heavy rainfall events during June 2014 led to significant flooding and estimates of approximately $12 million in damage throughout Hennepin County. The greatest impacts tended to be focused near water bodies and low-lying areas. Numerous stations in Minnesota reported record monthly rainfall for June.



May 31- June 2: 2-4 inches of rainfall was common over the county, with 4.3" reported at Flying Cloud. This was part of a nearly statewide heavy rainfall event. Lake Minnetonka rose to its highest levels in 109 years following this event.

June 6-8: A scattered rainfall event, with up to 2 inches in western Hennepin County, and an isolated 3-inch report near Independence.

June 14-16: 2-3 inches throughout the county. Levels began rising rapidly along many waterways. June 18: Isolated reports of up to 1 inch in association with a major event concentrated over southern MN, and in advance of the more significant event on the following day.

June 19: Major, long-duration intense rainfall event, with waves of heavy precipitation throughout the day. Flooding became common and widespread. 3-5 inches were common throughout the county, with 4.13 reported at MSP—the heaviest daily total since October 2005. 5.47" was reported by CoCoRaHS in Eden Prairie. Seven-day rainfall amounts of 4-8 inches were common across the county, with even more to the south and west.

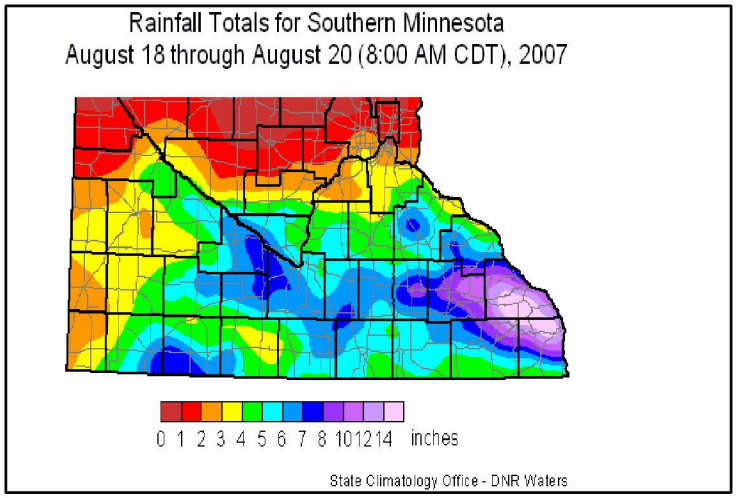
Municipalities, school districts, and other public interests within Hennepin County reported losses and expenses more than $12 million USD (2014). The following list is not exhaustive, but rather representative of the scale and impact of damage from the excessive rainfall.

- Bloomington, **$265-270k**: parkland damage; destruction of warming house
- Eden Prairie, **$360-370k**: pipe ruptures damage to Duck Lake Trail, Eden Prairie Road, recreational trails, sewers, and banks of Riley Creek
- Golden Valley, **$90-95k**: unspecified damages to roads, sewers, culverts
- Greenfield, **$20-25k**: roads, sewers
- Hennepin County Sheriff's Office, **$26k**: water patrol docks and one boat damaged.
- Hopkins School District, **$5k**: washouts at High School, West Jr. High, Gatewood Elementary, and Eisenhower

- Minneapolis Park Board, **$6.8M**: Mudslide behind Fairview-Riverside affecting 100' x 250' slope and exposing facility oxygen tanks and require extensive re-engineering and restoration.
- Minnehaha Creek Watershed District, **$180k:** Lake Minnetonka reached record high water mark of 931.11 feet, and Minnehaha creek exceeded 100-year flow at Hiawatha (with 893 cu ft.). The entire creek watershed was severely impacted, as were many of the MCWD's capital projects.
- Minnetonka, **$55k**: unspecified damages to municipal property
- Minnetonka Independent School District, **$NA**: Destruction/failure of retaining wall at high school.
- Mound, **$1M**: unspecified damages to streets, culverts, sewers, parks, and infrastructure
- Orono, **$150k**: severe damage to Starkey Road and Balder Park Road
- Park Nicollet Methodist Hospital, **$3.6M**: Drainage system destroyed; sunken grade creating sinkhole risk; low-lying electrical circuitry inundated and damaged, pumping, sandbagging and dewatering required; barriers construction.
- Richfield, **$70-75k**: Power failure at sanitary lift station, damage to pumps, trails and paths inundated, littered with debris, and damaged.
- St. Louis Park, **$50-55k**: severe damage on Louisiana Ave
- Wayzata, **$70-75k:** city marina flooded and damaged; culverts damaged, requiring emergency repairs.

August 18-20, 2007 - worst rainfall event on record in MN

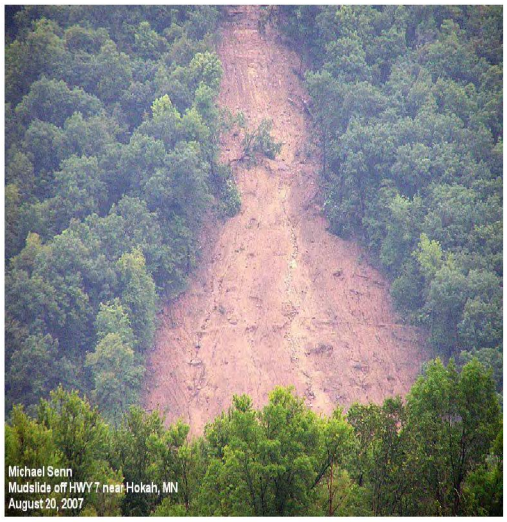
Perhaps the most extraordinary precipitation event in Minnesota's modern history shattered Minnesota's 24-hour rainfall record. The 15.10" total recorded at 8:00 AM on Sunday, August 19, 2007, near Hokah in Houston County is the largest 24-hour rainfall total ever measured at an official National Weather Service observing station in Minnesota, breaking the old record of 10.84 inches by an astonishing 39%.



Rainfall totals for entire 3-day rainfall event in southern Minnesota in august of 2007. In most areas, 80-90% of the totals came within the first 24 hours of the event.

The storm also obliterated the state's "unofficial" rainfall record, when a non-National Weather Service rainfall observer near La Crescent (Houston County) reported 17.21 inches for the 24-hour period ending 7:00 AM, Sunday, August 19. This is the largest 24-hour value in the Minnesota State Climatology Office database and broke the previous statewide *non-NWS observer* record 12.75" by a margin of 35%. Both new records far exceeded expected totals, even for record-breaking events, and are so large, a true return period estimation is virtually impossible.

The rainfall was caused by a series of strong thunderstorms moving along a stalled frontal boundary for an unusually long time. The most intense precipitation rates occurred during the afternoon and evening hours of Saturday, August 18, and the early morning hours of Sunday, August 19. Over the course of the event, all or portions of 28 counties received at least four inches of rain. Six-inch totals were common across the region, and portions of southeastern Minnesota reported three-day totals ranging from 8 to 20 inches. The heaviest rainfall reports came from Winona, Fillmore, and Houston counties, where 36-hour totals exceeded 14 inches. The largest multi-day rainfall total reported (through Monday, August 20) was 20.85 inches observed near the town of Houston in northern Houston County.



Damaging mudslide near Hokah. Courtesy of NWS- La Crosse

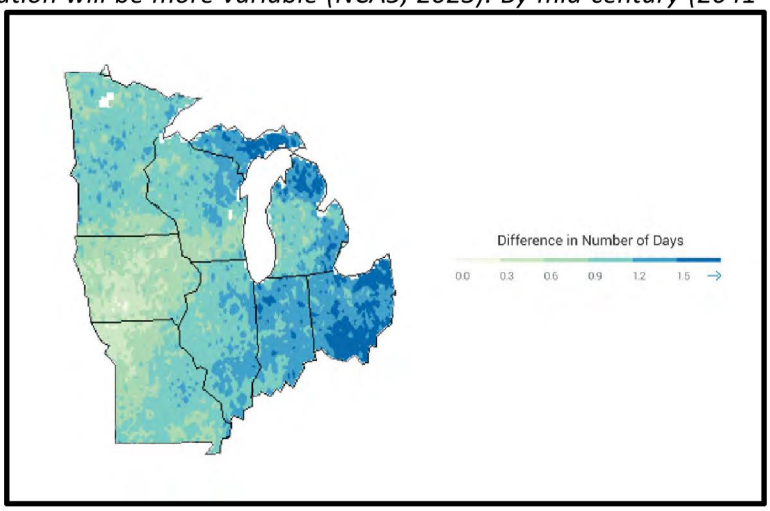
The deluge produced flooding tied to seven fatalities. Major flood damage occurred in many southeastern Minnesota communities. Hundreds of homes and businesses were impacted. Reports of stream flooding, urban flooding, mudslides, and road closures were numerous throughout southern Minnesota.

The combination of huge rainfall totals and a very large geographic extent, make this an extraordinary episode. The area receiving six or more inches during a 24-hour period during this torrent encompassed thousands of square miles- the largest such area known to the Minnesota State Climatology Office.

There have been no other incidents that are within the scope of this plan.

4.3.6.8. Future trends/likelihood of occurrence B1e

The 2023 National Climate Assessment indicates that winter and spring precipitation is expected to increase, while summer and fall precipitation will be more variable (NCA5, 2023). By mid-century (2041-2070), the latest science suggests that rainfall events that would ranking in the top 2% for the period 1981-2010, will become more common. Most of Minnesota can expect, on average, an additional day per year with these events, which amounts to an approximate doubling in frequency.



Additional days per year with upper 2% rainfall events by mid-century (2041-2071). Source, *2014 National Climate Assessment, Midwest Chapter.*

4.3.6.9. Indications and Forecasting

The Chanhassen Office of the National Weather Service is the local authority for extreme rainfall monitoring and forecasting, and uses flash flood guidance, based on soil moisture and land cover conditions, to evaluate whether expected and/or ongoing heavy rainfall poses a significant flooding risk. Additionally, NOAA's Weather Prediction Center (WPC) has a legacy of advanced hydro-meteorological monitoring and prediction and offers Excessive Rainfall Outlooks and Mesoscale Precipitation Discussions that are comparable to the severe weather products offered by the Storm Prediction Center. Unlike the Storm Prediction Center, however, the WPC does not issue Watches of any sort.

Forecasters monitor and analyze numerical weather models and other predictive tools to ascertain potential extreme rainfall and associated flash flooding threats. The following sequence of products may then be used in an idealized situation, though it should be noted that extreme rainfall threats may appear of disappear at any step in this timeline:

4+ days out: Chanhassen NWS Office highlights threat for heavy or extreme rainfall and flash flooding potential in Hazardous Weather Outlook products.

1-3 days out: WPC issues Excessive Rainfall Outlook, indicating Marginal, Slight, Moderate, or High Risk of excessive rainfall, according to the following probabilities:

Risk Category	Probability of Rainfall Exceeding Flash Flood Guidance at a Point
Marginal (MRGL)	2-5%
Slight (SLGT)	5-10%
Moderate (MDT)	10-15%
High (HIGH)	>15%

Current/valid Excessive Rainfall Outlooks can be found at: http://www.wpc.ncep.noaa.gov /qpf/ excess _rain.shtml

Within 48 hours: Chanhassen NWS Office issues Flash Flood Watch, based on combination of expected precipitation and local Flash Flood Guidance values.

→ ***Important:*** *In early spring 2018, the NWS will no longer use Flash Flood Watches, and will instead consolidate them into generic Flood Watches, as part of its Hazard Simplification process: https://www.weather.gov/news/170307-hazard-simplification*

Within 1-6 hours: WPC issues Mesoscale Precipitation Discussion to highlight emerging flooding potential from expected, developing, or ongoing thunderstorm and rainfall activity. These discussions are only used for large areas of concern (generally the size of 25 or more Minnesota counties) and do not pertain to highly localized extreme events.

Each discussion includes an annotated graphic indicating the area of concern, and a brief text discussion focused on the mesoscale features supporting the anticipated heavy rainfall. The potential for flash flooding within the area of concern will be highlighted by one of three headlines:

FLASH FLOODING LIKELY High confidence exists that environmental conditions are favorable, or will become favorable, for heavy rainfall that will result in flash flooding.

FLASH FLOODING POSSIBLE Environmental conditions are favorable, or will become favorable, for heavy rainfall, but there are questions about how the event will evolve and/or whether flash flooding will occur.

FLASH FLOODING UNLIKELY High confidence exists that environmental conditions are unfavorable, or will become unfavorable, for heavy rainfall that will result in flash flooding.

Once event has begun: Chanhassen NWS Office issues Flash Flood Warning, based on combination of precipitation received, further precipitation expected, soil conditions, and stream levels and flow. A Flash Flood Warning is issued when flash flooding is occurring or is imminent. These warnings differ from Severe

Thunderstorm and Tornado warnings, in that they are not issued in advance of the parent thunderstorm(s), but instead after the storm has begun, ideally in advance of the flash-flooding itself. The behavior of approaching storms is erratic enough that pre-storm lead time for flash-flood warnings would lead to high false alarm rates.

Flash Flood Warnings are issued as polygons that attempt to match the spatial extent of the true threat (as opposed to covering entire counties). Like Severe Thunderstorm warnings, they may cover slivers of counties, or multi-county swaths. The warning period depends on the duration of the event itself, but Flash Flood Warnings may continue for several hours after the precipitation has subsided.

4.3.6.10. Detection & Warning

The Chanhassen NWS Office and North Central River Forecast Center (adjoining the Chanhassen office) monitor local flood conditions using a combination of manual and remotely sensed information. Key warning detection and decision sources include but are not limited to:

- Radar-estimated precipitation, which can be used in conjunction with flash flood guidance values to determine flood potential.
- Automated, real-time stream gaging, which indicates the level and flow of critical streams.
- Real-time, manual, or automated rainfall reports
- Radar and local meteorological trends, indicating potential for storms to continue and/or redevelop in or near affected areas.
- Reports from spotters, emergency managers, first responders, the media, and the public
- Images or videos shared via social media or other means.

The Chanhassen NWS Office will issue a Flash Flood Warning if the forecasters determine that information from the above and other detection sources indicate that flash flooding is occurring or is imminent in each area.

4.3.6.11. Critical values and thresholds

Unlike other weather hazards, Watch and Warning thresholds for flash floods vary with the pre-existing meteorological conditions. Conditions with saturated soils and high or overtopped streams require substantially less precipitation to generate flash-flooding than conditions with low soil moisture and low stream levels. Although some anticipated precipitation amounts may suggest to forecasters that flash flooding is possible, irrespective of soil conditions, the Watch and Warning thresholds are generally determined on a case-by-case basis, by considering the Flash Flood Guidance for the area(s) of concern.

Flash Flood Guidance (FFG) values estimate the average amount of rainfall (in inches) for given a duration required to produce flash flooding in the indicated county or area. These values are based on a combination on current soil moisture conditions and land cover considerations, and therefore change in response to the local hydro-climatic situation. Throughout much of Hennepin County, and especially in urban areas, less rainfall is required to produce flash flooding than in many neighboring areas, because of the county's high concentration of impervious surfaces.

Current flash-flood guidance for 1, 3, and 6-hour rainfall can be found at:

- https://www.weather.gov/ncrfc/LMI_ROF_NFP_FlashFloodGuidance

4.3.6.12. Prevention

To improve water management and protect the sewage system from damage, cities can revamp their underground pipe and drainage systems by separating rainwater from the sewage system. The separation enables the wastewater treatment plant to function properly, without it being overburdened by large quantities of storm water.

Other more obvious methods are to keep sewer systems clean of clog up with waste, debris, sediment, tree roots and leaves.

4.3.6.13. Mitigation

Areas that have been identified as flood prone areas can be turned into parks, or playgrounds, buildings and bridges can be lifted, floodwalls and levees, drainage systems, permeable pavement, soil amendments, and reducing impermeable surfaces. Reducing impervious surfaces could include the addition of green roofs, rain gardens, grass paver parking lots, or infiltration trenches.

Other mitigation strategies include developing a floodplain management plan, form partnerships to support floodplain management, limit or restrict development in floodplain areas, adopt and enforce building codes and development standards, improve storm water management planning, adopt policies to reduce storm water runoff, and improve the flood risk assessment.

4.6.3.14. Response

One of the most important things to be done during the initial response is to make sure that people are safe. If their homes have been damages and are unlivable, finding a place for them to stay is among one of the top priorities. Next is the access to places if roads are washed out or still underwater. One complicated factor with flood disasters, is sometimes you do not know how bad the damage is until the water recedes, which can take time and slow the response. Another important part of response is to make sure water supply is available as quick as possible if there has been any contamination. The role of Hennepin County Emergency Management is to coordinate resources that our municipalities may need to accomplish all response needs.

4.6.3.15. Recovery

As mentioned in river flooding, recovery from floods can take weeks, to months, to years. Extreme rainfall/flooding is unlike quick onset disasters (e.g., tornadoes) where you can see the damage immediately, sometimes with excessive rainfall/flooding you must wait for the flood waters to recede to find out what damage there is to recover from. A lot of the time, the longer the water level stays too high, the more consequences are introduced that you must then recover from.

4.6.3.16. References

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4.3.7.	Hazard Assessment: HEAT, EXTREME

4.3.7.1. Definition



Conditions of extreme heat are defined as summertime temperatures that are substantially hotter and/or more humid than average for a location at that time of year. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when an area of high atmospheric pressure traps hazy, damp air near the ground. Extremely dry and hot conditions can provoke dust storms and low visibility. Typically, when extreme heat conditions last for two days or longer, they are called heat waves.

4.3.7.2. Range of Magnitude

The magnitude of extreme heat can vary greatly. You can have extreme heat events where you have shorter periods (3-5 days) with much higher-than-normal temperatures, or you can have longer periods (2-3 weeks) with temperatures only 5-10 degrees higher than normal temperatures.

- Hottest Heat Wave on record MN: July 18, 2011
- Longest Heat Wave on record MN: June 3-10, 2021
- Most Recent Heat Wave for Hennepin County: August 25th, 2013
- Deadliest MN Heat Wave: August 4-8, 2001; 5 fatalities

4.3.7.3. Spectrum of Consequences B2b

Extreme heat can be just as deadly as other natural hazards by pushing the human body beyond its limits. Under normal conditions, the body's internal thermostat produces perspiration that evaporates and cools the body. However, in extreme heat and high humidity, evaporation is slowed, and the body must work extra hard to maintain a normal temperature. Most heat disorders occur because the victim has been overexposed to heat or has over exercised for his or her age and physical condition. Effects can be seen through just a few people or by many depending on extent the temperatures rise above normal, or other hazards occurring simultaneously. People most at risk include elderly and very young persons, chronically ill patients, socially isolated people, urban residents, and people without access to air conditioning.

There are different conditions, or disorders, related to extreme heat illnesses: heat stress, heat exhaustion, heat stroke, and hyperthermia. Heat stress is the perceived discomfort and physiological strain associated with exposure to hotter than normal environment, especially during physical activity. Heat exhaustion is a mild-to-moderate illness due to water or salt depletion resulting from exposure to extreme heat conditions or strenuous physical activity. Heat stroke is a severe illness resulting from exposure to environmental heat, or strenuous physical exercise during extreme heat conditions. Heat stroke is characterized by a human body core temperature greater than 104°F along with central nervous system abnormalities such are delirium, convulsions, or coma. Heatstroke can have a fast onset and poor survival rate.

4.3.7.4. Potential for Cascading Effects

One complicating factor when discussing impacts of extreme heat, is extreme heat doesn't necessarily immediately impact people when it sets in, instead it is when the periods of extreme heat last for days and weeks that it takes its toll on people. Additionally, when overnight air temperatures do not cool below 70 degrees F, it does not give people's bodies a break from the heat. An additional complicating factor is when extreme heat conditions are paired with another hazard. For example, if severe thunderstorms affect an area and knock out power right before extreme heat sets in, you now have additional people exposed to extreme heat without working air conditioners. Extended durations of extreme heat can also exacerbate drought conditions and can also lead to excessive power consumption needs causing the potential for brown- and black-outs, which would only make the exposure conditions worse.

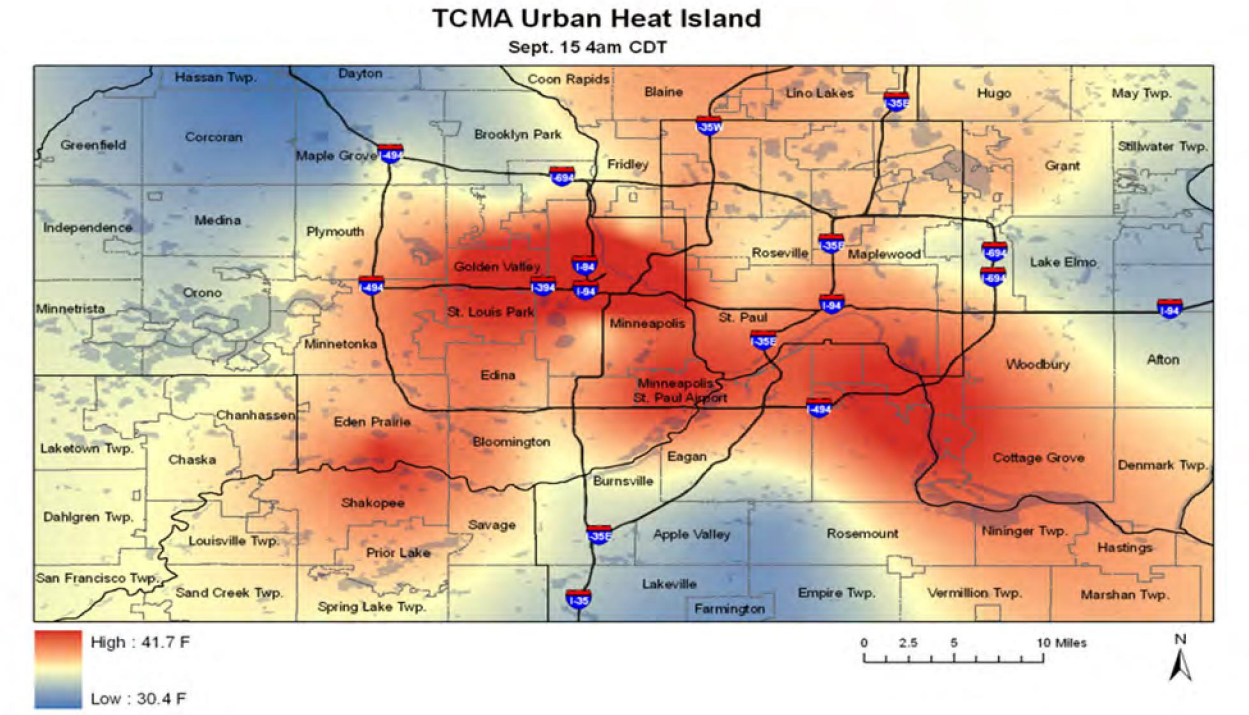
Extended periods of extreme heat also contribute to wildfire hazard through a process wherein natural materials, particularly sand and bare soil absorb solar radiation, holding the heat very near the surface, resulting in extremely high surface temperatures. The hot surface heats the overlying air, which rises, carrying the heat upward. The extremely hot surfaces generate strong updrafts, essentially creating local winds that dry surrounding vegetation, increase fuel temperatures, and intensify and spread wildfires. The dry vegetation, high fuel temperatures, and high winds increase the static electricity, increasing the potential for spontaneous combustion, particularly during prolonged periods of drought. Extreme heat temperatures can also force the closure of airports due to the lack of sufficient air density for take-offs and landings.

4.3.7.5. Geographic Scope of Hazard B1c

When this hazard happens, it can be as small as a local hazard, or countywide with areas of highest concern in the largest metropolitan areas because of the Urban Heat Island (UHI). Urban heat islands are large metropolitan urban areas that are warmer in temperature than surrounding rural areas because of pavement, blacktop, and buildings. The University of Minnesota conducted a study showing the Twin Cities metro area temperature differences in 2011.

Graphic 4.3.7A illustrates measured temperature differences of up to 10 degrees just within Hennepin County.

Graphic 4.3.7A



4.3.7.6. Chronologic Patterns

While the definition of extreme heat indicates an extended period where temperatures are above average high temperature, you typically see extreme heat as an issue during the summer months of May through September in Hennepin County.

4.3.7.7. Historical Occurrence B1d

There have been several past instances of extreme heat in Hennepin County. The earliest records of extreme heat include the Dust Bowl of the 1930's. The Dust Bowl years of 1930-36 brought some of the hottest summers on record to the United States, especially across the Plains, Upper Midwest, and Great Lake States. For the Upper Mississippi River Valley, the first few weeks of July 1936 provided the hottest temperatures of that period, including many record highs.

Two consecutive heat waves occurred in 1999. The first was on July 23-25, 1999, when a massive upper ridge over the central U.S. enabled heat to build into Minnesota. Heat indices ranged from 95-110 on the 23rd, 90-105 on the 24th, and climaxed at 95-116 on the 25th. One death resulted from the heat wave after a man fell asleep inside a closed vehicle on the 25th. The second heat wave of 1999 occur less than a week later for central and south-central Minnesota. This heat wave lasted from July 29th, 1999, through July 30th, 1999. This heat wave was stronger with heat indices climbing to the 95-114 range with lows in the 70s and dew points in the middle 60s to 70s which produced heat indices 70-85 even in the morning hours.

In 2001, there were another two heat waves, one that was from July 30 through August 1st, and a second from August 4th through August 8th. The July 30th-August 1st heat wave is commonly known for the heat wave where Minnesota Vikings football player Corey Stringer collapsed on the football field around

midday on July 31 in Mankato and was taken to the hospital. Mr. Stringer died early on August 1st, 2001. The second heat wave of 2001 came just three days later and persisted for five days. This heat wave produced five fatalities all within Hennepin County. Hot weather and tropical-like humidity pervaded the region, as virtually all stations registered highs in the 90s all five days. Minneapolis-St. Paul (MSP) reached 98 or 99 three straight days (August 5-7) when highs were 98, 99 and 98 respectively; the highs at MSP on August 6 and August 7 set records. A few noteworthy heat indexes, including the highest known value around Minnesota for each day, are:

- August 4 - 110 at Morris (Stevens County), 107 at Redwood Falls (Redwood County), and 102 at MSP.
- August 5 - 114 at Alexandria (Douglas County) and Morris (Stevens County), 110 at Maple Lake (Wright County) and Montevideo (Chippewa County), and 107 at Mankato (Blue Earth County) and at MSP.
- August 6 - 118 at Rush City (Chisago County), 114 at Redwood Falls (Redwood County), 110 at Faribault (Rice County), and 109 at MSP.
- August 7 - 117 at Morris (Stevens County), 116 at Redwood Falls (Redwood County), 109 at MSP, and 107 at Staples (Todd County).
- August 8 - 102 at Little Falls (Morrison County) and Staples (Todd County), 100 at Appleton (Swift County), and 95 at MSP.

Another heat wave occurred in 2005. High temperatures at Minneapolis-St. Paul International Airport remained at or above 90 degrees for 9 consecutive days between July 9th and 17th. This extended period of hot weather set a record for the 3rd longest streak of at or above 90-degree highs since 1891 in the Twin Cities. On July 12th, a laborer putting up a fence in Arden Hills in Ramsey County suffered severe heatstroke. He collapsed at the work site and was rushed to a local hospital. His body temperature reached 108.8 degrees, but miraculously he survived after receiving intensive medical attention. He awoke from a medically induced sedation 24 hours after falling ill and made a full recovery.

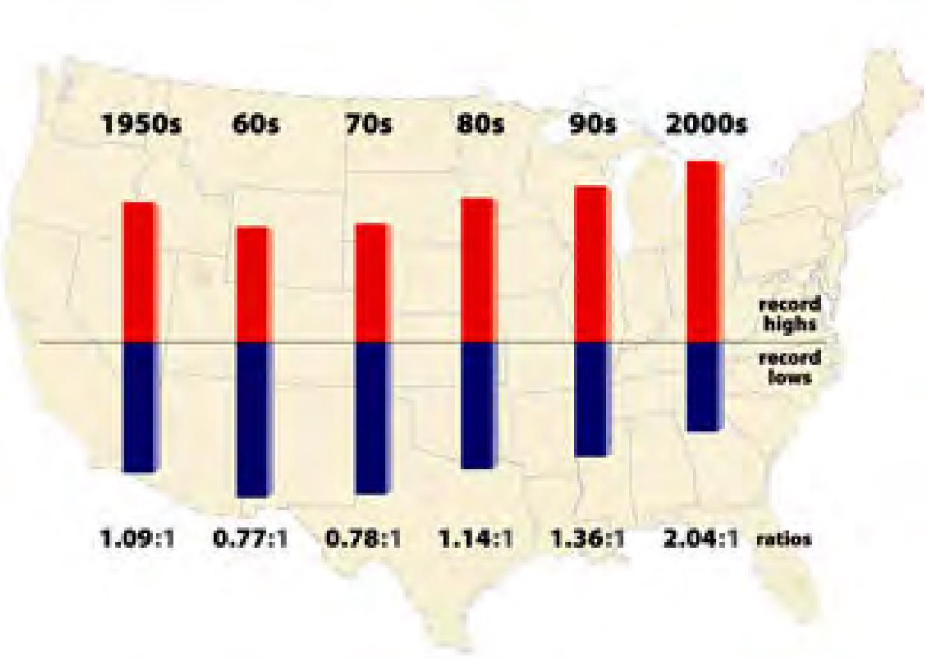
Two heat waves occurred in 2011, one in June and one in July. The June heat wave occurred on June 7th, where it broke the all-time true temperature record for the day at 103°F. This was the warmest day in the Twin Cities in almost 23 years, when July 31, 1988, had a high of 105 degrees. The second heat wave of 2011 occur in July as a large ridge of high pressure expanded across the Upper Midwest and allowed for a stagnant pattern, and eventually oppressive heat and humidity to develop. The heat wave broke records for temperature and dew point, and even heat indices across the region. Maximum heat index values of 115 to 125 were common. A record high minimum temperature was set on July 18th, when a low temperature of 80 degrees was recorded at Minneapolis - St. Paul International Airport. The previous record was 78 degrees which was set in 1986. A record high minimum temperature was also set on July 20th, when a low temperature of 80 degrees was recorded. The previous record was 76 degrees which was set in 1901, 1935 and 1940. A total of 44 fans were treated at Target Field (32 treated in their first aid facilities and more than a dozen treated in their seats). The heatwave led to record power demand. Xcel Energy set a record with the highest one-day peak demand ever of a little more than 9,500 megawatts on Monday, July 18th. The heat affected turkeys in southwest Minnesota, where 50,000 turkeys died due to heat related causes near Redwood Falls. In addition to the turkeys that died, several news articles had references to heat related deaths to livestock in southern and western Minnesota, but the articles were not specific for counties. The heat and humidity were also blamed for road buckling on I-94 in Minneapolis. Two lanes of northbound I-94 at Lowry Ave, and two lanes of eastbound I-94 at 49th Ave, were closed because of buckling pavement.

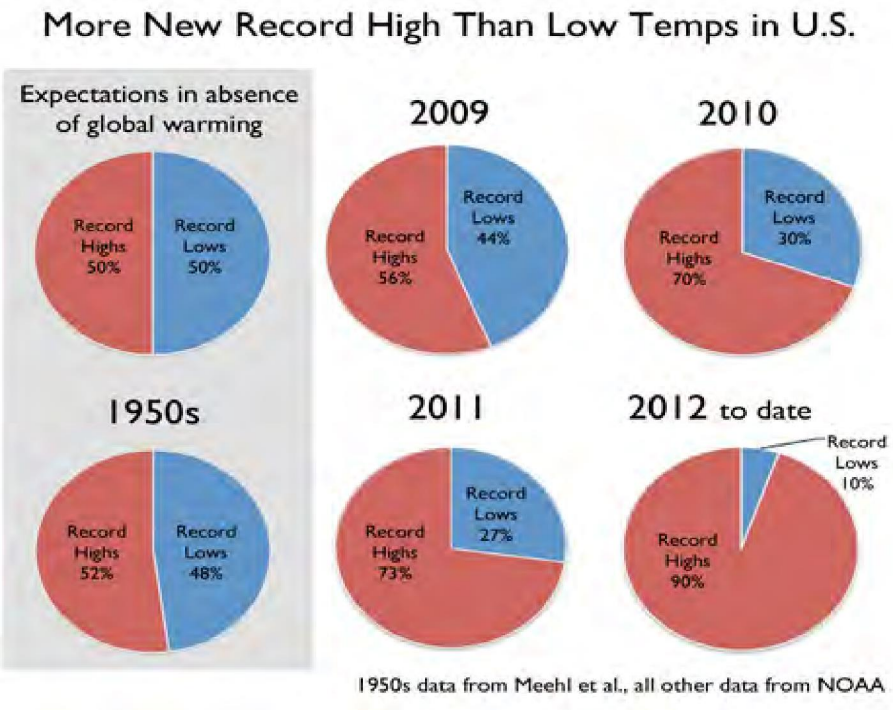
The most recent heat wave occurred in 2013 specifically August 25th through August 27th. A large ridge of high pressure built across the central part of the United States during the last week of August. Heat and humidity increased across the Upper Midwest starting the weekend of August 25th and lasted until the latter part of the week with a string of 90+ afternoon temperatures, combined with dew points in the 70s, caused heat indices to rise above 100 degrees from Sunday, through Tuesday, August 27th. In the Twin Cities metro area, heat indices remained above 80 degrees overnight, and afternoon heat indices continued above 100 degrees through Thursday afternoon, August 29th. The Minnesota State Fair was going on during the time. 216 people required treatment at medical stations at the fair for heat related illnesses, 10 of whom were transported to local area hospitals. In addition, several record high temperatures were observed, and a dew point temperature of 77 degrees on August 27th at 3:00 PM tied the MSP high dew point temperature record set on August 27, 1990. It also tied the record for highest dew point ever during the State Fair (77 degrees - August 28, 1955, and August 27, 1990). Minneapolis schools canceled all outdoor after-school athletics practices during this period. The August 26th high of 96 degrees in the Twin Cities broke the 94-degree record set in 1948. In Hennepin County, from the 25th through the 29th, there were 28 people who were treated for heat related illnesses, either as walk-ins at emergency rooms, or transported by ambulance to hospitals.

There have been no other incidents that are within the scope of this plan.

4.3.7.8. Future Trends B1e

Numerous studies have documented that human-induced climate change has increased the frequency and severity of heat waves across the globe. While natural variability continues to play a key role in extreme weather, climate change has shifted the odds and changed the natural limits, making heat waves more frequent and more intense. In an unchanging climate both new record highs and new record lows are set regularly, even while the total number of new records set each year may decrease as time goes on. Sixty years ago in the continental United States, the number of new record high temperatures recorded around the country each year was roughly equal to the number of new record lows. Over the past decade, however, the number of new record highs recorded each year has been twice the number of new record lows, a signature of a changing climate, and a clear example of its impact on extreme weather.





4.3.7.9. Indications and Forecasting

Heatwaves are most common in summer when high pressure develops across an area. High pressure systems can be slow moving and persist over an area for a prolonged period such as days or weeks. Not all high-pressure systems bring heat waves. However, high pressure that is combined with high temperatures and high dew points are those that bring the extreme heat events. Typically, with high pressure, you have clear skies, which allows strong solar inputs as well. There has been a study done in

which showed local evaporation also plays a role in causing high moisture values near the surface.

4.3.7.10. Detection & Warning

The two crucial values for the National Weather Service issuing excessive heat products are described below in the definitions of advisory, watch, and warning criteria.

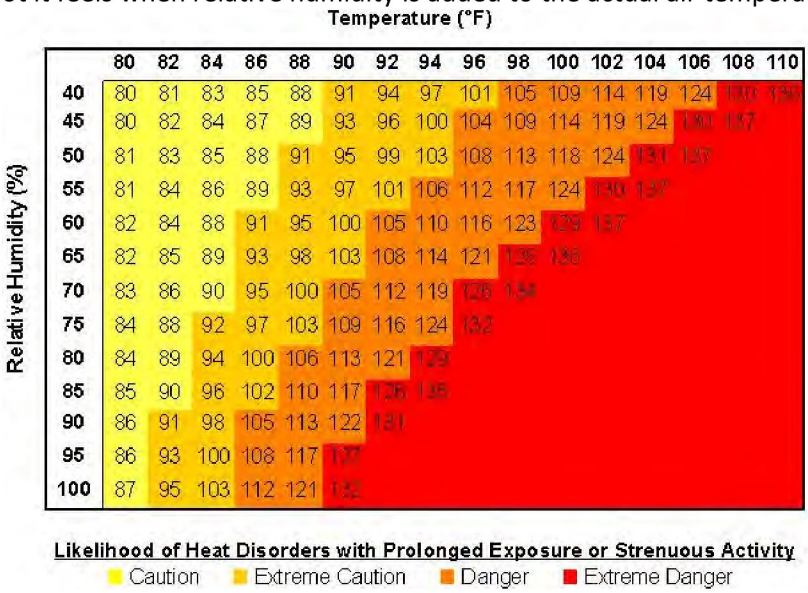
- Excessive Heat Advisory: The heat index will reach 95 °F for at least three hours one day. The forecast maximum Wet Bulb Globe Temperature will reach 85 for three hours one day. The heat index will reach 95 °F for two days in a row, along with an overnight low no cooler than 73 °F.

- Excessive Heat Watch: A possibility the heat index will reach 100 °F for one day and/ro the forecast maximum Wet Bulb Globe Temperature could reach 87 for one day, and/or the heat index could reach 100 °F for two days in a row, along with an overnight low no cooler than 73 °F.

- Excessive Heat Warning: Maximum heat index at MSP Airport reaches 100 °F or greater for at least 1 day. The forecast maximum Wet Bulb Globe Temperature will reach 87 for one day. The heat index will reach 100 °F for two days in a row, along with an overnight low no cooler than 73 °F. Advisory conditions for at least four consecutive days.

4.3.7.11. Critical Values and Thresholds

The heat index is what gives us the critical values for indications and warnings. The Heat Index is sometimes referred to as the "apparent temperature". The Heat Index, given in degrees Fahrenheit, is a measure of how hot it feels when relative humidity is added to the actual air temperature.



Another measurement that is used to describe how the human body reacts to extreme heat is the Wet Bulb Globe Temperature (WBGT). This is different from the heat index because it factors in wind and solar radiation along with temperature and humidity. The WBGT parameter has been used by the military for heat safety since the 1950s as it is a better representation for individuals who are active in the heat, since wind and sun factor into how out body cools itself off. Many athletic associations including the sports of

running, football, tennis, and soccer have used the WBGT as well. The critical values used by the military can be seen below.

Work/Rest and Water Consumption Table

Applies to average sized, heat-acclimated soldier wearing BDU, hot weather. (See TB MED 507 for further guidance.)

Easy Work	Moderate Work	Hard Work
• Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony • Manual of Arms	• Walking Loose Sand at 2.5 mph, No Load • Walking Hard Surface at 3.5 mph, < 40 lb Load • Calisthenics • Patrolling • Individual Movement Techniques, i.e., Low Crawl or High Crawl • Defensive Position Construction	• Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults

Heat Category	WBGT Index, F°	Easy Work		Moderate Work		Hard Work	
		Work/Rest (min)	*Water Intake (qt/hr)*	*Work/Rest (min)*	*Water Intake (qt/hr)*	*Work/Rest (min)*	*Water Intake (qt/hr)*
1	78° - 81.9°	NL	½	NL	¾	40/20 min	¾
2 (GREEN)	82° - 84.9°	NL	½	50/10 min	¾	30/30 min	1
3 (YELLOW)	85° - 87.9°	NL	¾	40/20 min	¾	30/30 min	1
4 (RED)	88° - 89.9°	NL	¾	30/30 min	¾	20/40 min	1
5 (BLACK)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hrs of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ qt/hr) and exposure to full sun or full shade (± ¼ qt/hr).
- **NL** = no limit to work time per hr.
- **Rest** = minimal physical activity (sitting or standing) accomplished in shade if possible.
- ***CAUTION: Hourly fluid intake should not exceed 1½ qts.***

  Daily fluid intake should not exceed 12 qts.
- If wearing body armor, add **5°F** to WBGT index in humid climates.
- If doing Easy Work and wearing NBC (MOPP 4) clothing, add **10°F** to WBGT index.
- If doing Moderate or Hard Work and wearing NBC (MOPP 4) clothing, add **20°F** to WBGT index.

For additional copies, contact: U.S. Army Center for Health Promotion and Preventive Medicine Health Information Operations Division at (800) 222-9698 or CHPPM - Health Information Operations@apg.amedd.army. mil.
For electronic versions, see http://chppm-www.apgea.army.mil/heat. Local reproduction is authorized.
June 2004

CP-033-0404

4.3.7.12. Mitigation

There are many ways to mitigate for extreme heat events. Mitigating from the health effects of extreme heat can be having air conditioning, cities opening cooling centers, or adjusting work ours for those individuals who work primarily outside. There are some energy efficiency measures in houses and small commercial buildings can help to keep the indoor environment within comfortable temperature conditions without use of air conditioning during extreme heat events such as: roof deck insulation, wall insulation, high performance windows, and building orientation.

Mitigation strategies that require coordination and construction include shading of buildings, asphalt and other dark surfaces with trees can reduce the UHI effect. Solar panels placed on canopies over parking lots and other paved surfaces can also shade and reduce the UHI effect. Direct shading of buildings also reduces heat in buildings in the event of power outages in an extreme heat event. However, tree planting requires adequate space, water, and maintenance, and the correct selection of trees. Another mitigation strategy is the management and restoration of parks in urban areas increases vegetated areas, which can help reduce heat island effects. Increasing recreational and riparian spaces in urbanized areas has many additional benefits including health benefits from air and water quality improvements. Additionally, there are pavements that have technologies to reduce heat island effects. The pavements reflect more solar energy, enhance water evaporation, are more porous, or have been otherwise modified to remain cooler than conventional pavements.

Education about extreme heat can also be a strategy.

TABLE 4.3.7A White-Newsome et al (2014) describe educational strategies in their four-city study:

TABLE 4.3.7A Four City Study

City	Recommendations
Detroit	• Revisit framing of heat warnings • Invest in full scale public relations campaign to educate residents on heat and health. • Educate grade school students about climate change. • Ensure that county summer campaign includes a heat health component. • Develop messages that connect climate change to everyday life
New York	• Identify strategies to prevent oversaturation of messaging (e.g., home-based care providers have many health messages to deliver) • Using focus groups, determine how and where to best promote cooling centers to a greater diversity of vulnerable persons. • Make health messages that apply to everyone. • Consider additional risk factors in messaging, such as obesity and risk aversion
Philadelphia	• Revisit messaging about where to go (e.g., ride public transportation, cooling centers, mall) during heat waves. • Educate people to participate in traditional cooling behaviors. • Increase messaging to encourage buddy systems or checking on loved ones. • Consider use of social media or partnerships with GenPhilly (http://www.genphilly.org) to remind younger generations to check on vulnerable family members
Phoenix	• Create clearinghouse of projects and materials • Develop —check on your neighbor‖ programs or messaging. • Work with Salvation Army on trainings for social service providers • Improve collective definitions of heat wave. • Partner with academics to better translate study findings

4.3.7.13. Response

There are many things an individual can do to respond to extreme heat events. The following list is from the American Red Cross:

- Listen to a NOAA (National Oceanic and Atmospheric Administration) Weather Radio for critical updates from the National Weather Service (NWS).
- Never leave children or pets alone in enclosed vehicles.
- Stay hydrated by drinking plenty of fluids even if you do not feel thirsty. Avoid drinks with caffeine or alcohol.
- Eat small meals and eat more often.
- Avoid extreme temperature changes.

- Wear loose-fitting, lightweight, light-colored clothing. Avoid dark colors because they absorb heat from the sun.
- Slow down, stay indoors, and avoid strenuous exercise during the hottest part of the day.
- Postpone outdoor games and activities.
- Use a buddy system when working in excessive heat.
- Take frequent breaks if you must work outdoors.
- Check on family, friends and neighbors who do not have air conditioning, who spend much of their time alone or who are more likely to be affected by the heat.
- Check on your animals frequently to ensure that they are not suffering from the heat.

As an Emergency Management agency, opening cooling centers to the public, adjust cooling center and homeless shelter hours to account for those at need during non-traditional open hours are all response strategies used. Many time neighborhood networks are also unofficially activated to check on their elderly and vulnerable populations.

The City of Chicago stated that one of the biggest changes after the 1995 Chicago Heat Wave has been technology. Chicago now has implemented a 311-center phone number to reach City Hall. Someone in another state with an elderly mother living alone in Chicago can call the 311-center, and a well-being check will be conducted by the appropriate agency. This allows the city to be more proactive that reactive when it comes to calls about extreme heat illnesses.

4.3.7.14. Recovery

Like many other weather-related disasters, recovery from an extreme heat event is not fast. As mentioned, consequences from extreme heat can begin to show after the extreme heat has subsided so checking on vulnerable populations as part of the response, also carries over to the recovery process. It's important to acclimatize to changes in temperatures. So as the body has started to get used to extreme heat once the temperature drops back down can have effects as well. Giving the human body time to adjust to these shifts is important to remember for workers who may spend most of their day outside.

4.3.7.15. References

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4.3.8.	Hazard Assessment: DROUGHT

4.3.8.1. Definition



A generalized definition of drought is a period of abnormally dry weather sufficiently prolonged for the lack of water to cause serious hydrologic imbalance in the affected area. In easier to understand terms, a drought is a period of unusually persistent dry weather that persists long enough to cause serious problems such as crop damage and/or water supply shortages. If the drought is brief, it is known as a dry spell, or partial drought. A partial drought is usually defined as more that 14 days without appreciable precipitation, whereas a drought may last for years. Another type of drought is a flash drought, which is a "rapid onset or intensification of drought […] set in motion by lower-than-normal rates of precipitation, accompanied by abnormally high temperatures, winds, and radiation" (NIDIS, 2024). When a drought begins and ends is difficult to determine because rainfall data alone won't tell you if you are in a drought, how severe your drought may be, or how long you have been in drought.

The most used drought definitions are based on meteorological, agricultural, hydrological, and socioeconomic effects:

1. *Meteorological* – A measure of departure of precipitation from normal. Due to climatic differences, what might be considered a drought in one location of the country may not be a drought in another location.
2. *Agriculture* – Refers to a situation where the amount of moisture in the soil no longer meets the needs of a particular crop.
3. *Hydrological* – Occurs when surface and subsurface water supplies are below normal.
4. *Socioeconomic* – Refers to the situation that occurs when physical water shortages begin to affect people.

4.3.8.2. Range of Magnitude

The severity of the drought depends upon the degree of moisture deficiency, the duration, and the size of the affected area. The magnitude of a considered drought event corresponds to the cumulative water deficit over the drought period, and the average of the cumulative water deficit over the drought period's mean intensity.

- Most Severe Drought: 1030-1936 Dust Bowl or 'Dirty Thirties'
- Longest Drought: 1944-1950s: Southwestern United States
- Costliest: Second to the Dust bowl that is estimated to have cost $1 billion in 1930's money is the drought of 1989 and 1999. It is estimated the drought costs somewhere between $80 and $120 billion worth in damage.

4.3.8.3. Spectrum of Consequences B2b

Drought impacts are wide-reaching and may come in different forms, such as economic, environmental, and/or societal. A reduction of electric power generation and water quality deterioration are also potential effects. Drought conditions can also cause soil to compact, decreasing its ability to absorb water, making an area more susceptible to flash flooding and erosion. A drought may also increase the speed at which dead and fallen trees dry out and become more potent fuel sources for wildfires. An ongoing drought which severely inhibits natural plant growth cycles may impact critical wildlife habitats. Drought impacts increase with the length of a drought, as carry-over supplies in reservoirs are depleted and water levels in groundwater basins decline. Impacts from drought can also be exacerbated because of dust settling on snow, which causes increased solar energy absorption. As a result, snowmelt takes place earlier in the season and runoff magnitudes increase.

The impacts related to early runoff pose problems for many important sectors in Minnesota including agriculture, recreation, tourism, and municipal water supplies. Reservoirs may also be at capacity during these constrained runoff periods, causing spills to be necessary. Ideally, to avoid releases of water downstream, water is captured over a longer timeframe with gradual melting of snowpack. Alternatively, dust produced from the hardening and drying of bare soil can also be exposed as vegetative cover decreases due to extended periods of drought.

Although droughts can be characterized as emergencies, they differ from other emergency events in that most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts typically occur slowly, over a multi-year period, and it is not obvious or easy to quantify when a drought begins.

4.3.8.4. Potential for Cascading Effects

As mentioned, there are many different consequences that can occur from drought. Since droughts typically occur over longer time periods of months, seasons, and years it's possible to start with a few consequences initially, but as the drought persists or worsens, your consequences can start to multiply. This can happen within just the drought hazard itself, but another aspect is adding another hazard on top of or as result of the drought. For example, in drought conditions that have persisted for many months, if you have a rain event occur over a short period of time, the ground will not be able to absorb the moisture quick enough creating a flash flood event. Another common cascading event is the threat and increase of wildfires due to the dry conditions.

4.3.8.5. Geographic Scope of Hazard B1c

Due to natural variations in climate and precipitation, it is rare for all of Minnesota to be deficient in moisture at the same level at the same time. However, single season droughts, and different magnitudes and intensity over some portions of the State are quite common. In addition, it is typical for all of Hennepin County to be within a drought at the same time, although possible to have part of Hennepin County in a higher level of drought category than another part of the county.

4.3.8.6. Chronologic Patterns

Drought can occur any time of year, however people mostly think of its effects in the spring and summer months. The onset of summer drought intensity can, and typically, begins with the prior fall and winter

being drier than average.

4.3.8.7. Historical Data B1d

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

One of the most significant droughts to affect the County was the drought of 1976-1977. The 1976-77 drought was widespread and by some measures was exceeded only by the severity of conditions during the 1930's. In spring of 1976, the general lack of precipitation was statewide. Shallow residential and farm wells began to go dry in June. Some municipalities also were affected. Precipitation continued to be much less than normal for the rest of 1976 and gradually returned to normal during the summer of 1977. Minnesota's State Climatology Office records show the precipitation total for the Twin Cities to be 16.50 inches, well below the 27-inch average (based on the Twin Cities Monthly & Yearly Twin Cities Total Average).

Another severe drought that had an impact on Hennepin County was the drought of 1988. A nationwide event, the Drought of 1988 intensified in June with Minneapolis receiving only 0.22 inches of rain, making it the driest June ever recorded in the metro area. The June average temperature for Minneapolis was 74.4 degrees Fahrenheit, which equaled the second warmest June ever. Statewide temperatures ranged from 6 to 9 degrees above normal. By the end of June most of the state was classified as either in "severe" or "extreme" drought.

The drought continued into July with temperatures six degrees above normal in Minneapolis and rainfall 1.5 to 3 inches below normal. Soil moisture levels reached record lows at most University of Minnesota Experiment Stations. In the Minneapolis area, maximum temperatures of 90 degrees or greater were recorded 17 days, a record high for July. Most locations reported maximum temperatures exceeding 100 degrees at least once during the month.

By August, the drought began to subside but not after severe agricultural damage was caused and several records were broken across Hennepin County and the State of Minnesota including:

- June precipitation averaged 1.40 inches statewide, replacing the old record low of 1.50 inches set in 1910.
- May through August average temperature at 69.7 degrees was nearly 2 degrees higher than the old record set in 1936.
- Minneapolis-St. Paul Airport had 44 days with 90 degrees or more. The old record has been 36 days in 1936.
- The Palmer Drought Index dropped below -7 in northwest Minnesota for the first time since record keeping began at the turn-- of-the-century. The old record had been -6 in September 1934.
- Groundwater levels throughout the state reached new record low levels.
- The Mississippi River at St. Paul reached low levels previously experienced only in 1934 and 1976, prompting the first total sprinkling ban in Minneapolis and St. Paul.

There have been no other incidents that are within the scope of this plan.

4.3.8.8. Future Trends B1e

In the past few years, there have been several studies published that show to have conflicting conclusions when it comes to trends in past drought occurrence and how the future looks. Part of this is because of the different definitions of drought. Because of the different definitions, a small reduction in the mean of one parameter, can translate into a much larger increase in drought on the other parameters, or definitions.

Many of the computer modeling have shown increased trends in drought occurrences across much of the northern hemisphere. However, results of satellite-based studies along with other observation-based studies conclude there is no significant trend in areas with drought in the past three decades.

4.3.8.9. Indications and Forecasting

Drought intensity categories are based on five key indicators and numerous supplementary indicators. The accompanying drought severity classification table shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often don't coincide, the final drought category tends to be based on what most of the indicators show. The analysts producing the final determined category also weighs the indices according to how well they perform in various parts of the country and at different times of the year.

			Range				
Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

4.3.8.10. Detection & Warning

At present, the best approach for predicting the development, intensification, and demise of a drought is a two-fold strategy that combines the monitoring of both local water and climate conditions and large-scale wind patterns, including the comparison of current conditions to historical analogues, with the

interpretation of computer forecasts. This strategy is employed by both the monthly and seasonal drought outlooks, which are issued monthly by the National Oceanic and Atmospheric Administration, National Weather Service, and Climate Prediction Center as an operational effort geared toward infusing such advances into drought predictability. Although predicting drought on any scale remains a challenge, progress in understanding global-to-regional scale climate-system phenomena provides hope for improving drought prediction at longer lead times.

Early warning of drought onset, and characterization of its evolving environmental and economic impacts, can be further enhanced using regional-scale early warning systems that promote sustained partnership networks linking meteorological and climatological information providers to water, agriculture, and other private and public management communities.

4.3.8.11. Critical Values and Thresholds

According to the Minnesota Statewide Drought Plan, there are five drought phases/triggers that follow closely to the drought intensity categories. **TABLE 4.3.8A** describes the drought triggers from the Minnesota Drought Plan. These triggers are based on conditions for the different watersheds across the state.

TABLE 4.3.8A Drought Triggers

Drought Phase/Triggers	Conditions
Non-Drought Phase	A signification portion of the watershed is not under drought conditions according to the U.S. Drought Monitor.
Drought Watch Phase	A significant portion of the watershed is “abnormally Dry” or in a “moderate Drought”.
Drought Warning Phase	A significant portion of the watershed is in a “Severe Drought”, or from public water suppliers using the Mississippi River, the average daily flow at the USGS gage near Anoka is at or below 2000 cfs for five consecutive days.
Restrictive Phase	A significant portion of the watershed is in an “Extreme Drought”, or for public water suppliers using the Mississippi River, the average daily flow at the USGS gage near Anoka is at or below 1500 cfs for five consecutive days.
Emergency Phase	A significant portion of the watershed is in an “Exceptional Drought”, or highest priority water supply needs are not met, or there are threatened or actual electricity shortages due to cooling water supply shortages, or for public water suppliers in the Twin Cities, the average daily flow of the Mississippi Rover UGSG gage near Anoka is at or below 1000 cfs for five consecutive days.

4.3.8.12. Mitigation

Even though you can't prevent a drought from occurring, they are hard to predict, or how long they will last, there are ways you can protect from some of the consequences.

- Monitor Drought Conditions: this can provide early warnings for policymakers and planners to make decisions through actions including:
- Monitor Water Supply: This can save water in the long run though the following actions:
- Develop a drought emergency plan.
- Develop criteria or triggers for drought-related actions.
- Develop agreements for secondary water sources that may be used during drought conditions.
- Rotating crops by growing a series of different types of crops on the same fields every season to reduce soil erosion.
- Practicing contour farming by farming along elevation contour lines to slow water runoff during rainstorms and prevent soil erosion, allowing the water time to absorb into the soil.
- Using terracing on hilly or mountainous terrain to decrease soil erosion and surface runoff.
- Planting "cover crops," such as oats, wheat, and buckwheat, to prevent soil erosion.
- Using zero and reduced tillage to minimize soil disturbance and leave crop residue on the ground to prevent soil erosion.
- Constructing windbreaks to prevent evaporation from reclaiming salt-affected soil.
- Collecting rainwater and using natural runoff to water plants.
- Encourage farmers and agriculture interests to obtain crop insurance to cover potential losses due to drought.

4.3.8.13. Response

When drought occurs, the water supplier and community must take action to reduce the demand for water. While increasing water supplies would be of benefit, most such remedies require more than five years to plan and construct new reservoirs, canals, and/or groundwater sources. Reducing water demand can result in significant positive effects within only a few days.

Voluntary action from water users can result in up to 25% water use reduction for short periods of time. Mandatory restrictions have resulted in as much as a 40% reduction of water use. This savings effect is directly related to a) the public's belief that the emergency is real; b) the public clearly understands the actions required to reduce water use; and c) the active enforcement of mandatory water use restrictions. It is very important for water suppliers to understand the public seldom sustains the voluntary water conservation levels more than a few months. Drought response actions, even mandatory water use restrictions are designed to be suspended once the drought is deemed over. Drought response programs and water efficiency programs are two very different actions for two different problems.

Water efficiency programs are designed to effect long-term (even permanent) water use reductions; drought response is designed to solve short term water supply deficits. Water efficiency programs can reduce the impact of subsequent droughts, but water efficiency strategies continue beyond the term of a drought. Water efficiency planning is usually based on the economics of avoided costs or least cost planning. Drought response is meant to solve an emergency supply shortfall; thus, does not always need to be justified by avoided costs.

4.3.8.14. Recovery

Like all disasters, recovery from drought can takes months to years to return to a state of normalcy. On August 7, 2012, President Barack Obama called for an "all hands-on deck" approach to the drought at a White House Rural Council meeting. At the same meeting, the President asked that the USDA take the lead in coordinating the Federal effort to help with drought response and recovery.

To support this collaboration across multiple federal agencies, the concepts and organizing principles of the National Disaster Recovery Framework (NDRF) were leveraged to promote a more integrated and cohesive response to drought. Based on the input received in the Drought Recovery Regional Meetings, the NDRF team identified “big bucket” issues to organize Federal resources identified across all applicable departments and agencies. These included technical assistance, grant programs, loan programs, and information resources.

TABLE 4.3.8B shows resources for short-term and long-term recovery. The short-term section provides links to agencies providing relief resources and information. The long-term recovery section is geared more toward information to aid in mitigation and adaptation, but long-term recovery resources are also listed.

TABLE 4.3.8B Agency and Recovery Support

Agency	Short Term Recovery	Long Term Recovery

U.S. Department of Agriculture provides financial and technical assistance to drought affected areas and services	• The Natural Resources Conservation Service
	• The Rural Development Program
	• The Farm Service Agency
	• Crop Production Losses
	  ◦ Disaster Assistance Programs
	• Natural Resource Protection/Private Lands
	  ◦ Environmental Quality Incentives Program
	  ◦ Emergency Watershed Protection
	• Community Water and Wastewater
		• Crop Insurance
		  ◦ Risk Management Agency
		• Natural Resource Protection/Private Lands
		  ◦ Agricultural Water Enhancement Program
		  ◦ Emergency Watershed Protection - Floodplain Easement
		  ◦ Watershed Protection and Flood Prevention
		  ◦ Wetlands Reserve Program
		  ◦ Conservation Technical Assistance
		• Community Water and Wastewater

Us Department of Interior	• The Recovery Act • The Drought Water Bank	• DOI's Bureau of Reclamation administers the WaterSMART and water and Energy Efficiency Grants that aims to make more efficient use of existing water supplies through water conservation, efficiency, and water marketing projects. Funding is also available to promote water use efficiency program projects like rebate programs, irrigation system upgrades, water conservation education programs and to address and improve Best Management Practices.

Environmental Protection Agency		• EPA works with states to manage programs that provide financial assistance for projects that protect public health and water quality. EPA also manages the WaterSense Program, which helps consumers identify water-efficient products, practices and programs.
National Oceanic and Atmospheric Administration	• Endangered Species Act • NIDIS	• Endangered Species Act • NIDIS
Small Business Administration	• Economic Injury Disaster Loans	• Economic Injury Disaster Loans

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4.3.9.	Hazard Assessment: DUST STORM

4.3.9.1. Definition



A dust storm is a strong, violent wind that carries fine particles such as silt, sand, clay, and other materials, often for long distances. The fine particles swirl around in the air during the storm. A dust storm can spread over hundreds of miles, rise over 10,000 feet, and can have wind speeds of at least 25 miles per hour. Dust storms usually arrive with little warning and advance in the form of a big wall of dust and debris. A common name for dust storms is Haboob, which comes from Arabic word *habb* meaning wind.

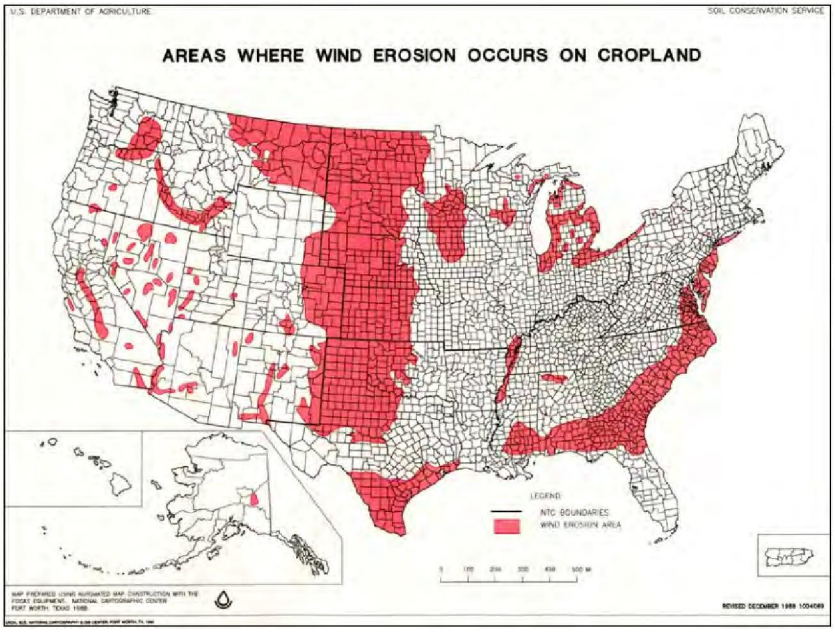
4.3.9.2. Range of Magnitude

There are two main kinds of dust storms; one where the dust is carried along the surface, and the other where dust is lifted high into the atmosphere. Each of these dust storm types can happen individually, or together at the same time. If these two types of storms happen together at the same time, there is the potential for greater magnitude of consequences versus each type individually. Below are a few examples of dust storms from the National Climatic Data Center that have occurred in the United States since 1950.

- Most Recent, Minnesota: May 12, 2022: Blowing dust ahead of a serial derecho (a type of fast-moving extreme thunderstorm wind) spread from eastern Nebraska to Sioux Falls, SD, and up through western Minnesota, dropping visibility below ¼ mile, with zero visibility reported in places. A lighter wave of blowing dust entered the western Twin Cities area, including Hennepin County.
- Longest Distance: May 17, 2001, Dust from a storm in China traveled across the ocean and deposited dust from Alaska to Florida.
- Most Costly: June 10th, 2013, Humboldt, Nevada, $1.5 million Property Damage
- Deadliest: October 13, 2009, SW S.J. Valley, 3 fatalities

4.3.9.3. Spectrum of Consequences B2b

Dust storms can have environmental, health, social, and economic consequences. Health consequences include poor air quality due to the increase in breathable suspended particles in the air which can be almost an instant consequence with people choking on dust or a consequence from particles suspended over time. Environmental consequence can be dust deposition on the landscape which can cause drying of leaves, and negative growth of plant and damage to crops. Some of the social impacts can be road and aviation accidents due to the poor visibility. Economic impacts can include damage to structures, and roads, costs associated with cleaning of infiltrated dust inside the houses and buildings, costs associated with accidents, material, crop, and production loss. On 75 million acres of land in the United States alone, wind erosion is still a dominant problem, with four to five million acres moderately to severely damage each year.



Many believe that dust storms are not a worry for urban areas. However urban communities are not immune to the harmful effects of dust storms either. One thing that is a concern when a dust storm hits a town or city is power outages and infrastructure damage. Anyone of these two things could have a negative result for a business. Also, there could be extensive damage to computers and communications equipment from the buildup of dust. The dust particles can get into buildings and businesses and work their way inside computers and telecommunications equipment, ruining the delicate technologies on the inside. Again, with many businesses today being dependent on technologies such as computers and communications equipment, this could have a negative impact on commerce.

Additionally, vulnerable populations within urban or other populated areas may experience disproportional consequences from dust storms. For instance, those without shelter would have little to protect themselves from the airborne particulates and may suffer more frequent or acute respiratory distress. Those with limited mobility may find it similarly difficult to seek shelter. In all cases, persons with respiratory conditions like asthma, the elderly, infants, and anyone with compromised health may bear a greater cost from dust storms than the general population.

4.3.9.4. Potential for Cascading Effects

The immediate economic impact of dust storms is significant, but it doesn't rival major natural disasters that destroy entire cities. For instance, the damage due to dust storms in China averages at about $6.5 billion per year. A single major earthquake can do damage five times that figure. However, experts argue that the real economic impact of dust storms, particularly those that originate in areas of desertification, is difficult to pin down because of the long-term consequences they have on the livelihood of people who live in the area. When dust storms kick up in agricultural dry lands that are degraded, they remove the topsoil, which causes further desertification. As a result, farmers are forced to watch the topsoil, and their livelihood, literally blow away. This cycle, if gone unchecked, threatens to displace whole communities in some regions.

4.3.9.5. Geographic Scope of Hazard B1c

The winds involved with dust storms can be as small as "dust devils" or as large as fast moving regional air masses. Dust storms occur most frequently over deserts and regions of dry soil, where particles are loosely bound to the surface. Dust storms don't only happen in the middle of the desert, however. They happen in any dry area where loose dirt can easily be picked up by wind. Grains of sand, lofted into the air by the wind, fall back to the ground within a few hours, but smaller particles remain suspended in the air for a week or more and can be swept thousands of miles downwind. Dusts storms can reach as high as 10,000 feet with an aerial coverage on the leading edge that can stretch for hundreds of miles. However, on average, they only travel around 25 to 50 miles.

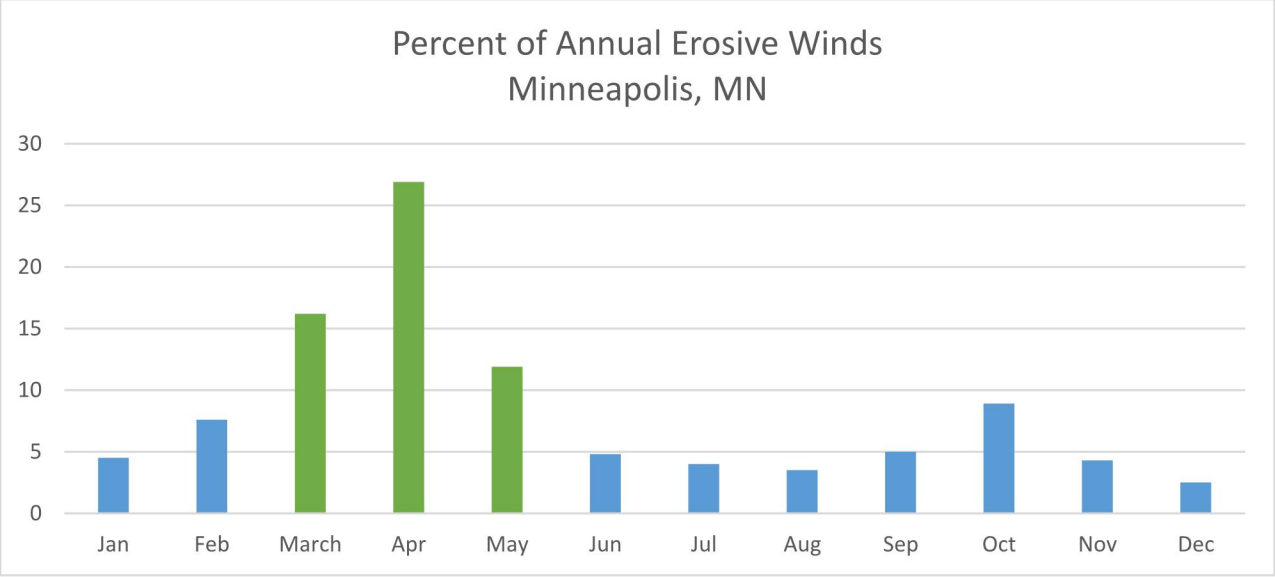
4.3.9.6. Chronologic Patterns

Dust storms are not common around Minnesota, but they can happen any time of year, and have occurred in the past. They are most common in desert regions, including the US Southwest and often are triggered by downdraft winds from monsoon thunderstorms. They are slightly more common during the afternoons and evenings than at cooler times of day, but only because of the importance of thunderstorms, which tend to be most numerous and most intense during afternoons or evenings. Otherwise, diurnal cycles of heating and cooling have no effect on dust storm behavior or probability.

In Minnesota, dust storms are most likely during persistently dry conditions, and/or when dry and loose soil is also unprotected by mature vegetation. Because the growing season features higher rates of moisture conduction between plants and soils, and because the same plants will shield underlying soils from wind erosion, dust storms will tend to favor the pre-green-up periods of Late March into May, or late September into early November.

GRAPH 4.3.9A shows the critical wind erosion period in Minnesota. It shows that March, April, and May are the periods of the year where agricultural fields are particularly vulnerable to wind erosion, and to extension dust storms, due to higher wind speeds with direction of prevailing wind than normal and low vegetative cover on fields.

GRAPH 4.3.9A Critical wind erosion



4.3.9.7. Historical Data B1d

The "Dust Bowl" era of the 1930s was so named because of massive dust storms that frequently ravaged the Plains during that extraordinarily dry period. During this period, Minnesota saw some of the worst dust storms in its history. In 1934, dry conditions combined with high winds to produce thick dust on five or more dates at the end of the month. February had at least six more dust storm dates, followed by 15 dates in March, and 19 dates in April, with the worst of the dust storms occurring on May 9-10. Meteorologists at the time reported these latter dust storms were likely the most severe of their kind ever experienced in the area, with extreme soil erosion exposing and subjecting new seed to the strong winds.

The most recent severe dust storm clipped western Minnesota and hit much of South Dakota head-on during a severe weather outbreak on May 12, 2022. Intense downburst winds generated by severe thunderstorms advanced well ahead of the storms at speeds of 60-80 mph. The region had been quite dry, and soils were loose and unprotected by vegetation. As a result, a huge cloud of thick dust raced north northeastward across the region, dropping visibilities to zero in spots, especially in Nebraska and South Dakota. Visibility below a quarter mile was common in western Minnesota. A lighter cloud of blowing dust moved into Hennepin County during the evening, though visibility was hardly reduced, and no impacts were reported.

There have been no other incidents that are within the scope of this plan.

4.3.9.8. Future Trends B1e

There is no current research available on the direct effects of future climate conditions on the incidence of dust storms. However, because drought conditions have the effect of reducing wetlands and drying soils, droughts can increase the amount of soil particulate matter available to be entrained in high winds, where agriculture practices include tilling. This correlation between drought conditions and dust storms means that an increase in future droughts could increase the incidence of dust storms, even though the drought is not directly related to the directly to the dust storm.

4.3.9.9. Indications and Forecasting

Dust storms move quickly. Other than seeing a wall of brown dust approaching in the distance, there is not much warning before a dust storm arrives. However, they usually precede thunderstorms. So if conditions have been dry, and one can see a large cumulonimbus cloud and feel the wind is picking up, one can expect dust to be blowing with the possibility of dust storm type reduced visibilities and consequences. Dust storm events are caused by different weather systems showing different intensities and identifiable characterizes in observational systems.

There are four dust storm generation types: frontal, meso- or small-scale, disturbances, and cyclogenesis. Key features of cold front-induced dust storms are their rapid process with strong dust emissions and a large, affected area. Frontal dust storms typically last 3-5 hours with wind speeds of 36-83 mph and typically affect an area of 7,700 to 77,000 square miles.

Meso- or small-scale dust storms are the most common type of dust storm including thunderstorms, convections along dry lines, gusty winds cause by high pressure, and more. The most common occurrence are thunderstorms in which the organized outflow from the downdrafts of decaying thunderstorms blows

dust plumes. These storms can typically last 2-5 hours with winds from 53 to 78 mph. They produce the highest level of particle emission over a limited area, typically 2,000 to 6,000 square miles.

The third type of dust storms are caused by tropical disturbances. These typically show strong concentration of dust in the air and last longer than frontal and meso- or small scale at 3-7 hours with wind speeds 30 to 58 mph. The typical area covered is just 200 to 4000 square miles.

The last type of dust storm occurs from cyclogenesis which is the development of strengthening or a lower pressure area. Dust storms from cyclogenesis typically last longer than the others at 4-21 hours with wind speeds 38 to 65 mph because cyclogenesis tends to be stationary. These storms typically affect and area of 4000 to 31,000 square miles.

4.3.9.10. Detection & Warning

As mentioned earlier, there is not a lot of indication for dust storms besides knowing the current conditions that may present the storm from occurring. However, with each of the types of dust storms mentioned above, there is never always a dust storm when those conditions are present. The National Weather Service in Chanhassen does not have a specific definition for when they would issue a blowing dust advisory or dust storm warning. In fact, The NWS Office in Chanhassen has never issued a blowing dust advisory or dust storm warning. However, the Grand Forks National Weather Service has.

4.3.9.11. Critical Values and Thresholds

The blowing dust advisory conditions, visibilities at or below 1 mile, and dust storm warning, visibilities less than ¼ mile, are the two critical values when it comes to warning the public for public safety concerns. Among those concerns are health concerns when dust particles are inhaled. The particles that are small enough to be inhaled are known as PM10 which are particulate matter less than 10 microns in size or smaller.

4.3.9.12. Mitigation

The effects of sand and dust storms can be reduced by using several health & safety measures and environmental control strategies. Large-scale sand and dust storms are generally natural phenomena, and it may not be always practicable to prevent it happening. However, control measures can be taken to reduce its impacts.

To reduce the consequences of dust events that may not reach dust storm criteria, cities can take appropriate control of dust raising factors such as increasing the vegetation cover where possible using native plants and trees as buffer. These can reduce wind velocity and sand drifts at the same time of increasing the soil moisture.

Some health and safety measures that should be taken to minimize the adverse impacts due dust storms can be alerting vulnerable populations, using dust masks, and restricting outdoor activities and staying inside when dust storms are occurring.

Mitigation strategies to reduce wind erosion from dust storms are lumped into two major categories: reduce the wind force at the soil surface and create a soil surface more resistant to wind forces. Some of these strategies are standing residues, planting perpendicular to prevailing winds, windbreaks, grass

barriers, strip cropping, or clod-producing tillage.

4.3.9.13. Response

One of the most important things to be done during the initial response is to make sure that people are safe. The role of Hennepin County Emergency Management is to coordinate resources that our municipalities may need to accomplish all response needs.

4.3.9.14. Recovery

It is important to note that conditions and consequences from a dust storm may linger longer that one can see to the naked eye. There may be lingering dust in the air after a dust storm so the first step to recovery is to continue to avoid breathing in outdoor air for hours after a storm passes. From an emergency management perspective, assessing the amount of property damage, preparing a list of specific damage to property and buildings, and agriculture damage are top on the list to start the recovery process.

4.3.9.15. References

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4.3.10.	Hazard Assessment: COLD, EXTREME

4.3.10.1. Definition



The term extreme cold can have varying definitions in hazard identification. Generally, extreme cold events refer to a prolonged period (days) with extremely cold temperatures. An extreme cold event is when temperatures are dangerously lower than historical averages and pose risk to people, animals, and critical infrastructure (CISA, 2024). The extreme cold definition also depends on the area you live. In southern regions relatively unaccustomed to winter weather, near freezing temperatures could be considered extreme cold. In the North, extreme cold can mean temperatures well below zero.

When defining extreme cold one also must mention wind chill. The wind chill temperature is an apparent temperature, or how cold it feels to people outside. Wind chill is based on the rate of heat loss from exposed skin caused by wind and air temperature. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Wind Chill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F) V = Wind Speed (mph)

Effective 11/01/01

4.3.10.2. Range of Magnitude

- Lowest Temperature in MN: -60°F (Feb 2, 1996: St. Louis County)
- Lowest Temperature in Hennepin County: -41°F (Jan 21, 1888)

- Lowest Wind Chill in MN: -71 °F with new formula and -100 °F with old formula (Jan 9-10, 1982)
- Lowest Wind Chill in Hennepin County: -6-73 °F with the new formula and -87 °F with the old formula. (Jan 22, 1936)
- Lowest Maximum Temperature for Hennepin County: -20 (Jan 15, 1988)
- Longest period temperature below 32°F in Hennepin County: 66 Day 16 Hours (8PM Dec 18, 1977, through 11 AM Feb 23, 1978)
- Longest Period temperature below 0°F in Hennepin County: 7 Days 18 hours (8 PM Dec 31, 1911, through 10 AM Jan 8, 1912)

4.3.10.3. Spectrum of Consequences B2b

Extreme cold temperatures have well known impacts on human health. On average, the United States sees 29 cold weather-related fatalities each year. In 2019, there were 62 cold-related deaths in Minnesota (MN DPH, 2019).

Human and animal exposure to cold temperatures, whether indoors or outside, can lead to serious or life-threatening health problems such as hypothermia, cold stress, frostbite or freezing of the exposed extremities such as fingers, toes, nose, and ear lobes. Hypothermia occurs when the core body temperature is less than < 95°F. If persons exposed to excessive cold are unable to generate enough heat (e.g., through shivering) to maintain a normal core body temperature of 98.6°F, their organs can malfunction. When brain function deteriorates, persons with hypothermia are less likely to perceive the need to seek shelter. Signs and symptoms of hypothermia (e.g., lethargy, weakness, loss of coordination, confusion, or uncontrollable shivering) can increase in severity as the body's core temperature drops. Extreme cold also can cause emergencies in susceptible populations, such as those without shelter, those who are stranded, or those who live in a home that is poorly insulated or without heat (such as mobile homes). Infants and the elderly are particularly at risk, but anyone can be affected.

Damage to structures due to extreme cold events is relatively low. Freezing pipes can be the largest problem. Extended periods of cold weather can increase the potential for frost depth problems. The depth to which soils freeze and thaw is important in the design of pavements, structures, and utilities. Increased depth of frost can also delay the frost thaw in the spring which would cause those in agriculture a later start to their season, which may lead to less yield of crops. Broken water mains can put significant demands on municipal public works departments.

4.3.10.4. Potential for Cascading Effects

Extremely cold temperatures often accompany a winter storm, so individuals may have to cope with power failures and icy roads. Although staying indoors as much as possible can help reduce the risk of car crashes and falls on the ice, individuals may also face indoor hazards. Many homes may become too cold either due to a power outage or because the heating system is not adequate for the weather. The use of space heaters and fireplaces to keep warm increases the risk of household fires and carbon monoxide poisoning.

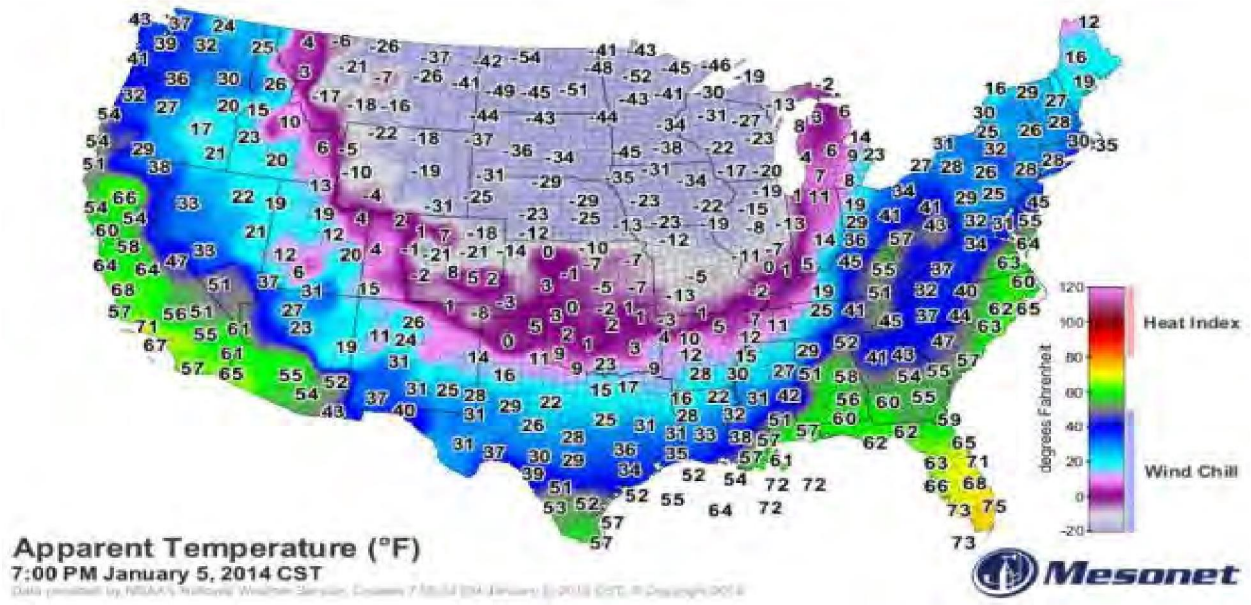
During cold months, carbon monoxide may be high in some areas because the colder weather makes it difficult for car emission control systems to operate effectively. Carbon monoxide levels are typically higher during cold weather because the cold temperatures make combustion less complete and cause inversions that trap pollutants close to the ground reducing air quality.

4.3.10.5. Geographic Scope of Hazard B1c

Extreme cold is typically associated with the northern states in the winter. However, extreme cold conditions can occur as far south as Texas. As mentioned in the definition, the social impact or where/how the public is accustomed to cold weather plays a factor in what is called extreme cold for a specific geographical area.

GRAPHIC 4.3.10A shows an example from 2014. You can see extreme cold apparent temperatures for most of the central United States.

GRAPHIC 4.3.10A



4.3.10.6. Chronologic Patterns

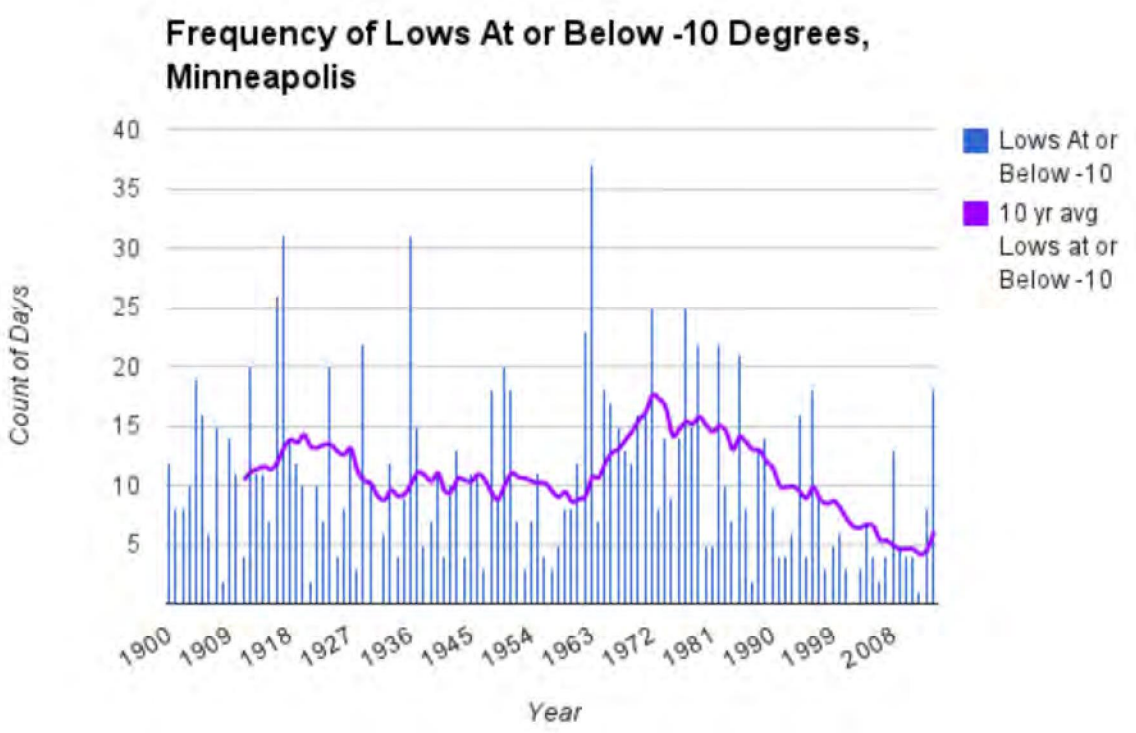
Extreme cold outbreaks occur most commonly during the December, January, February months of the year.

4.3.10.7. Historical Occurrence B1d

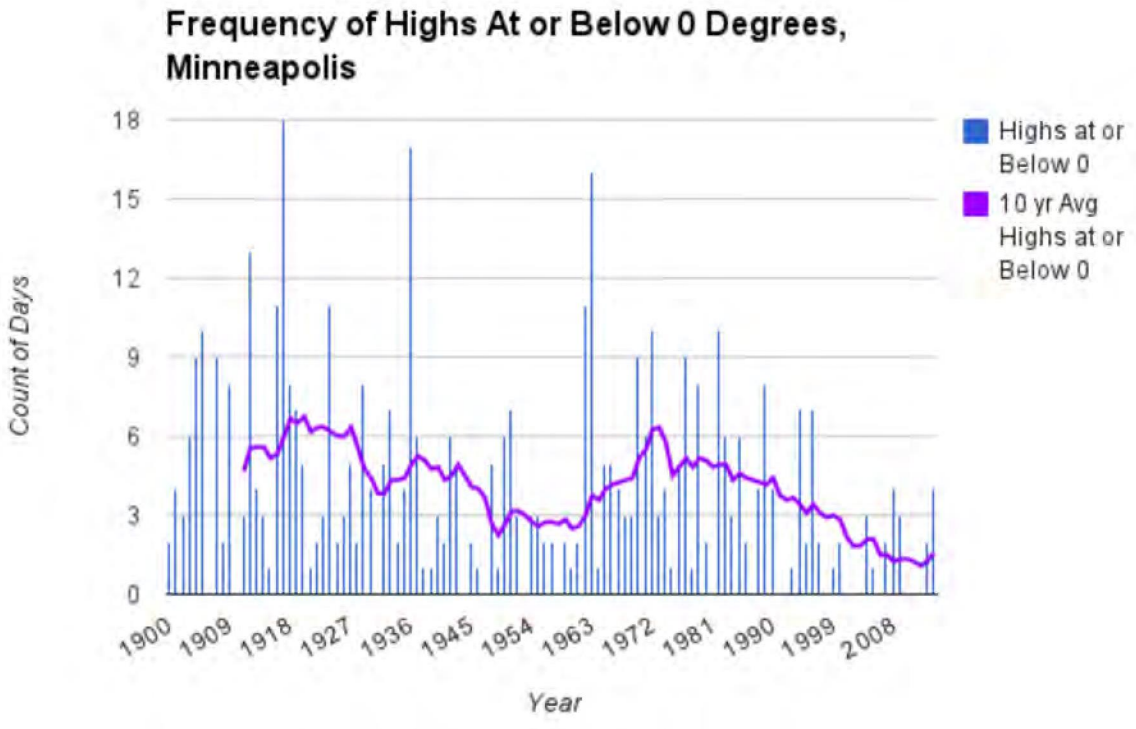
Extreme cold is a regular occurrence in Minnesota and in Hennepin County. There have been no incidents that are significant enough to be included in this plan.

GRAPHICS 4.3.10B and **4.3.10C** shows historically the frequency of lows at or below -10°F and highs at or below 0 degrees in Hennepin County.

GRAPHIC 4.3.10B



GRAPHIC 4.3.10C



What is the coldest wind chill ever seen in the Twin Cities or Minnesota? The answer can be a little tricky because in November 2001 the formula on how to calculate the wind chill was changed. Perhaps the coldest wind chill the Twin Cities has ever seen was -67°F with the new formula (-87°F with the old formula) back on January 22, 1936. The temperature was -34°F with a wind speed of 20mph. All traffic in the Twin Cities was severely impacted and several fatalities were caused by the cold. Without a lengthy state-wide wind record, it is difficult to say when the coldest statewide wind chill was. There are some candidate dates though besides January 22, 1936. On January 9th and 10th, 1982 temperatures of -30°F and winds of around 40mph were reported in Northern Minnesota. This would translate to -71°F by the new formula (-100°F by the old formula.)

A few other notable extreme cold events are:

1989 Feb 3:

- At 6:00 AM in the Twin Cities the air temperature was -22°F with a wind speed of 17mph, creating a wind chill temperature of -49°F (by the 2001 formula).

1994

- On January 13, 1994, an arctic air mass settled over Hennepin County. From January 13 to January 19, true air temperatures dropped from -10°F on January 13 to -27°F on January 19. The high temperature on January 18 was -16°F. Morning air temperature readings were -26°F in the Twin Cities at 9am with a wind chill temperature of -48°F (by the 2001 formula). The University of Minnesota on the Twin Cities campus closed on the 18th due to the cold and Governor Arne Carlson closed all public schools.

1996

- On January 31, 1996, some of the coldest weather to ever hit Hennepin County settled over the area and remained entrenched through February 4. Minneapolis set three new record low temperatures as well as Minnesota recording the coldest day on record on February 2. A mean temperature of -25°F was measured that day with a high of -17°F and a low of -32°F. This was within two degrees of tying the record low temperature set in the Twin Cities and the coldest temperature recorded this century. On the same date that the Minnesota state record minimum temperature record was set on February 2, 1996 (-60°F near Tower), Governor Arne Carlson cancelled schools for cold a second time. In the Twin Cities at 6am February 2, 1996, the air temperature was -30°F with a wind chill temperature of -48°F (based on the 2001 formula).

- Another extreme cold event took place on December 24, 1996. A strong low-pressure system that deposited heavy snow over northern Minnesota also brought down very cold Canadian air. Temperatures fell to 15 to 35 degrees below zero. In addition, the high temperature on Christmas Day in Minneapolis was only -9°F. Combined with the record low temperature that morning of -22°F, the mean temperature for Christmas Day was -16°F. Christmas Day, 1996 set a record for being the coldest Christmas Day on record for the Twin Cities metro going back to when modern day records began in 1871. The temperature in Minneapolis fell to -27°F.

2004

- The first wind chill warning that was issued for the Twin Cities under the new wind chill temperature formula established in 2001 was the arctic outbreak of January 29-30, 2004. The coldest wind chill observed in the Twin Cities during that period was -43°F at 8:00 AM on January 30, 2004.

2006

- In the wake of a winter storm on February 17, 2006, strong high pressure moved in and created strong winds and dangerous wind chills. The coldest wind chill seen at the Twin Cities International Airport was -34°F. The coldest wind chill found statewide was -54°F at Thief River Falls.

2014

- Governor Mark Dayton cancelled K-12 public schools statewide on Monday January 6th, 2014, due to extreme wind chills that were forecasted well in advance. The coldest wind chill temperature in Minnesota was -63°F at Grand Marais Airport at 9:00 AM with a -31°F air temperature and a 21mph wind. The coldest wind chill temperature in the Twin Cities was -48°F at 5:00 AM with an air temperature of -22°F and a 15-mph wind. Many schools also cancelled classes the following day as well. The wind chill at 4am January 7th was -28°F at the Twin Cities International Airport with an air temperature of -14°F and a wind of 6mph. Statewide the coldest wind chill was -50°F reported at Duluth at 4:00 AM with an air temperature of -23°F and a west wind of 16mph.

- Schools were cancelled at many locations again on Thursday, January 23. The coldest wind chill in the Twin Cities on January 23 was at 2:00 AM with a wind chill of -37°F with an air temperature of -14°F and a NW wind of 15mph. The coldest statewide wind chill was -51°F at Park Rapids at 6am with an air temperature of -33°F and as wind of 6mph.

- Schools were cancelled for a fourth day across the Twin Cities on January 27 as well. Classes were also canceled for the day for the University of Minnesota. The coldest wind chill in the Twin Cities was -39°F at 4:00 AM (-13°F air temp and wind NW 20mph). The coldest wind chill statewide was -53°F degrees at the Grand Marais Airport at 8:00 AM (-26°F air temp, wind NE 16mph).

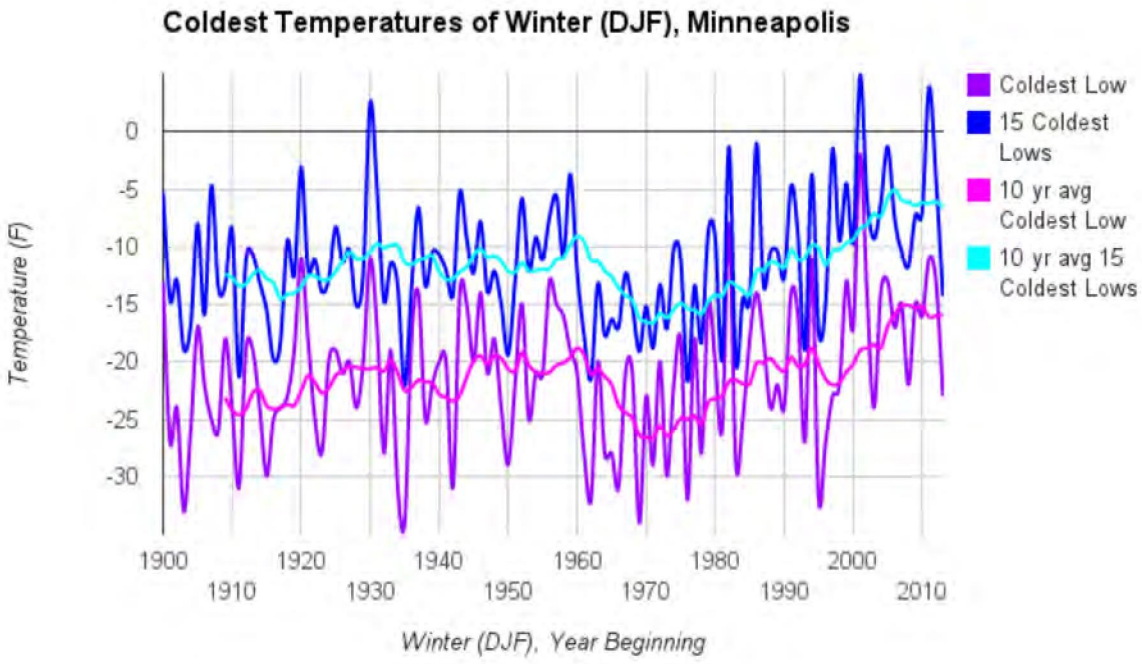
- Schools were cancelled once more across the Twin Cities on Tuesday January 28th. University of Minnesota classes were cancelled in the morning. The coldest wind chill in the Twin Cities was -29°F at 9am with an air temperature of -12°F and a wind speed of 8mph. The coldest wind chill in the state was -52°F at Fosston at 7:00 AM with air temperature of -33°F degrees and a wind speed of 7mph from the south.

4.3.10.8. Future Trends B1e

In Minnesota, there are climate change signals showing the loss of formerly normal cold temperatures. That is saying that the coldest day of the year has warmed by about 8°F since the early 20th century and the 15 coldest days have warmed by about 7° F over the same period.

GRAPHIC 4.3.10D shows this warming period of coldest temperatures from about 1970 forward. This means the coldest high temperatures have warmed dramatically since 1970 and are now warmer than at any other time on record. In addition, the high temperatures at or below zero have become much less common in recent years and may soon be the exception, rather than the rule.

GRAPHIC 4.3.10D



While temperatures during our winter months seem to be warming, and as mentioned high temperatures at or below zero have become much less common in recent years, this does not mean we will not be seeing any extreme cold events in the future.

4.3.10.9. Indications and Forecasting

The National Weather Service is responsible for forecasting all extreme cold events for Hennepin County. Typically, extreme cold events occur when a continental polar or continental arctic air mass makes its way down over Minnesota. These are air masses that originate over the ice and snow-covered regions of northern Canada and Alaska where long, clear nights allow for strong cooling of the surface. Extreme cold typically occurs with or following a low pressure. As the system passes off to the east, continental polar or continental arctic air gets pulled down on the backside of the low pressure.

4.3.10.10. Detection & Warning

The National Weather Service issues Wind Chill Advisories, Watches, or Warnings based on the following forecasted criteria:

- **Wind Chill Advisory:** Widespread wind chill values around -25°F to -34°F are expected.
- **Wind Chill Watch:** Widespread wind chill values around -35°F or colder are possible.
- **Wind Chill Warning:** Widespread wind chill values around -35°F or colder are expected.
- **Extreme Cold Watch**: The possibility of wind chill or air temperatures colder than -35 °F.
- **Extreme Cold Warning:** Wind chills or air temperatures colder than -35 °F are expected.

4.3.10.11. Critical Values and Thresholds

Depending on where you live in the state, there are different critical values that related to the advisories, watches, and warnings listed above. The critical wind chill values for Hennepin County are -25°F and -35°F. It is at -25°F that exposed skin can start to see frostbite in 30 minutes of being outside. At -35°F, it can take only 10 minutes for exposed skin to be susceptible to frostbite.

4.3.10.12. Mitigation

Education and Awareness Programs

- Educating the public regarding the dangers of extreme cold and steps they can take to protect themselves when extreme cold occurs.
- Organize outreach to vulnerable populations, including establishing and promoting accessible heating centers in the community.
- Encourage utility companies to offer special arrangements for paying heating bills.
- Educate homeowners and builders on how to protect their pipes including locating water pipes on the inside of building insulation or keeping them out of attics, crawl spaces, and vulnerable outside walls.
- Informing homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipeline and avoid bursting.

4.3.10.13. Recovery

Depending on the consequences that occurred during the extreme cold event, recovery can be short or long. Recovery time from frostbite depends on the extent of tissue that was affected. It can take sometimes up to three months to determine the extent of the damage. When it comes to recovery from deep frost depth, it can take months to years to recover from consequences of broken water mains or broken roadways, or crop yield.

4.3.10.14. References

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4.3.11. Hazard Assessment: WINTER STORM, BLIZZARD, EXTREME SNOWFALL

4.3.11.1. Definition

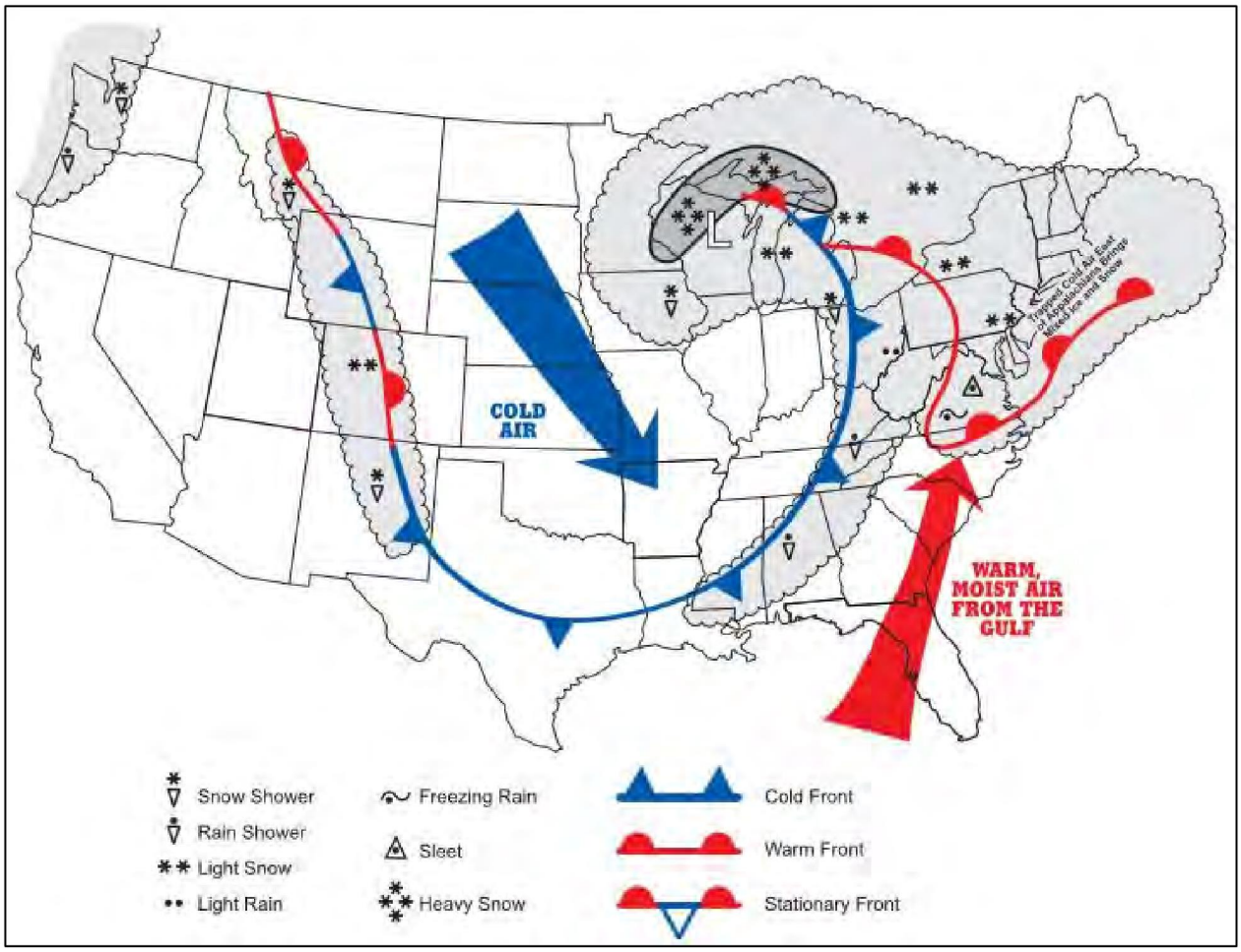


Cars on Excelsior Boulevard after 1940 "Armistice Day Blizzard." Courtesy MN Historical Society

Winter storms produce intense snowfall rates and/or large accumulations that can immobilize entire regions and paralyze cities, stranding commuters, closing airports, stopping the flow of supplies, and disrupting emergency and medical services. The weight of snow can cause roofs to collapse and knock down trees and power lines. Homes, farms, and businesses may be isolated for days. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on counties and municipalities. In Hennepin County, virtually all winter storms are generated by the convergence of moisture and cold temperatures associated with low-pressure systems.

Blizzards represent the most dangerous class of winter storms, combining strong winds with falling or freshly fallen snow to reduce visibility for a period of time. Technically, they are defined as three hours or more of sustained winds or frequent gusts of 35 mph or higher in falling or blowing snow, and visibilities reduced to a quarter mile or less. The strong winds create deadly whiteout conditions that bring traffic to a standstill, enabling the wind-driven snow to form dangerous drifts that are impossible for many vehicles to pass. In addition, the strong winds are often accompanied by falling temperatures and low wind chills, subjecting stranded motorists to life-threatening conditions that may persist for 24 hours or more. Lastly, the strong winds of blizzards exert additional stress upon structures if they were already straining under the load of heavy snow.

All winter storms have some combination of cold air, moisture, and lifting mechanisms that turn the moisture into precipitation. Most winter storms affecting Hennepin County are associated with extratropical cyclones (low-pressure systems). Typically, the heaviest snow and blizzard conditions are found on the left side of the path of the storm system.



Typical weather pattern associated with major winter storms in Minnesota and Upper Midwest. Source NOAA, http://www.nws.noaa.gov/os/winter/resources/Winter_Storms2008.pdf

Unfortunately, blizzards are not consistently tracked and are difficult to diagnose retroactively. Moreover, most major winter storms in Hennepin County have not prompted Blizzard Warnings. In fact, one of the last NWS-issued Blizzard Warning in Hennepin County was on November 1-2, 1991, during the infamous Halloween Blizzard. However, many winter storms have produced Blizzard warnings in neighboring counties, along with winds in Hennepin County that significantly compounded the impacts from accumulating snow. Therefore, to avoid confusion and the misattribution of impacts, in this report, *a blizzard is any accumulating snow event known to have a significant wind-driven and blowing snow component*.

While many winter storms produce sleet and/or freezing rain, Hennepin County Emergency Management recognizes these as distinct hazards and will cover them separately.

4.3.11.2. Range of Magnitude

A given location in Hennepin County sees 24-hour snowfall totals over six inches once or twice per year on average, though there have been years with five or more such events. Blizzards, on the other hand, recur approximately once every 3-4 years in western and northwestern parts of the county, and every 6-

8 years inside the 494-694 loop. It should also be noted that blizzard conditions can occur without large snowfall accumulations. These “ground blizzard” situations are most common in rural Minnesota, but can occur in open areas of Hennepin County, west of the I-494 corridor, and especially west of MN highway 101.

Duration	Largest value at MSP	Date
Calendar-day snowfall	18.5”	11/1/1991
24-hour snowfall	21.1”	10/31-11/1/1991
2-day snowfall	26.7	10/31-11/1/1991
3-day snowfall	34.6”	01/20-22/1982
5-day snowfall	39.1”	01/20-24/1982
Monthly total	46.9”	November 1991
Duration	**Largest value in Minnesota**	**Date**
24-hour snowfall	36” (near Finland, Lake County)	01/07/1994
Snowstorm total	47” (near FInland, Lake County	01/06-08/1995
Monthly total	66” (Collegeville)	March 1965

4.3.11.3. Spectrum of Consequences B2b

***Outdoor life safety hazards**:* Severe winter storms and blizzards are often accompanied by falling temperatures and dangerous wind chills. Persons caught outside unprepared can face disorientation, frostbite, hypothermia, and death. A quarter of winter storm casualties occur among those caught outside in the storm.

Power outages/utilities: Heavy snow can cause power outages from direct loading on electrical wires, and more commonly from indirect sources, for example when tree limbs become overloaded with snow and fall onto wires. Heavy, wet snow can cause widespread power outages, and strong winds exacerbate this impact. The duration of service outages is typically related to the complexity and magnitude of the outage pattern, along with the ability of crews to get to repair sites. Thus, high-volume, heavy, wet, wind-driven snow events are associated with higher outage numbers and longer service delays.

***Structural failure**:* Heavy snow will can cause roof collapse, not just at residences, but at larger commercial facilities as well. Large roof spans lacking consistent support are especially vulnerable. The former Hubert H Humphrey Metrodome Stadium in Minneapolis failed three separate times from excessive snow loads causing the Teflon canopy to tear.

***Transportation**:* By far the greatest and most common impacts from winter storms in Hennepin County are to the transportation infrastructure, but there is no strict threshold above which heavy snow is guaranteed to produce a particular impact. Stranded vehicles and snow removal costs increase with greater accumulations, but accidents and spinouts are often a function of prior road conditions, driver preparedness and awareness, and the consistency of the accumulating snow. For instance, from January 31- February 2, 2004, a well-forecast series of winter storms produced widespread 8-11" snowfall totals across the Twin Cities, but a relatively small impact, owing to preparedness, and the generally fluffy nature of the snow. By contrast, a much smaller event on March 8 that same year, produced only 1-3 inches, but did so unexpectedly and within a 2-hour window. This "surprise" event caused hundreds of spinouts and accidents and forced the closure

of the I-94 exit at Highway 280.

The NWS estimates that 70% of winter storm related casualties result from vehicular accidents. Heavy snow impedes traffic, creates hazardous travel conditions, and requires plowing and surface treatment to keep roads passable. It also significantly reduces visibilities, which compromises driver reaction times. In blizzard conditions, the effect of wind further restricts visibilities, often to zero, and can easily disorient drivers. Stranded drivers and those forced to leave their vehicles because of accidents are often directly exposed to the harsh conditions outside their vehicles and can quickly find themselves in a life-threatening situation.

Airports frequently experience significant delays, and it is common for all runways to close for a time during major winter storms.

4.3.11.4. Potential for cascading effects

Heavy snow and blizzard conditions can occupy a large portion of any strong, cold-season extratropical cyclone, and as a result can precede, follow, or be accompanied by a wide range of weather conditions. Situational awareness is key to understanding if and how the effects of winter storm conditions will be compounded by the following hazards.

Flooding: Unusually intense and/or repetitive snowfalls can drain local governments of their resources, as crews put in long hours to maintain roads, and clear debris. As the heavy snow melts, it poses flooding risks for area streams, basements, low-lying intersections, and other areas prone to ponding. Heavy rainfall events falling onto or just after the melting of a large snowpack pose immediate flooding threats, as soil storage capacity is often very limited. In April of 2001, heavy rains in southern Minnesota caused considerable flooding, after an unusually long and snowy season left a large snowpack and saturated soils.

Extended power outages: A severe winter storm that knocks out power becomes much more dangerous as the time to restore service increases. This is especially true of storms that are followed by a rapid drop in temperatures. Residences and facilities dependent on electrical power for heating or heat distribution can become dangerously cold within hours of power loss.

Sometimes a heavy snowfall event or blizzard occurs shortly after a major ice storm. In these cases, the ice produces the initial critical loading, but then the snow and/or wind acts as the "final straw," resulting in severe and widespread power outages. In these situations, the snowstorm or blizzard is just another link in a chain of cascading hazards already in progress.

Overexertion: Snow removal after a major event often results in a casualty spike related to overexertion resulting from attempting to dislodge stranded vehicles and clear snow from sidewalks and driveways. It is a major cause of winter-related fatalities in the US.

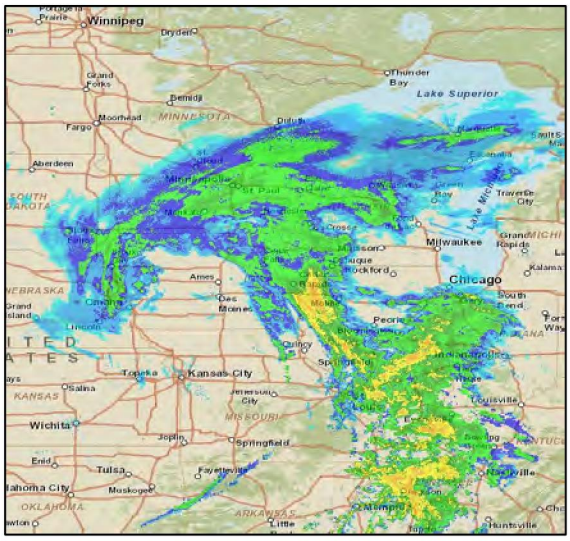
Severe weather: In rare situations, a major winter storm can follow a significant severe weather event. An infamous tornado-blizzard combination affected Janesville, WI on November 11, 1911. The tornado killed nine people and was followed almost immediately by a historic cold front that brought blizzard conditions within a couple hours of the tornado's passage, as temperatures fell from the 60s and 70s into the teens. On April 26, 1984, a strong, killer tornado hit Minneapolis and St. Anthony, and was followed within three days by up to 10 inches of snow. Most recently,

on March 31, 2014, a confirmed tornado struck near St. Leo in Lyon County MN, while a Blizzard Warning was already in effect.

4.3.11.5. Geographic Scope of Hazard B1c

A given winter storm may affect several hundred thousand square miles over a period of days, and often will have an instantaneous footprint of 50,000 square miles, under which dangerous winter weather conditions are occurring. The swath of all precipitation including rain and thunderstorms may cover an area the size of several Midwest states.

Winter storms have occurred in virtually every part of the US, except for coastal southern California, parts of the Sonoran Desert, and southern Florida. The most severe winter storms are found in the Central and Northern Plains, and downwind of the Great lakes, and along the East Coast. Comparatively, Minnesota experiences storms that generally produce lesser snowfall totals and/or weaker winds.



Extent of precipitation associated with major winter storm on December 11, 2010

4.3.11.6. Chronologic patterns (seasons, cycles, rhythm)

Winter storm season in Minnesota extends from late October through April, with peak frequencies from late-November through mid-March. Historically, February has had the fewest major snowstorms. However, since 2004, February has become remarkably more active, while March has become less so.

4.3.11.7. Historical data/previous occurrence B1d

The Twin Cities has had dozens of major winter storms since the late 19th century, with 25 calendar-day snowfalls of 10 inches or greater, and 26 two-day totals of at least 12 inches (**TABLE 4.3.11A**).

TABLE 4.3.11A Historical 2-day snowfall totals of 12" or greater in the Twin Cities. Events in bold are known blizzards in Hennepin County since 1940.

Date ending	Total (in.)	Date ending	Total (in.)
11/17/1886	13.0	**1/21/1982**	**17.4**
3/12/1899	12.0	**1/23/1982**	**20.0**
3/1/1907	12.0	12/28/1982	16.5
4/28/1907	13.0	4/14/1983	13.6
12/17/1908	12.8	11/28/1983	12.2

1/22/1917	16.0		**3/4/1985**	**16.7**
3/29/1924	12.0		3/31/1985	14.7
3/13/1940	15.6		**12/1/1985**	**15.9**
11/12/1940	**16.7**		**11/1/1991**	**26.7**
3/23/1952	14.1		11/30/1991	14.3
3/12/1962	12.7		3/9/1999	16.0
3/18/1965	12.2		**12/11/2010**	**17.1**
3/23/1966	13.6		2/21/2011	13.8

Additionally, some smaller snowstorms have also produced blizzard conditions in Hennepin County. Notable recent examples include March 1-2, 2007, and February 21, 2014, when 6-12 inches of snow were finished off with 25-40 mph winds. Following are more detailed accounts of some of the area's most noteworthy winter storms.

The Armistice Day storm of November 11, 1940
is the defining blizzard of the 20th century in Minnesota and remains the storm against which all other blizzards in this state are compared. It was a high-impact, high-mortality blizzard affecting a huge swath of Minnesota, Wisconsin, Iowa, and the Dakotas.

The storm began as a low-pressure area over Colorado on the morning of November 10, which then swung northeastward and intensified rapidly as it passed over La Crosse and eventually Lake Superior on the 12th.

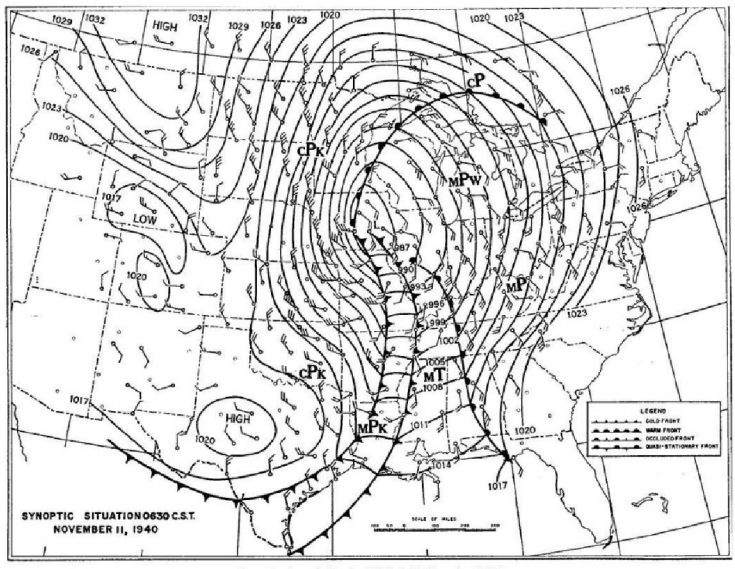


Figure 5.—Synoptic situation 0630 C. S. T., November 11, 1940.
Surface pressure chart on November 11, 1940

Initially warm conditions gave way to rapidly falling temperatures, and rain turning to extremely heavy windswept snow. Winds were sustained above 30 mph over much of Minnesota, with gusts exceeding 65 mph in some areas. Snowfall rates at times were as high as three inches per hour. Snowfall totals of 15-25 inches were common across Minnesota, including Hennepin County.

The long duration of the storm, combined with its rapid onset and its severity contributed to

extreme losses, including 49 deaths in Minnesota alone- many of whom were stranded motorists who could not navigate the enormous snow drifts that were up to 15 feet high in open sections of Hennepin County. Over a dozen of the dead were hunters who were dressed for pleasant weather and were caught off-guard and stranded on islands in the Mississippi River. One train derailed, two were involved in a head-on collision, and one could not complete its route because of the snow. The regional death toll exceeds 150, with many of the non-Minnesota deaths coming from numerous capsized Great lakes vessels.

"Storm of the Century", January 10-12, 1975.
Formed by a then-record-setting low pressure system, this storm only produced 4-8" of snow in the Twin Cities but hit areas to the west and north much harder. There, hurricane-force winds gusts and blinding snowfall were common, with accumulations of up to 27 inches and drifts of 10-20 feet in open country. Ice accumulated over one inch in parts of southwestern and southern Minnesota, and the combination of ice, heavy snow, and severe winds produced thousands of power and telephone outages.

The storm claimed the lives of 35 Minnesotans, 21 of whom suffered heart attacks. The Red Cross provided food and shelter to over 17,000 people. Despite the heavy losses, the storm was well anticipated, and forecasts are credited with keeping the casualty toll in check.

Back-to-Back Record-Breakers, January 20-22, 1982.
A low-pressure system interacting with an exceptionally air mass in retreat produced a broad swath of heavy snow over much of Minnesota on January 20. Widespread daily totals of 10-20 inches were common, and the Twin Cities recorded 17.1", which broke the all-time daily snowfall record that had been set during the Armistice Day storm.

As the storm wound down and exited the region on the 21st, a more potent low-pressure system emerged from the Colorado Plains. This system intensified and moved into the region on the 22nd, producing heavy snow, sleet, ice, thunder, and blizzard conditions, prompting the closure of interstates 90 and 35 for part of the day. Snowfall totals of 10-20 inches were again common, this time over an even larger area. The Twin Cities recorded 17.2" on the 22nd, breaking the all-time snowfall record that had been set just two days earlier.

The extreme snow loads from these storms—in many cases greater than 30 inches—caused many residential and commercial roof failures.

"Wall of White" blizzard, February 4, 1984.
A fast-moving low-pressure system and cold front charged through Minnesota, producing 2-4 inches of light powdery snow and sustained winds more than 40 mph, with gusts as high as 75 mph.

The snow and wind were unexpected and moved southward at up to 50 mph. The sudden onset of the blizzard caused severe traffic problems in rural areas, where visibilities fell to zero and snow drifts covered many roads. Cars stalled in the snow, spun out, and motorists who ventured out were subjected to subzero temperatures and 40-60 mph winds.

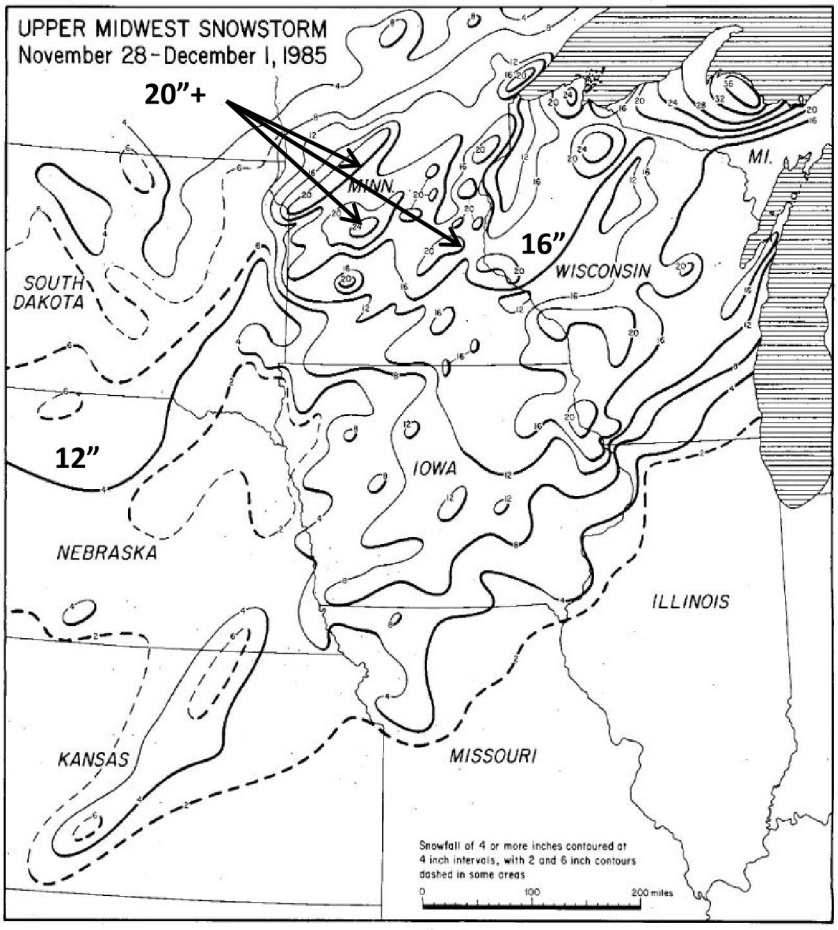
The storm killed 21 people in a matter of hours, almost all from exposure, and almost all of whom had been in stranded vehicles. This storm remains the most lethal single weather event in

Minnesota in the last 50 years.

Thanksgiving weekend Blizzard, 1985.

An unusually prolonged and widespread winter storm produced several waves of heavy snow over Minnesota, Iowa, Wisconsin and the Dakotas between November 28th and December 1st, 1985.

In the Twin Cities, at least 5 inches on three consecutive days, with each consecutive day producing more snow than the last—this behavior is unprecedented in the area's recorded history and resulted in three-day totals in excess of 20 inches.



Snowfall pattern, From Nov 28 – Dec 1, 1985, modified from original, courtesy of NOAA/NCDC, December 1985.

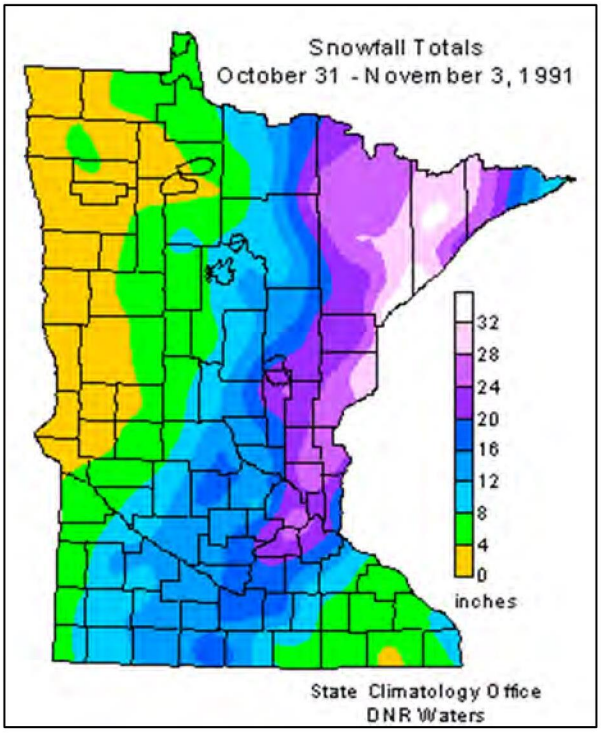
Although the snow during the first two days of the storm was very heavy, it fell in light winds as a cold air mass remained in place over the region. The final wave of snow, however, was associated with a powerful and intensifying low pressure system, and produced a slight warm-up, followed by strengthening winds and rapidly falling temperatures. The large geographical reach of this storm system overwhelmed Minnesota's road networks, and many state highways and local roads became impassible and had to be closed. Thousands of travelers hoping to get into or out of Minnesota we forced to remain in place into the following work week.

Halloween Blizzard, October 31 – November 2, 1991.

A low-pressure system dove into southern Texas from eastern Colorado, picked up copious moisture from the Gulf of Mexico, and then proceeded on a north-northeast path, nearly following the central portion of the Mississippi River, before passing through Wisconsin and out over Lake Superior. This scenario and trajectory produced a historic period of heavy snow in the Twin Cities and much of eastern Minnesota, followed by intense winds and plummeting temperatures.

The snow began around noon in the Twin Cities and intensified throughout the day. Five to 10 inches had already fallen by the end of the day, and intense snowfall continued throughout the overnight period. By daybreak on November 1st, most of the Twin Cities area already had well over a foot of snow on the ground, with heavy snow still falling. Many areas experienced a decrease in snowfall intensity beginning in the late morning, but snow nevertheless continued to accumulate at a rate of an inch every 2-3 hours throughout the afternoon and into the evening.

Winds had picked up during the morning also, and increased throughout the day, with sustained speeds between 20 and 30 mph with many gusts above 40 mph in the Twin Cities. By mid-evening, another band of heavy snow spread across the area, as winds reached peak speeds of 25-40 mph with gusts as high as 50 mph. Whiteout conditions permeated the entirety of Hennepin County during this period.



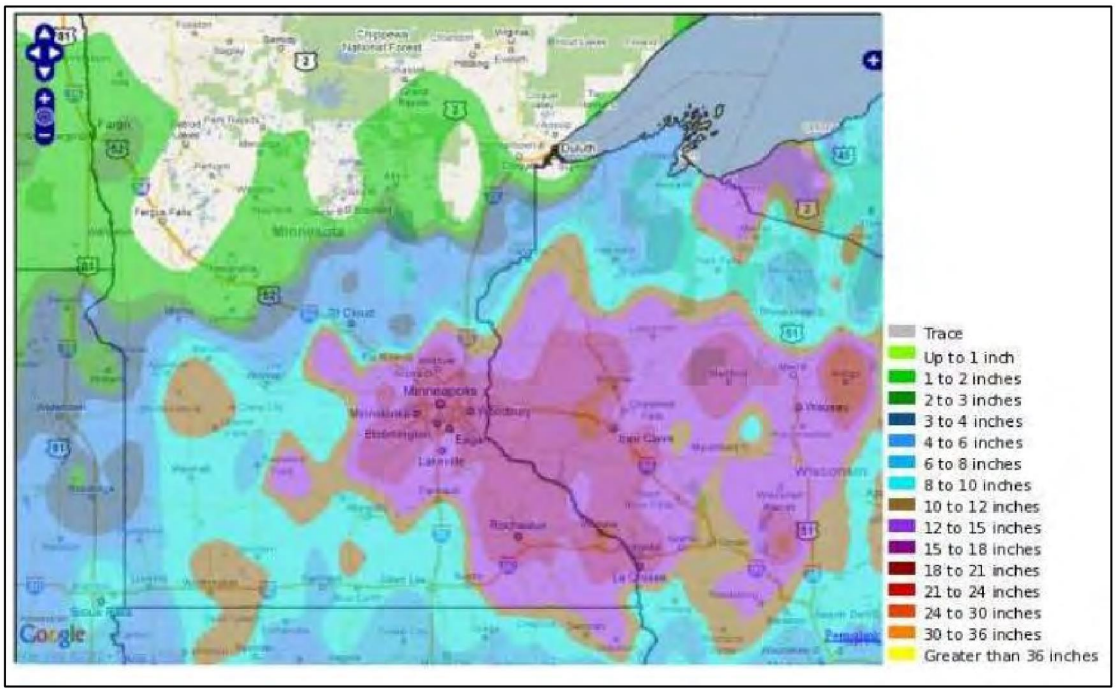
Snowfall totals from Halloween Blizzard. Courtesy of Minnesota DNR State Climatology Office

Snow continued at a lighter pace into the 2nd and even the 3rd of November, but most of the snow had fallen, with 25-30" totals falling on through the event.

The storm prompted school closings on both Friday November 1, and Monday November 4th in some districts, as snow removal efforts were significantly behind schedule. The storm broke daily and all-time snowfall records in the Twin Cities, and in its aftermath, the earliest subzero temperatures on record were observed.

Dome Teflon Roof #3 Snowstorm and Blizzard, December 10-12, 2010.

A very potent winter storm developed over South Dakota and Nebraska on Friday, December 10th, then strengthened as it moved into Iowa through Saturday, December 11th. Moisture surged into the Upper Mississippi River Valley ahead of the system on Friday, and precipitation pushed into the region during the overnight hours. Both coverage and intensity increased during the day on Saturday, and winds increased to 25-40 mph with higher gusts by afternoon.



Snowfall totals from December 10-12, 2010, storm. Courtesy of NWS Chanhassen

> Very heavy snow accompanied this system, with widespread totals between 12 and 24 inches. The Twin Cities recorded 17.1 inches, making it the fifth largest snowstorm on record, and the largest in December. For the third time in 30 years, the excessive snow load ripped and then collapsed the Teflon roof of the Metrodome.

There have been no other incidents that are within the scope of this plan.

4.3.11.8. Future trends/likelihood of occurrence B1e

Research on the future of winter storms in Minnesota is lacking, but recent trends indicate a tendency towards increases in the size of the largest snowfall events. However, this increase is not yet statistically significant.

Climate change on one hand is causing a rapid warming of winter, and on another hand is putting more water vapor into the atmosphere. Therefore, it is plausible that snowstorm intensity could increase, even as seasonal snowfall decreases. However, using data from the Twin cities and Minnesota in general, there is no evidence that seasonal snowfall is decreasing, even though significant winter warming is well underway. It is possible that the current trend of an increase in high-end snowfall events will continue.

Using the Twin Cities snowfall record from 1900-2015, a daily snowfall of just of six inches can be expected annually. The 10-year snowfall amount for a calendar day is just over 12 inches. These values can be analyzed for durations of up to 7 days and return periods of up to 100 years.

Snowfall amounts for a given event duration and return period, based on Twin Cities data from 1900-2015.

Return Period	Daily Snowfall	24-hour Snowfall	2-day	3-day	5-day	7-day
Annual	6.2"	7"	8.4"	9.8"	11.5"	13.3"
2-year	8"	9"	10.7"	12.6"	15.3"	17"
5-year	10"	11.3"	13.7"	16"	17.9	21.6"
10-year	12.2"	13.9"	16"	17"	22.6"	26.7"
20-year	14.9"	16.9"	17.4"	21.1"	28.4"	35.9"
50-year	17.2"	19.4"	20"	27.8"	37.4"	39.7"
100-year	18.3"	20.7"	26.7"	34.2"	39.1"	40"

Using the same data somewhat differently, we can assess the expected frequency of common daily snowfall amounts.

Frequency with which a daily snowfall total at a point in Hennepin County will equal or exceed a given amount:

Snowfall *equal or exceeding:*	Frequency
1"	15-18 per year
2"	8-9 per year
4 "	3 per year
6 "	1-2 per year
8"	Once per year or two
12"	Once per 6 years
16"	Once per 19 years

4.3.11.9. Indications and Forecasting

The Twin Cities/Chanhassen forecast office of the National Weather Service is the official forecasting authority for major winter weather events affecting Hennepin County. High-intensity winter storms are usually well anticipated by the numerical weather prediction models, often up to a week in advance, and forecasters tend to have high awareness of potentially dangerous winter conditions two days or more before they develop.

Warning Products		***Remarks***
Blizzard Warning	Sustained wind or frequent gusts greater than or equal to 35 mph accompanied by falling and/or blowing snow, frequently reducing visibility to less than 1/4 mile for three hours or more.	*A major life safety hazard is ongoing or imminent. Danger is greatest for those traveling or caught outdoors. May be issued 2-4 times per year in open areas of far southern and western Minnesota. Very rare in Hennepin County; one was November 1-2, 1991.*
Winter Storm Warning	Significant and dangerous winter weather is expected, generally within 24 hours. Six or more inches of snow, not to exceed 48 hours, half an inch of sleet and/or forecaster discretion: a combination of snow, sleet, freezing rain, blowing snow, and/or wind leading to significant impacts.	*This product spans a large range, from heavy snow events with little or no wind, to major wind-driven events that produce near-blizzard conditions. Typically, 2-4 issued for Hennepin County per winter.*
Snow Squall Warning	The occurrence of snow squalls (short bursts of intense snow) meeting or exceeding one or both of the following conditions: • Visibility 1/4 mile or less in snow with sub-freezing road temperatures. Often accompanied by wind gusts greater than 30 mph. • Plunging temperatures sufficient to produce a flash freeze, along with a significant reduction in visibility from falling and/or blowing snow. Additional factors to consider: • Time of day. • Highways and interstates impacted. These are polygon-based warnings that last usually an hour or less. Larger and longer events are covered by Winter Storm Warnings. Severity tags: • General (no tag): Used frequently. Snow squall conditions are expected or observed, but mitigating actions, combined with societal context, will reduce the threat to safe travel. • "SIGNIFICANT" tag: Used only when suspected or observed	*A quick onset snow band with intense snowfall with potential impacts.*

Warning Products		***Remarks***
	conditions, both meteorological and non-meteorological, suggest a substantial threat to safe travel, such that WEA is warranted to alert all devices in the path of the squall.	
Watch Product Name		
Winter Storm Watch	Significant and dangerous winter weather is possible, generally within 72 hours. Blizzard conditions with visibility less than a quarter mile due to falling and/or blowing snow and frequent wind gusts to 35 mph, for three hours or more. Six or more inches of snow with an event, not to exceed 48 hours in length. A quarter inch of ice. A half inch of sleet. Forecaster discretion: a combination of snow, sleet, freezing rain, blowing snow and/or wind leading to significant impacts.	*As certainty about an event approach, it may be "upgraded" to a warning. Many become lower-standing Advisories, and about 1/10 Watches end up with no Warning or Advisory product.*
Advisory Product Name		
Winter Weather Advisory	Winter weather that causes inconvenience but is not dangerous if proper caution is exercised. 3-6 inches of snow. Bowing snow, causing local visibility reductions. Less than a half inch of sleet. Less than a quarter inch of ice. Forecast discretion: a combination of light snow, sleet, freezing rain, blowing snow, and/or wind leading to impacts.	

In ideal situations, progression of NWS products used will include a Hazardous Weather Outlook, Watches, and then Warnings or Advisories.

4.3.11.10. Critical Values & Thresholds

The baseline for a winter storm product (i.e., Watch or Warning) is generally 6 inches in 12 hours or 8 inches in 24 hours. The baseline for an Advisory is generally 3 inches in 12 hours. However, NWS forecasters may issue Watches, Warnings and Advisories at lesser thresholds if other hazards or concerns warrant a different standard.

4.3.11.11. Preparedness

Before the storm strikes, homes, offices, and vehicles should be stocked with an emergency kit.

At home or work, primary concerns are primary concerns are loss of heat, power and telephone service, and a shortage of supplies in prolonged or especially severe and disruptive events. Essential supplies include:

- Flashlight and extra batteries
- Battery-powered NOAA Weather Radio and portable radio to receive emergency information.
- Extra food and water such as dried fruit, nuts and granola bars, and other food requiring no cooking or refrigeration.
- Extra prescription medicine
- Baby items such as diapers and formula
- First-aid supplies
- Heating fuel
- Emergency heat source: properly ventilated fireplace, wood stove, or space heater
- Fire extinguisher, smoke alarm; test smoke alarms once a month to ensure they work properly.
- Extra pet food and warm shelter for pets
- Back-up generator (optional) but never run a generator in an enclosed space.
- Carbon monoxide detector
- Outside vents should be clear of leaves, and debris, and cleared of snow after the storm.

In vehicles, the supplies in **GRAPHIC 4.3.11A** are essential for winter storm survival.

GRAPHIC 4.3.11A Source: NWS Winter Storm Safety (http://www.nws.noaa.gov/om/winter/before.shtml)



If traveling on the road for a significant length of time, be aware of the weather forecast, especially if you will have long drives with large distances between towns. Stay "connected" via television, radio, NOAA Weather Radio, or social media. Major winter storms rarely occur without warning, although road travel can subject motorists to rapidly changing, sometimes unexpected weather conditions. Thus, check forecasts throughout your route each day before your leave, and plan accordingly.

4.3.11.12. Mitigation

Education and Awareness Programs

- Vehicle fleet crews and others who spend substantial time on the road should be familiar with NWS warning products, jurisdictions, and be familiar with how to obtain pertinent information. All professional drivers should carry winter weather survival supplies.
- Homeowners and commercial properties should be aware of snow load safety and best practices for preventing roof damage. See FEMA document P-957, "Snow Load Safety Guide" (January 2013)
- Members of the general public should understand the risks posed by winter storms, and should review the information available at https://dps.mn.gov/divisions/hsem/weather-awareness-preparedness/Pages/winter-storms.aspx.

4.3.11.13. Recovery

Recovery from a major snow event can take days, or even weeks if it is complicated by a combination of cold weather, power outages, fallen trees, ice, or snow. In forested areas, logging activities may be significantly impacted, and fuel loads may exacerbate the potential for wildland fire. In addition to power outages, persistent wind loading on structures has at times caused gas line ruptures.

4.3.11.14. References

Minnesota DNR State Climatology Office, *75th Anniversary of the Armistice Day Blizzard*, http://www.dnr.state.mn.us/climate/journal/armistice_day_blizzard.html

Minnesota DNR State Climatology Office, *Tornado of March 31, 2014*, http://www.dnr.state.mn.us/climate/journal/tornadoes140331.html

National Weather Service, *Winter Safety Home Page*, http://www.nws.noaa.gov/os/winter/

National Weather Service, Winter Storms: The Deceptive Killers, ARC 4467 NOAA/PA 200160, 12 pp. Available at http://www.nws.noaa.gov/os/winter/resources/Winter_Storms2008.pdf

National Weather Service- La Crosse Forecast Office, *Armistice Day Storm - November 11, 1940*, http://www.weather.gov/arx/nov111940

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Schwartz, Robert M., and Thomas W. Schmidlin. "Climatology of blizzards in the conterminous United States, 1959-2000." Journal of Climate 15.13 (2002): 1765-1772.

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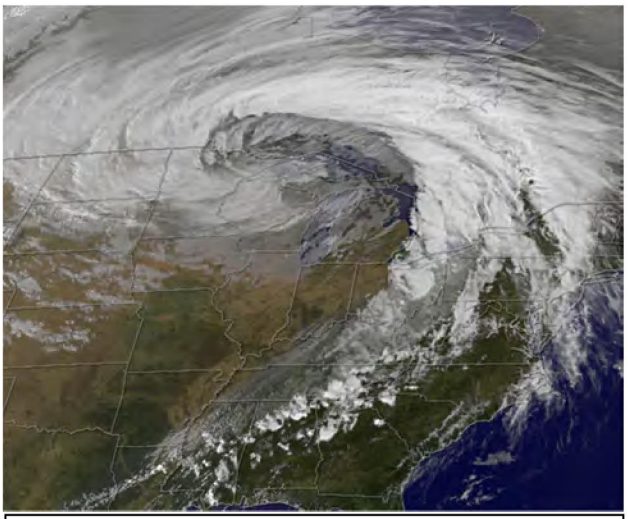
4.3.12. Hazard Assessment: WINDS, NON-CONVECTIVE HIGH

4.3.12.1. Definition

Non-convective high winds are rare, long-lasting, sustained events that can pose significant life safety risks and produce widespread damage over a large area, while originating from sources unrelated to thunderstorms (i.e., not related to tornadoes or thunderstorm downbursts). In the Upper Midwest and most of the US, they form in association with intense and/or rapidly intensifying mid-latitude cyclones (low pressure systems). "Wake lows" developing behind thunderstorms have been observed to produce relatively prolonged bouts of non-convective strong winds in Minnesota--sometimes resulting in damage-- but these events are best considered within the spectrum of consequences and cascading effects resulting from derechos and other severe thunderstorms events.



Satellite image of the October 26, 2010 cyclone that set low pressure records in Minnesota and produced 24 hours of non-convective severe-threshold winds covering over 100,000 square miles.

The most common scenario in Minnesota, occurring 1-3 times per year on a statewide basis, is for a prolonged (multi-hour) period of sustained 30-45 mph winds, with frequent gusts to 60 mph, and isolated gusts as high as 70 mph. These events tend to result in sporadic minor structural damage, and occasionally cause isolated injuries or even deaths.

A more dangerous class of events occurs roughly once or twice per decade in Minnesota, and produces a pocket of enhanced wind speeds, often sustained above 45 mph for several hours, with gusts exceeding hurricane force. These events produce massive wind loadings that can result in significant infrastructural and property damage, and the most extreme among them yield death and injury rates that resemble those of tornado outbreaks.

Unfortunately, the meteorological differences between these two classes of events are quite subtle, and identifying the potential for the higher-impact extreme cases remains a forecasting challenge. In fact, every instance of them on record in the Upper Midwest has been under-forecast, in some cases significantly. Like *derechos*, there is no specific National Weather Service warning product for them. Most events in Minnesota have occurred during High Wind Warnings, within lower-priority Wind Advisories, and even during Blizzards Warnings. Those latter cases will be considered under *Blizzards* and will be discussed only briefly here.

Further complicating matters, no standardized database or method for cataloging non-convective extreme winds exists. Therefore, precise statistics on areal extent, duration, and total impact are lacking.

4.3.12.2. Range of magnitude

Maximum event (Hennepin): measured gust 89 mph at MSP on October 10, 1949
Maximum event (non-Hennepin): measured 100 mph at Rochester on October 10, 1949
Maximum duration: 36 hours, Wisconsin, October 26-27, 2010

Maximum sporadic wind damage footprint: 1000 mi long x 450 mi wide, November 10, 1998, and October 26-27, 2010
Maximum extreme wind damage footprint (MN): 400 mi long x 200 mi wide, October 10, 1949

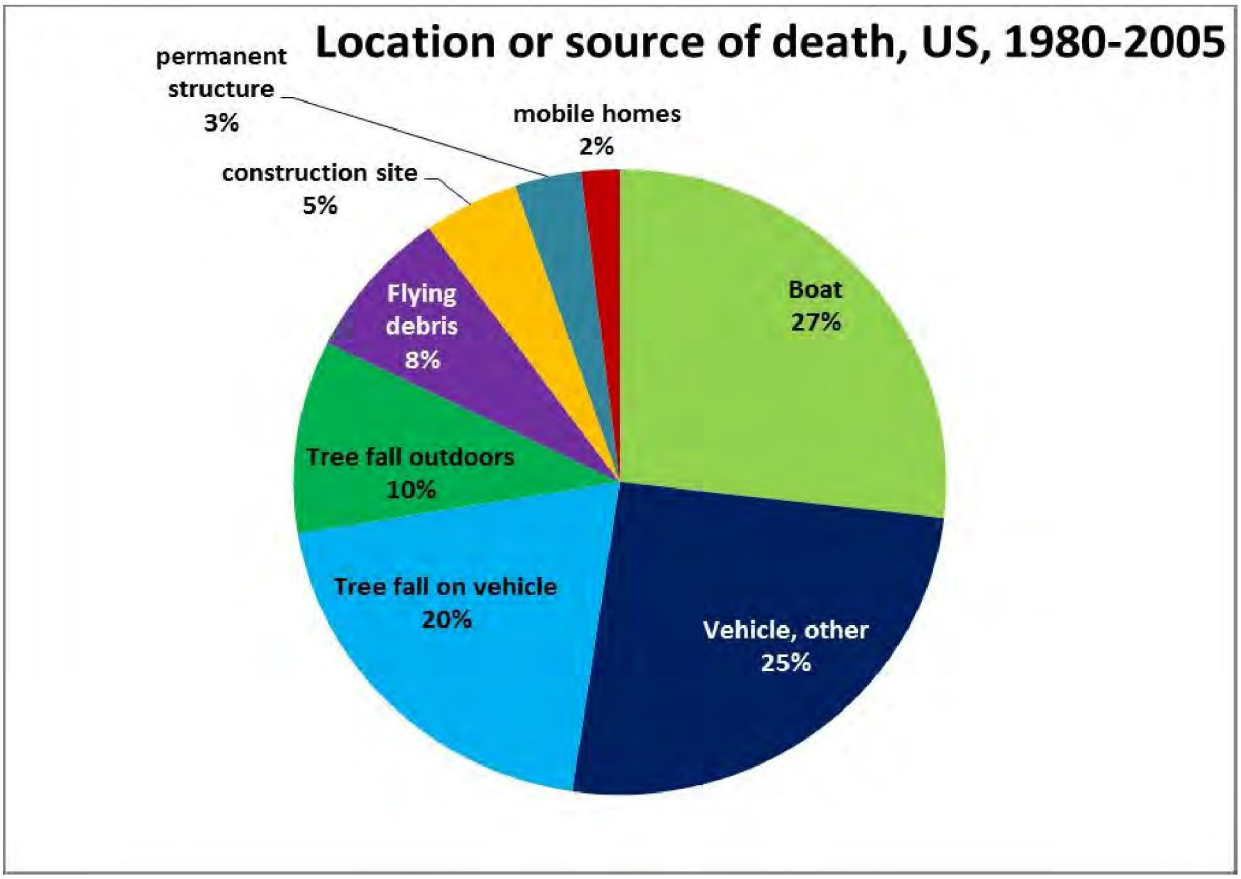
Summary of typical versus extreme non-convective wind events

Event Type	Frequency per decade	Maximum *sustained* winds (mph)	Maximum wind *gusts* (mph)	Damaging wind duration (hr)	Extreme wind duration (hr)	Footprint
High Wind	10-30	30-45	55-70	4-8	NA	Isolated minor structural damage covering an area the size of MN. Injuries/deaths in 5-10% of events
Extreme Wind	1-2	45+	75-100	6-24	3-6	Isolated minor structural damage covering several states. Significant infrastructural and property damage covering dozens of counties. Numerous injuries/deaths per event common.

4.3.12.3. Spectrum of Consequences B2b

Non-convective winds killed nine Minnesotans between 1980 and 2005, with several other deaths possible between 2006 and 2014. Estimates suggest 20-40 additional deaths occurred between 1940 and 1979. Thus, with at least 30 deaths (and possibly as many as 55) since 1940, non-convective extreme winds clearly present a life safety risk on par with those of tornadoes and convective storm hazards.

Research has shown that non-convective wind fatalities are like derecho fatalities, in that the majority of them occur outdoors, in boats, or in vehicles. Only 5% of documented US non-convective wind deaths between 1980 and 2005 occurred within structures. By contrast, over 70% of tornado-related deaths occur within buildings or homes, illustrating that people are less likely to seek shelter during non-convective high winds than during tornadoes.



Sources and locations of US non-convective wind fatalities, modified from Ashley and Black 2008 (see references)

Unlike derechos, the peak frequencies of non-convective extreme winds occur during the mid-spring and especially mid-fall transition seasons. This timing minimizes the number of outdoor recreational activities and reduces the potential exposure to wind-related hazards. The notable exceptions are 1) Minnesota's fishing opener, typically during the first half of May, at the end of the spring risk period, and 2) Minnesota's hunting seasons, which span the heart of the peak risk in October and November.

Boaters face substantial risks during non-convective high wind events. The reduced friction of open water often increases wind speeds and wave heights and threatens to capsize boats. Once overturned or submerged, a boat's occupants will be subject to the seasonally cold water, which poses serious risks for hypothermia and eventual drowning. Given the harsh conditions, rescue operations can be difficult, if not impossible. Several of the known deaths during the Armistice Day storm of 1940 were from skiffs that capsized in the 40-60 mph winds, hours before snow began to fall.

The prolonged nature of non-convective high wind events means that hunters and others spending time outdoors face extended risk exposure from falling trees. In urban or built-up areas, falling trees and power lines are the most typical sources of risk. During extreme events, urban inhabitants can be injured or killed by flying debris. In rural areas, outbuildings are often damaged, and barns frequently collapse.

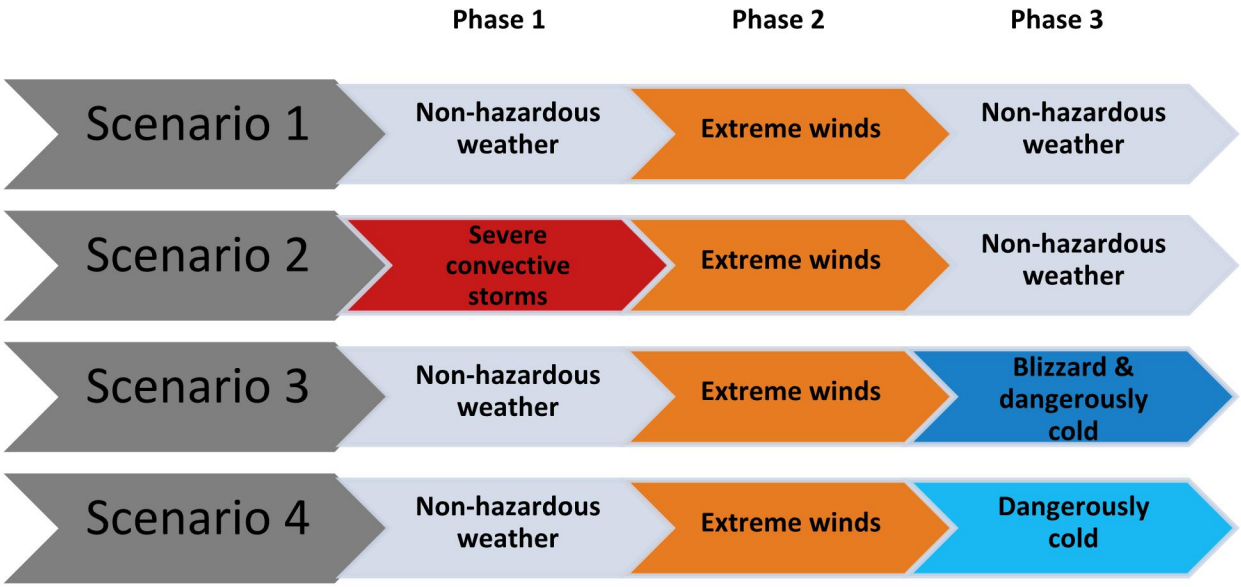
Occupants of cars and trucks also are vulnerable to being hit by falling trees and utility poles. Further, high profile vehicles such as semi-trailer trucks, buses, and sport utility vehicles are frequently blown over during sustained non-convective wind events.

Though they only make up 5% of the 1980-2005 deaths shown above, construction sites may make larger proportional contributions during periods of high economic growth, when the number of large projects multiplies. Workers have been and can be blown from ledges or scaffolding and bombarded by loose materials.

Because they are so rare, the Twin Cities area has not experienced the consequences of a major non-convective wind event in several decades. Examination of the event in 1949, combined with what is known about derechos, suggests that a current-era repeat would be catastrophic. The total population exposed—outdoors, on the streets, in traffic—would likely be several times larger than in 1949. Power disruptions would cover the entire metropolitan area, and thousands of roads and street segments would be blocked by fallen trees, wires, and utility poles. The breadth of an extreme system, acting on our complex and dense concentration of overhead distribution feeders, would necessitate a massive temporary workforce to restore service after an event. Outages would likely last days, which could be particularly dangerous if winter conditions followed the high winds.

4.3.12.4. Potential for Cascading Effects

Non-convective high winds can occupy a large portion of any strong extratropical cyclone, and as a result can follow, precede, or be accompanied by a wide range of weather conditions. The parent intense low-pressure systems frequently produce severe thunderstorms and tornadoes in areas that are later affected by the non-convective high or extreme winds. In some cases, the dangerous winds stretch far northwestward, into the portion of the cyclone where heavy snow is falling or has fallen. In these situations, severe blizzard conditions develop, and the winds function as one of many mutually enhancing hazards.



The four generalized scenarios in which non-convective extreme winds most frequently occur in the Upper Midwest. It should be noted that a single system may produce different scenarios at different locations. The Armistice Day storm 1940 generated each of the four scenarios listed.

Considering that thunderstorm hazards tend to be distributed in the southeast quadrant of a cyclone, that blizzards tend to occupy the northwestern quadrant, and that any system capable of both will tend to move northeastward through the region, it is unlikely that any given location will experience severe thunderstorms, non-convective extreme winds, and blizzard conditions from the same system. However, a powerful system on November 11, 1911, did just that, producing killer tornadoes in Iowa, Wisconsin, Illinois, and Missouri, followed by record-setting temperature drops of 60-80 degrees in 6-10 hours with blizzard conditions and wind gusts as high as 75 mph. This event is a true singularity in the central US, in that nothing else like it has ever been recorded.

Perhaps the most common scenario for any one location in the Upper Midwest is that the extreme winds follow a period of inclement but otherwise non-hazardous weather and are followed by a return to non-hazardous weather as well.

The scenario a given event follows is determined by both relative position with respect to the center of low pressure, and the depth of cold and/or warm air and moisture available to the system as it moves through the region. Those factors, in turn, influence the likelihood of cascading effects. In Scenario 1, the primary impacts are damage and power outages, and weather conditions in the storm's wake generally will not further escalate the situation. In all other scenarios, there is some potential for combinations of the following cascading effects.

> ***Severe weather*** – Virtually all known non-convective extreme wind-producing systems in the Upper Midwest have also produced severe weather hazards somewhere within the storm's warm sector, which is in its southeast quadrant. Incidentally, concentrations of a system's most extreme non-convective winds typically follow the cold front into the southeast quadrant as well. Thus, if a sufficiently intense system produces tornadoes or straight-line winds (both of which can form in the high-shear environments of these systems if enough instability is present), some of the

areas affected will be at risk for non-convective high or extreme winds, generally beginning 6-24 hours after the severe weather. This occurred in south-central and southeast Minnesota on December 15, 2021, when severe thunderstorm winds to 75 mph or greater knocked out power and were followed by non-convective winds of 60-80 mph several hours later.

In these situations, any debris generated by the severe weather will have the potential to become airborne and further scattered by the non-convective winds, prolonging the hazard exposure by hours. Moreover, the sustained wind loadings will further weaken or damage already-compromised structures, causing the potential for further collapse. The winds will also threaten to blow down trees and power structures previously spared. Lastly, these intense non-convective winds will add a layer of danger to ongoing search and rescue operations.

Blizzard – Although the very strongest winds tend to wrap into what had been the warm sector and are often removed from the area of heavy snow, the broad area of strong and even dangerous winds can reach back into areas experiencing (or previously experiencing) winter weather conditions. In these cases, the wind hazards are compounded by falling temperatures, reduced visibilities, and slippery or obstructed roads. Winds combined with heavy snowfall can knock down trees, power lines and power poles, blocking streets and cutting some residents off from their communities.

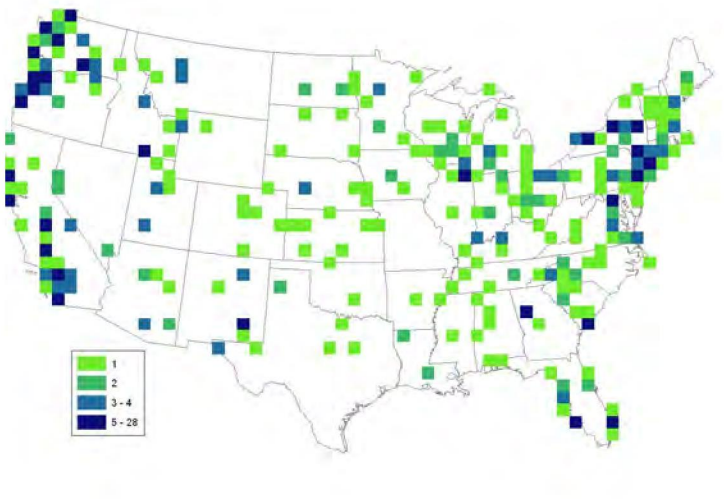
Cold – Even areas that do not experience blizzard conditions may see rapid temperature drops behind the cold front. Because these events usually occur during the transition seasons, the extent and depth of the cold air tend to be minimized. However, temperatures can fall near or below zero, and wind chill temperatures can fall to -25 or lower. The cold weather risks are greatest in areas that had lost power or utility service from extreme winds, as frostbite and hypothermia become serious concerns.

Flash Flooding – Most of the systems capable of extreme winds move quickly enough that precipitation amounts are kept under 2 inches. However, there have been instances of prolonged heavy rainfall and at least minor flooding, raising the possibility of a joint flood/non-convective wind disaster at some point in the future, though none have been recorded in Minnesota. The force of moving water combined with sustained strong winds would easily overwhelm stranded vehicles and would significantly hamper rescue operations.

Wildland Fires – The swaths of trees toppled by non-convective high winds can increase fuel loads on forests and escalating the risk of wildland fire. Additionally, although most non-convective wind systems produce some precipitation, many of the extreme winds come through “dry,” and even in fair conditions. If the system passes through during a drought or other condition with unusually dry vegetation, the winds could easily enhance wildfire risk. Any existing fires would have the potential to spread rapidly and uncontrollably.

4.3.12.5. Geographic Scope of Hazard B1c

A typical extreme wind-producing non-convective event may affect well over 100,000 square miles with wind damage and may produce extreme impacts over tens of thousands of square miles. The total footprint may resemble those of derechos, but the time signature is very different because non-convective events often affect large areas simultaneously and for much longer durations than convective weather systems.



Number of non-convective high wind fatalities in the lower 48 United States during the period 1980-2005. Source: http://earthzine.org/2011/06/04/death-from-a-clear-blue-sky-extreme-non-convective-high-winds/ (modified from Ashley and Black 2008)

Non-convective extreme winds have been recorded in every state, but their impacts are greatest in heavily populated areas, even though their frequencies and magnitudes may be greatest on the open Plains of the central US. The highest death rates per unit area are found in the northeastern US, between Maryland and New York state, where "nor'easters" can expose large, dense populations to hurricane-force (or greater) winds, and along the Pacific coast. Death rates in these regions are 10 times higher than in Minnesota and the Upper Midwest, because of higher frequencies of intense low-pressure systems, the complex topography found between the mountains and coasts induce wind-enhancing terrain effects, and the much greater population concentrations.

Within the Midwest, Minnesota appears to lie on the northwestern side of a risk corridor, which maximizes near Chicago.

4.3.12.6. Chronologic patterns (seasons, cycles, rhythm)

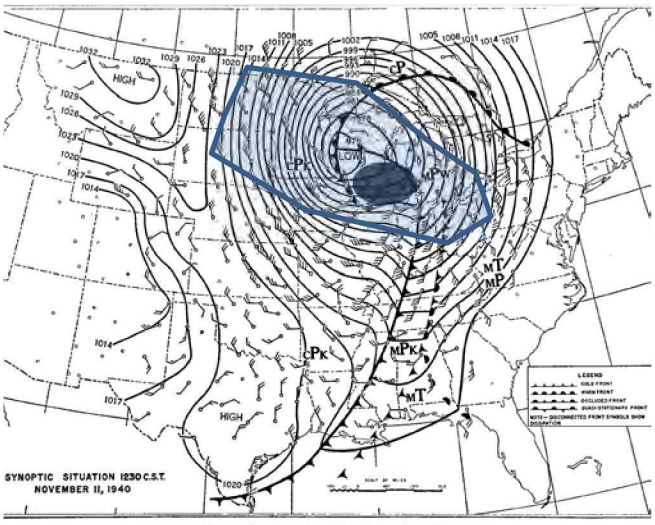
Non-convective extreme winds associated with strong low-pressure areas are most common during the fall and spring transition seasons, when the polar jet stream's mean track is near the Upper Midwest and when continental temperature gradients are strong. Although strong cyclone development is more common in spring than in fall, the conditions favoring explosive intensification are more common during autumn, and thus, October and November have by far the highest frequency for non-convective extreme winds.

4.3.12.7. Historical data/previous occurrence B1d

The record of non-convective extreme wind events in Minnesota is incomplete, owing to the lack of adequate instrumentation, documentation, and categorization. Knowing the true frequency of extreme winds in Minnesota would help estimate the likely recurrence of impacts on the modern landscape and population. The following events are those known to have produced significant non-convective wind impacts in Minnesota and the surrounding region.

The Armistice Day storm of November 11, 1940

Is best remembered as high-impact, high-mortality blizzard, but the extreme winds *prior* to the snow were responsible for much of the cascading disaster that followed. Extreme non-convective winds capsized skiffs used by hunters in southern Minnesota, and produced impossible navigation on the Mississippi River, which forced at least 12 hunters to shelter on islands, where they ultimately froze to death. The winds wrecked large vessels on Lakes Michigan and Superior, resulting in 59 fatalities. From Minnesota east into Michigan and Ohio, winds were sustained at 35 mph or greater for several hours, with many stations recording average speeds more than 50 mph. Gusts of 70-80 mph are believed to have been common throughout the region. The strongest winds were over Wisconsin, Illinois, and western Michigan, to the south and southeast of the intensifying low-pressure center. The winds blew down utility poles, and cut power and communications to much of Minnesota, Wisconsin, Illinois, and Michigan, creating a dangerous situation as temperatures fell into the teens and single digits.



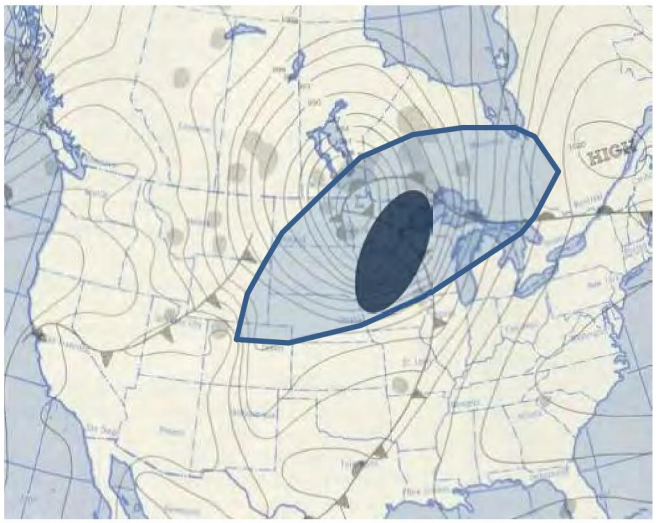
Surface weather map, Nov 11, 1940. Shaded area represents region of wind impacts. Dark area represents hurricane-force wind gusts. Modified from La Crosse NWS.

The event produced all four extreme wind scenarios described previously in different parts of the region. Across much of Wisconsin, Lake Michigan and Lower Michigan, the dangerous, prolonged winds of 40-60 mph (gusting up to 80 mph) were the only significant hazard posed by the storm. Over Iowa and Illinois, tornadoes and severe thunderstorms swept through the area during the morning, and then non-convective sustained winds of 25-45 mph (gusting 55-70 mph) blew for 8-12 hours following the passage of the strong cold front. Over western Iowa, much of Minnesota, northwestern Wisconsin and the eastern Dakotas, non-hazardous weather gave way to strong winds gusting up to 70 mph, severe blizzard conditions, and dramatically falling temperatures; these conditions stranded and killed at least two dozen motorists. Lastly, the central and western Dakotas had wind gusts to 65 mph, little or no snowfall, but dangerously cold temperatures.

On *October 10, 1949*

The most severe non-convective wind event on record in Minnesota struck most of the state and produced over 75,000 square miles of derecho-level damage. Minneapolis recorded seven straight hours of sustained winds above 40 mph, three hours of sustained winds above 50 mph, and two hours of gusts exceeding 75 mph, including a maximum gust of 89 mph. In Rochester, a 100-mph wind gust was recorded. Boat works facilities were demolished on Lake Minnetonka, as well as numerous other Minnesota lakes; docks were destroyed, and sailboats were piled onto the shores of Minneapolis lakes; windows were blown out of homes, storefronts, and office buildings; and many brick buildings partially collapsed. In downtown Minneapolis, large signboards were twisted, the 65-foot chimney of the Sheridan Building fell onto and severely

injured several people, and workers on upper floors of the Foshay Tower fell ill from motion sickness due to the extreme swaying of the building. The winds inflicted destruction or severe damage upon barns, windmills, water towers, and grain elevators throughout rural Minnesota. The event claimed 27 lives region-wide (four in MN), and severely injured hundreds (at least 100 in MN). Many of the casualties were caused by blunt trauma from flying or falling objects, and lacerations from flying glass. Northern States Power counted approximately 4800 broken lines and 600 broken poles in southern Minnesota alone. An additional 48 broken poles were counted in the Fergus Falls area. In some areas, outages lasted into early November. Losses exceeded $100 million USD (2014) at a time when there was far less infrastructure and property than there is today.



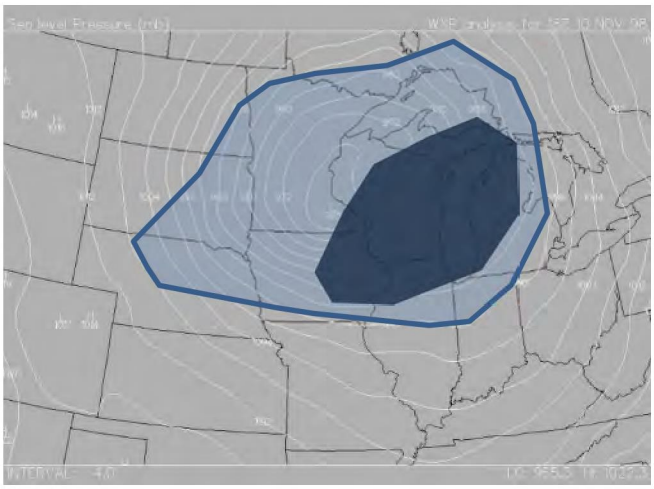
Surface weather map, Oct 10, 1940. Shaded area represents region of wind impacts. Dark area represents hurricane-force wind gusts Modified from Daily Weather Maps

This storm system produces a band of occasionally heavy rain that in some cases fell into the howling winds, producing visibilities near zero at times. The rain itself otherwise had a marginal impact (no significant flooding, no damage), and although severe weather was reported well to the south of the region, no other significant hazards preceded or followed the extraordinary winds in Minnesota and the Upper Midwest.

On November 10, 1998,
An explosively intensifying low pressure system tracked from Kansas to western Lake Superior, producing a wide array of dangerous weather conditions, punctuated by a deadly, long-lasting bout of non-convective extreme winds. The storm set the statewide low-pressure record (at the time), with 962.7 millibars registered at both Albert Lea and Austin.

Although most of Minnesota had widespread 30-50 mph winds, with gusts up to 75 mph, the most devastating winds stretched from central Iowa, through the majority of Wisconsin, and into Upper and western Michigan. These areas experienced up to 18 hours of sustained 35-50 mph winds with frequent gusts of 65-75 mph, and many gusts exceeding 85 mph, including a 93-mph gust recorded at the La Crosse NWS office. Wind gusts exceeded 85 mph over far southeastern Minnesota.

The winds resulted in 10 deaths, 34 serious injuries, and at least $50 million USD (2014) in damages. Wisconsin was hardest hit, but impacts were severe in Minnesota, where a school bus was blown of the road, and hunters in the Paul Bunyan State Forest were stranded in heavy snow and high winds because dozens of fallen trees blocked all possible exits. Near Foxhome in northwestern MN, 27 consecutive power poles were snapped.



Surface weather map, 12:00 PM CST, Nov 10, 1998. Shaded area represents region of wind impacts. Dark area represents hurricane-force wind gusts. Base map generated from Plymouth State Weather Center.

The Milwaukee and Green Bay, WI National Weather Service offices collected detailed information on the storm. Some of the worst impacts (all Wisconsin) included:

- Green Lake Co: barn leveled on outskirts of Berlin. Shingles ripped off business in Green Lake. Light poles bent by wind in Berlin.
- Sauk Co: Shed demolished in Baraboo area. Tree fell on trailer near Lake Delton. Many trees and power lines downed in eastern part of county near Wisconsin River, causing 1000 outages.
- Columbia Co: 50-year-old woman killed when blown into Wisconsin River, where extreme winds created powerful undercurrent. Semi-truck tipped over on I-94. Columbus, a home's brick chimney damaged, and roof of balcony ripped off.
- Iowa Co: elderly man near Cobb suffered head injury after being knocked down by a gust of wind. Semi-truck driver injured when vehicle flipped over by wind gust on Highway 80, just north of Stephens. Five other semi roll-overs in county. Apartment building and hotel in Dodgeville sustained roof damage. New home under construction demolished. Barn collapsed in rural Hollendale. New building destroyed near Spring Green.
- Dane Co: 87-year-old man died after car blown into him on north side of Madison. Capitol Square business had window blown in. Several businesses in Mt. Horeb sustained wind damage. Roof torn off multi-unit apartment building in Manona, and 4 other nearby buildings also damaged. Two businesses in Stoughton damaged. 12 semi-trucks flipped over in 10-min period on I-90/94, and several more on US18/151 and Hwy 51. Several barns in county damaged. Moored boats on Lake Kegonsa were pushed into each other, resulting in damage.
- Lafayette Co: Large portion of Darlington High School roof ripped off. Elsewhere in county, 5 farm buildings destroyed, 15 more damaged. Five homes in county sustained damage due to fallen trees, and 1 business suffered structural damage. Several county roads blocked by tree debris.
- Green Co: Semi roll-overs reported on US 11/81, and Hwy 81 in town of Monroe. Airplane flipped over at Brodhead airport. Silo roof blown off on County M. Damage inflicted on county salt sheds in New Glarus and Brodhead. Approx. 5000 customers without power at one time.
- Rock Co: Beloit, 25 large trees knocked down, damaging several homes. 1/3 of Janesville Parker High School roof torn off. Evansville, two businesses with blown-in windows, and siding

peeled off on 5 other buildings. Edgerton, 2 homes sustained damage from fallen trees, 5 businesses lost siding. Approx. 14,000 county electrical customers without power.

- Fond du Lac Co: City of Fond du Lac, sheet metal and siding on a church steeple peeled off by the wind, over 100 homes damaged. Eden, shed blown away. Two semis flipped by wind on Hwy 41, and cars pushed or blown into ditch. Oakfield, roof of pig barn ripped off. 2800 county electrical customers without power.
- Sheboygan Co: woman in Sheboygan injured by flying glass debris after window blown out of a business. Two other city businesses suffered roof/sheet metal damage. Barn near Plymouth leveled. Semi-truck tipped over on Hwy 23 west of Sunset Rd. Three homes in Sheboygan Falls damaged by felled trees.
- Dodge Co: scattered damage reported in all parts of county. Juneau, roof was ripped off business building. Three semi-trucks flipped over. Approx. 2000 county customers were without electrical power at one time. Multiple-vehicle accident near intersection of Hwy 151 and 16-60 due to vehicles being pushed sideways by gusts.
- Washington Co: Approx. 8000 customers lost electrical power. Two semi-trucks flipped over on Hwy 45, resulting in closure of road. County 911 center logged 54 calls for damage assistance. Barn blown down on Hwy 28 near Kewaskum. Several schools closed early.
- Ozaukee Co: Siding ripped off several homes and telephone poles snapped in Port Washington. Belgium, about 1/4 of roof was torn off building under construction. Several schools closed early in Mequon and Thiensville.
- Jefferson Co: Ft. Atkinson woman injured after when blown into side of her home. Semi-truck driver injured when truck flipped over on I-94 near Hwy 26 interchange. Another semi overturned by a gust on US 18 near Hwy 89. At least 17 homes in county sustained damage from tree debris. Many acres of corn crop flattened. Barn blown across Hwy 106 east of Ft. Atkinson. Approx. 6000 customers lost electrical power. Concrete wall of new grocery store In Ft. Atkinson, blown down.
- Waukesha Co: Two women injured in Muskego when tree fell on car. New Berlin man injured after motorized garbage cart rolled over by a wind gust. Hwy J, Pewaukee, driver injured after tree fell on car. Approx. 15,000 customers lost electrical power. Semi-truck flipped over by gust on I-94 near Hwy 83 interchange. At least 3 barns in county were badly damaged. In both Muskego and Sussex, two new walls at school construction sites toppled. Construction site on Hwy 36 near Burlington badly damaged. Several boats damaged on county lakes due to large waves.
- Milwaukee Co: 87-year-old man fell face-first onto sidewalk when door he was opening blown from his hand; went into coma and died November 16. Southridge Mall, woman sustained head injury when blown over in parking lot. Hundreds of trees uprooted across county, damaging dozens of homes, apartments, and businesses. 20,000 customers lost electrical power. Traffic lights knocked out of service at 75 intersections. A train sustained damage from tree debris while moving through northern part of county. Significant damage to gates, ground equipment, and signs at General Mitchell Int'l Airport.
- Walworth Co: Semi-truck driver injured after vehicle flipped over on Hwy 11 near Racine Co. line. Roof damage to at least 6 businesses and nursing homes in county. Semi-truck rollover on I-43 near the Hwy X interchange resulted in spilled fuel that closed road. Several Whitewater buildings and a stadium damaged. Walls blown down at construction sites in East Troy and Elkhorn.
- Racine Co: Woman injured when traffic signal light blew onto her vehicle. Racine, woman injured when tree fell on home. Police officer injured by flying debris while out on a call.

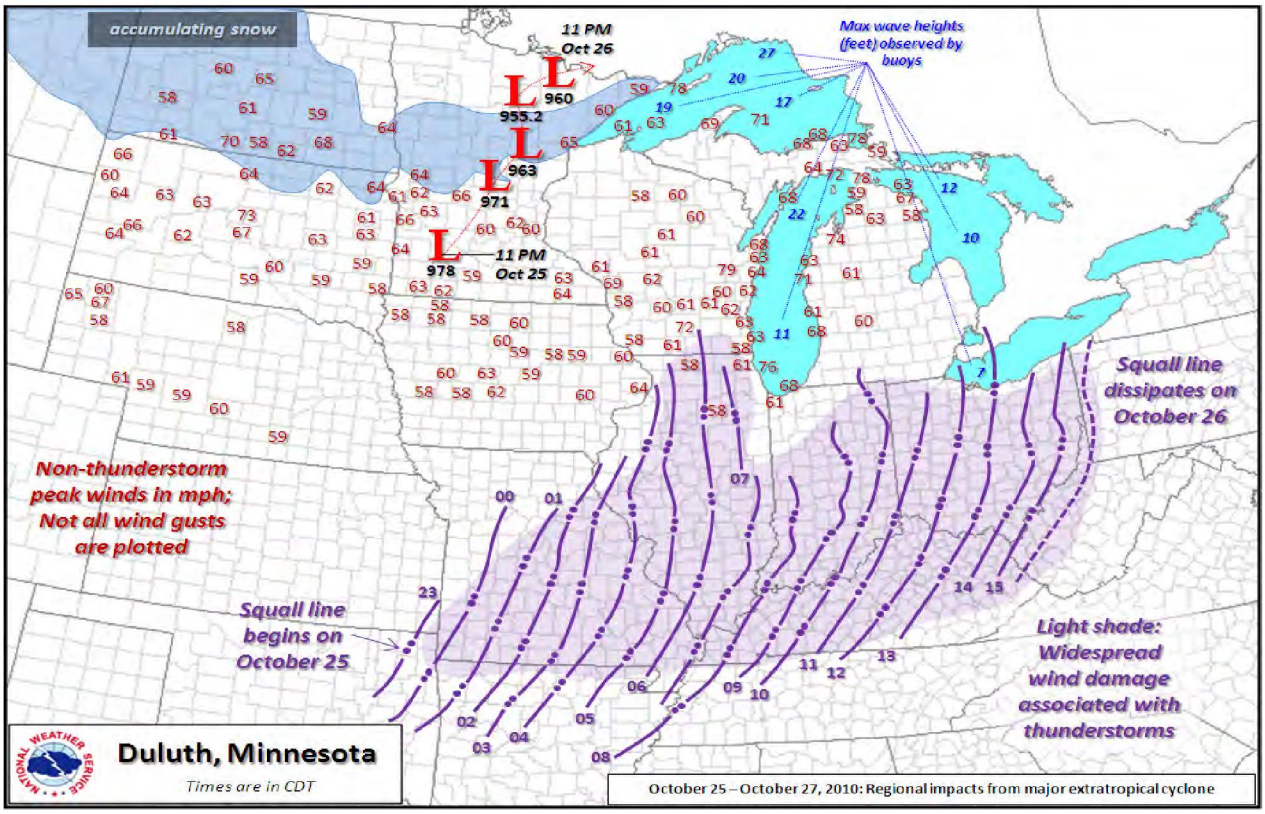
Construction wall blown down. Brown's Lake, shed destroyed. Several other homes and businesses sustained damage from trees.

- Kenosha Co: 16-year-old boy electrocuted in Bristol as he tried to escape after a wind gust toppled a live electrical line on his car. Near Salem on Hwy 50, small car partially airborne by wind gusts and blown into ditch. Semi-truck was flipped over on I-94.
- Brown Co: Kaukauna, several dozen homes evacuated when top of water tower holding 225,000 gallons blew off. Green Bay, Interstate 43 Tower Bridge closed because of multiple semi blow-overs.

The record-breaking extra-tropical cyclone October 25-27, 2010

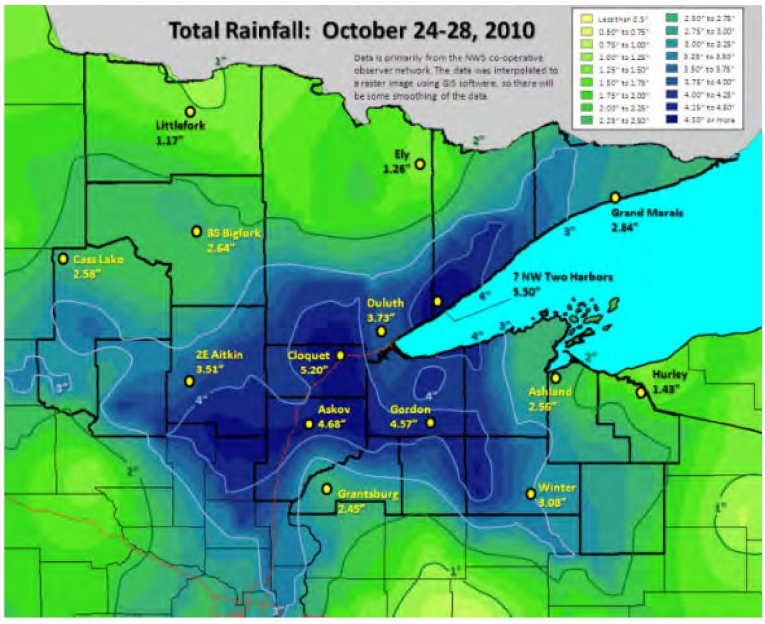
This system brought a widespread severe weather event and serial derecho to the lower-Midwest, followed by a massive, 2-day non-convective high wind event that stretched from the Dakotas and Nebraska to Michigan. The sea-level pressure of 955.2 millibars at Bigfork, MN shattered the previous state record set by the November 10, 1998, storm system. The reading at Bigfork is also the lowest on record anywhere in the Central US and is a mere 0.2 millibars from the record for contiguous US.

Despite the extraordinarily low pressure, the enormous area occupied by non-convective high winds, and the unusually long duration, this event lacked the wind severity of those in 1949 and 1998. 60 mph gusts were observed at most stations in the storm's 8-state footprint, but not a single station recorded an 80-mph gust. The winds produced nearly 500,000 power outages (at one point or another), toppled thousands of trees and power lines, but produced fewer casualties (2 fatalities and 8 injuries), and less property and infrastructural damage than the other systems. This result is not well understood, because wind speed and impacts tend to be highly and strongly correlated with the strength of the cyclone, as represented by its lowest sea-level pressure. It is possible that this event, for a currently unknown reason, failed to produce or incorporate the dynamical and mesoscale features that typically produce extreme winds in high-intensity systems.



Locations of non-convective 58 mph or greater gusts, cyclone center, and other hazards. Courtesy NWS Duluth.

The October 2010 event was also unusual because it produced pockets of excessive rainfall. Typically, strong regional winds aloft with these systems prevent thunderstorms from training and ensure that precipitation is not prolonged. Thus, the highest precipitation total is usually kept below 2 inches. In this case however, numerous clusters of thunderstorms formed just east of the advancing low center, producing widespread heavy rainfall. As the cyclone reached peak intensity, its forward motion slowed dramatically, and heavy stratiform precipitation (eventually changing to heavy snow) impacted many of the same areas that received repetitive thunderstorms. Portions of northeast Minnesota received over four inches

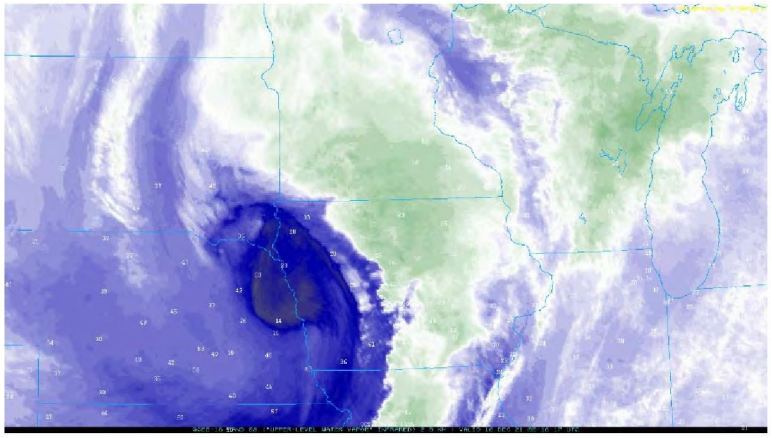


Rainfall associated with October 25-27 non-convective high wind event. Courtesv NWS Duluth.

of precipitation, with isolated reports of over 5 inches, resulting in flooded intersections, submerged roads, and minor damage to businesses and residences. The locations receiving the heaviest rainfall were in the same position with respect to the cyclone center as areas that often receive the most intense non-convective winds; fortunately, however, this storm did not produce such winds, and there were few or no compound flooding/extreme wind effects.

December 15, 2021

An unusual winter situation unfolded during this evening as a muggy airmass and a developing cyclone produced intense thunderstorms that raced northeastward from Nebraska into southeastern Minnesota, producing 22 tornadoes in the state, along with extensive straight-line wind damage.



Eye-like feature seen in eastern Nebraska on December 15, 2021, as severe thunderstorms advance through southeastern Minnesota and intense non-convective winds move northeastward with the circulation.

After the storms cleared the area, the intensifying low-pressure system responsible for them approached, with an "eye-like" center of circulation and a large area of strong non-convective winds. The winds moved into the same areas damaged by the severe thunderstorms. Rochester, for instance, recorded 77 mph wind gusts with the severe thunderstorms, and then three hours of 55-70 mph non-convective gusts, with another peak of 77 mph just before midnight local time. Throughout southern Minnesota, non-convective wind gusts reached 60-75 mph, producing tens of thousands of power outages as a much colder air mass settled into the region.

The non-convective winds were quite strong, especially considering the severe weather barrage they had followed, but the peak winds remained below the levels of those witnessed in 1949 and 1998, likely because this cyclone was not quite as intense, and because it was still gaining strength as the strongest winds passed through Minnesota.

4.3.12.8. Future trends/likelihood of occurrence B1e

Non-convective high winds are relatively rare, occurring, on average, fewer than three times per year in Minnesota. *Extreme* events are even rarer, and only affect some part of the state approximately once or twice per decade. Open areas of the state in the west and south are more conducive to extreme thunderstorm winds than other areas, but extreme non-convective winds do not appear to follow that pattern. If anything, extreme winds, and especially the impacts of them, are slightly more common in the hilly and tree-filled eastern parts of the state than on the open prairies.

The frequency of non-convective extreme wind in Minnesota is directly tied to the frequency of intense mid-latitude or extratropical cyclones. Unfortunately, the physical link between explosive cyclogenesis (the process that leads to intense low-pressure systems) and human-caused climate change, is not well understood, so research into the future of these systems has been inconclusive, with results depicting all possible scenarios.

Consultation of all available research suggests that extreme non-convective winds have a frequency like high-end tornado events, with recurrence intervals on the order of multiple decades within Hennepin County.

4.3.12.9. Indications and Forecasting

Forecasting authority for non-convective high wind events rests with local National Weather Service forecast offices. High-intensity mid-latitude cyclones are usually well anticipated by the numerical weather prediction models. As a result, forecasters tend to have high awareness of potentially strong winds 2 days or more before they develop. In ideal situations, progression of NWS products used will include a Hazardous Weather Outlook, High Wind Watch, and High Wind Warning. In some cases, damaging and even deadly winds have arisen within Wind Advisories.

Despite high awareness of strong regional wind potential, most non-convective high wind events in the region, and *all* extreme events, have been under-forecast. As a result, the impacts have come as surprises. An after-action report from the disastrous 1949 event concluded that forecasters had "little evidence by which the severity might have been forecast." Although forecasting techniques have improved dramatically since that time, underestimation is still a concern. The November 10, 1998, event forecast products made no mention of winds exceeding 65 mph, yet there were dozens of separate instances of winds exceeding 80 mph throughout the region. Even the lower-impact, October 2010 event had dozens of gusts exceeding the maximum thresholds named in forecast products. The forecasting challenges arise from a combination of low event frequency, low priority (when compared with other hazards), and limited understanding of the latest research.

Recently, mechanisms contributing to cyclone-related, non-convective extreme winds have become better understood. Events with extreme winds share the following commonalities:

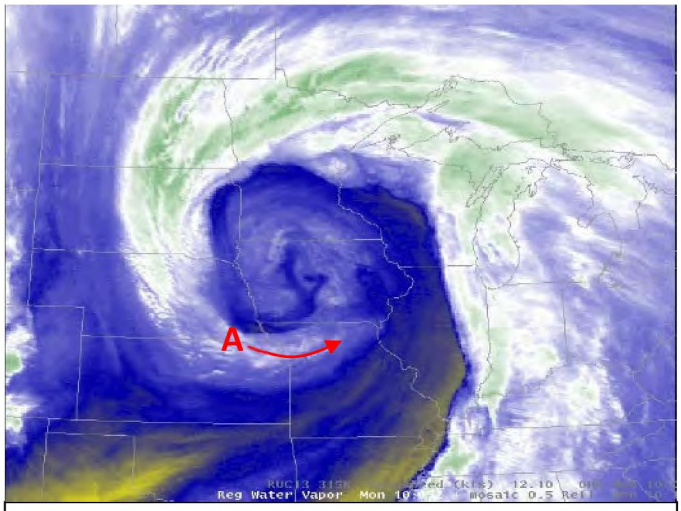
Intense cyclone. The strongest 5% of cyclones in the Upper Midwest have minimum sea-level pressure of 980 millibars or lower and produce strong regional winds. Both the likelihood and coverage of high and extreme winds increase as the minimum pressure drops, with 972 millibars serving as a threshold below which both are almost guaranteed.

→ *The first indicator that extreme winds are possible is the forecast of a sub-980 millibar cyclone within the region. The lower the forecast minimum pressure, the greater the potential for impacts. Potential can be ascertained several days in advance.*

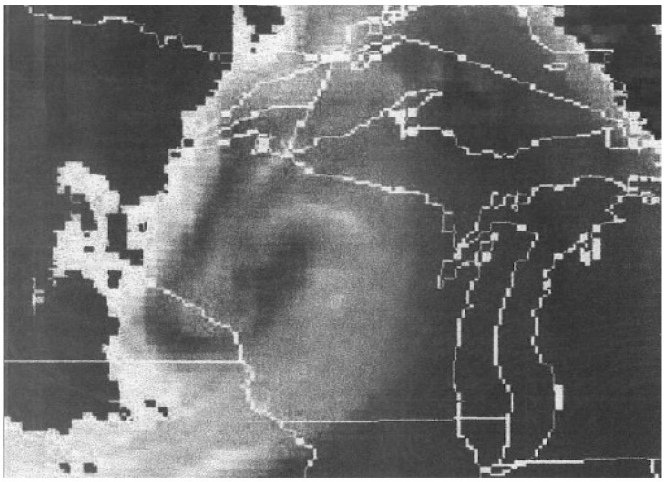
Cyclone passes north or northwest of area. Although non-convective strong and high winds can be distributed widely throughout the cool side of any intense cyclone, the most extreme winds tend to be found to the south of the center of low pressure, especially in cyclones whose minimum pressure is below 972 millibars. This is most likely within 300 miles of the cyclone, but distances vary depending on the circulation structure. For example, the October 1949 event had its maximum impact area 150-300 miles southeast of the low, versus 25-150 miles to the south of the low in the November 1998 event.

→ *The second indicator that extreme winds are possible is if the sub-980 millibar cyclone is forecast to pass northwest or north of the area. The nearer the cyclone (to the north/northwest), the greater the potential for impacts, especially if the minimum pressure is forecast below 972millibars. Potential can be ascertained 1-3 days in advance.*

Presence of a "sting jet" or "mesoscale dry hook." The most intense non-convective winds tend to form in the cool air circulation that wraps around and to the south of the cyclone, in association with one of two features. The first is the "sting jet," which is associated with the pointed end of the comma-shaped cloud formation that wraps around the low. It is so named because of its resemblance to a scorpion tail. Another feature is the "mesoscale dry hook," which is a sharp, reverse-J-shaped feature that forms in the tightly rotating comma head, which is found, incidentally, north, and west of the sting jet. The strongest winds are often found near the base of the hook. The two features often move closer to each other as a cyclone reaches maximum intensity. Both are associated with descending or drying air, often originating in the strong winds in the mid-troposphere or above. If the descending air makes it to the ground, extraordinarily strong surface winds can result. The science is not sufficiently evolved to determine exactly which events were sting jets, mesoscale dry hooks, or both. However, either one is an excellent indicator of extreme wind potential when a surface cyclone is of sufficient intensity (indicator 1 above). It should be noted that these features may form in the absence of a strong cyclone, but their airflows will remain aloft and therefore will not pose serious threats.



Sting jet (A), in association with strong system on Mar 12, 2012. Courtesy University of Wisconsin CIMSS.



Mesoscale dry hook with November 10, 1998, cyclone. Source: Iacopelli and Knox 2001.

→ *The third indicator that extreme winds are possible is the formation of a sting jet or a mesoscale dry hook (or both), which can be detected on satellite products.*

TABLES 4.3.12A and 4.3.12B can be used as guides for anticipating non-convective wind impacts, based on pressure ranges, distance from the cyclone, and location relative to the cyclone.

TABLE 4.3.12A

High Winds	Nearest distance to cyclone center					
	> 500 mi		300-500 mi		< 300 mi	
Lowest Pressure (mb) >980	Isolated	Isolated	Isolated	Low	Low	Low
Lowest Pressure (mb) 972-980	Low	Low	Low	Mod	Mod	Mod
Lowest Pressure (mb) <972	Low	Low	Mod	Mod	Hi	Hi
	No	**Yes**	**No**	**Yes**	**No**	**Yes**
	Does cyclone pass northwest or north of area?					

Likelihood and coverage of high wind impacts, given cyclone intensity, distance, and location.

TABLE 4.3.12B

Extreme Winds	Nearest distance to cyclone center					
	> 500 mi		300-500 mi		< 300 mi	
Lowest Pressure (mb) >980	Unlikely	Unlikely	Unlikely	Isolated	Isolated	Low
Lowest Pressure (mb) 972-980	Isolated	Isolated	Low	Low	Low	Mod
Lowest Pressure (mb) <972	Isolated	Isolated	Low	Mod	Mod	Hi
	No	**Yes**	**No**	**Yes**	**No**	**Yes**
	Does cyclone pass northwest or north of area?					

Likelihood and coverage of extreme wind impacts, given cyclone intensity, distance, and location.

4.3.12.10. Critical Values & Thresholds

Because duration is such an important component of the wind loadings and total impacts, no firm thresholds have been determined for non-convective wind speeds. However, research has shown that some impacts emerge when gusts exceed 60 mph. When gusts exceed 75mph, impacts are often widespread, and casualties tend to increase dramatically.

4.3.12.11. Preparedness

If planning to be outdoors for a significant length of time, be aware of the weather forecast, especially if you will be well-removed from sturdy shelter. Stay "connected" via television, radio, NOAA Weather Radio, or social media. Non-convective high wind events rarely occur without warning, although warning lead times may be comparatively limited during the evolution of an extreme wind episode. Because protracted and extensive electrical and communication disruptions may occur, set aside emergency water and food supplies, can openers, batteries, and flashlights.

4.3.12.12. Mitigation

Education and Awareness Programs

- Field construction crews, public works employees, and those who work or spend significant time outdoors should be educated about these risks.
- Members of the public should understand the risks posed by non-convective wind events.
- Educating homeowners on the benefits of wind retrofits such as shutters and hurricane clips.
- Ensuring that school officials are aware of the best area of refuge in school buildings.
- Educating design professionals to include wind mitigation during building design.

Structural Mitigation Projects – Public Buildings & Critical Facilities

- Anchoring roof-mounted heating, ventilation, and air conditioner units
- Purchase backup generators
- Upgrading and maintaining existing lightning protection systems to prevent roof cover damage.
- Converting traffic lights to mast arms.

Structural Mitigation Projects – Residential

- Reinforcing garage doors
- Inspecting and retrofitting roofs to adequate standards to provide wind resistance.
- Retrofitting with load-path connectors to strengthen the structural frames.

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4.3.12.13. Recovery

Recovery from non-convective high winds can take weeks and may be complicated by a combination of cold weather, power outages, fallen trees, ice, or snow. In forested areas, logging activities may be significantly impacted, and fuel loads may exacerbate the potential for wildland fire. In addition to power outages, persistent wind loading on structures has at times caused gas line ruptures.

4.3.12.14. References

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4.3.13.	Hazard Assessment: ICE STORMS

4.3.13.1. Definition

Ice storms are major winter weather events that produce accumulations of ice, either from rain falling in sub-freezing surface temperatures, or from heavy sleet.



Significant ice storm damage in southwestern Minnesota in April 2013. Courtesy MPR.

In Minnesota and Hennepin County, ice storms form most commonly ahead of a warm front, resulting in warm air being lifted over colder air in place, producing precipitation that is warm enough for rain but then freezes on contact with sub-freezing objects. When the front is associated with strong low pressure, the precipitation can be quite heavy, with rapid ice accumulations. With weaker systems or when the front is stationary, it may produce sustained light to moderate precipitation for many hours. Either situation can lead to ice-related impacts.

If the layer of freezing air near the surface is deep enough, the precipitation will fall as sleet instead of freezing rain. The granular nature of sleet generally makes it less of a damage and safety hazard than freezing rain, but sleet is nevertheless often a part of major ice storms.

4.3.13.2. Range of magnitude

Magnitude of ice accumulation is rarely measured, and most accounts are purely anecdotal. Severe ice storms in Minnesota have been reported to leave a glaze up to 3 inches thick.

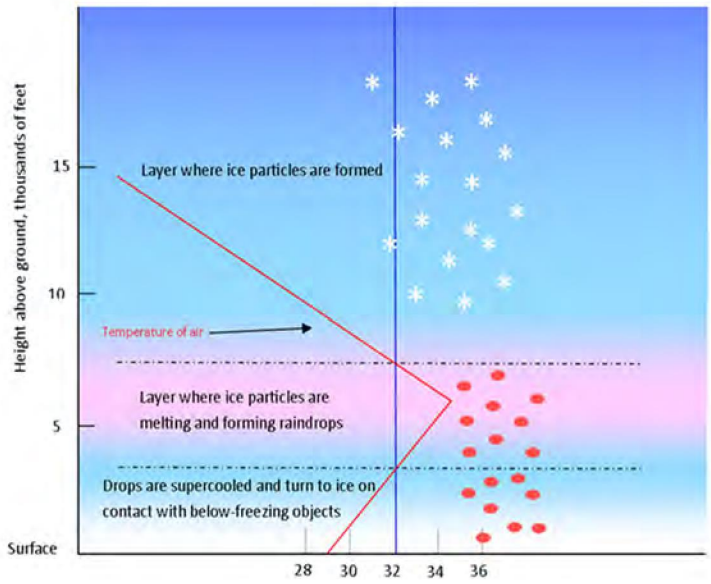
4.3.13.3. Spectrum of consequences B2b

Heavy accumulations of ice can bring down trees, topple utility poles, and damage communications towers, disrupting power and communications for days, while utility companies make extensive repairs. Ice also damages roofs, gutters, and downspouts, and falling tree limbs often cause devastating secondary damages to structures and vehicles.

Even small ice accumulations can be extremely dangerous for motorists and pedestrians, and ice storms often result in increased accidents, falls, and injuries. The following categories represent the most common and severe consequences for ice storms:

Outdoor life safety hazards

If associated with a severe winter weather system, heavy snow, strong winds, falling temperatures and dangerous wind chills may follow the ice storm. Persons caught outside unprepared can face disorientation, frostbite, hypothermia, and death. 25% of winter storm casualties occur among those caught outside in the storm.



Temperature profiles associated with freezing rain. Source: Midwest Regional Climate Center.
http://mrcc.isws.illinois.edu/living_wx/icestorms/

Power/utilities

Ice storms can cause power outages from direct loading on electrical wires, and more commonly from indirect sources, for example when tree limbs become overloaded with ice and fall onto wires. Ice accumulations greater than a quarter inch can cause widespread power outages, and strong winds exacerbate this impact. The duration of service outages is typically related to the complexity of the outage pattern, along with the ability of crews to get to repair sites. Thus, prolonged ice storms with strong winds are associated with higher outage numbers and longer service delays.

Structural damage

Ice storms can damage roofs at residences, and at larger commercial facilities as well. Large roof spans lacking consistent support are especially vulnerable. Secondary damage from falling ice-coated tree limbs is especially common. These falling limbs are often significantly heavier because of the ice and can break windows and damage downspouts and gutters. In if the rain is especially heavy, ice can penetrate vulnerable locations in roofs, deforming them and often leading to significant water damage to plaster and drywall materials inside the structure.

Transportation

Ice storms are especially dangerous to the transportation. Major ice storms can paralyze the entire transportation system, including public transportation and airports. Spinouts and accidents frequently number in the hundreds. However, most large ice storms are anticipated, and road treatments are possible ahead of time. Smaller events from freezing drizzle only cause minor ice accumulations, but when unforeseen, can be devastating. A thin glaze from freezing drizzle on November 20-21, 2010, resulted in several hundred reported accidents, and at least two fatalities.

4.3.13.4. Potential for cascading effects

Extended power outages

An ice storm that knocks out power becomes much more dangerous as the time to restore service increases. This is especially true of storms that are followed by a rapid drop in temperatures. Residences and facilities dependent on electrical power for heat distribution can become dangerously cold within hours of power loss.

Moreover, it is not uncommon for a major ice storm to be followed by or transition to a heavy snowfall event or blizzard. In these cases, the ice produces the initial critical loading, but then the snow and/or wind acts as the "final straw," resulting in severe and widespread power outages. In these situations, the snowstorm or blizzard is just another link in a chain of cascading hazards already in progress.

Flooding

Depending on hydrological and meteorological conditions, ice storms may prime areas for both flash-flooding, and river flooding. Flash-flood scenarios unfold when the glaze of ice is especially thick, temperatures rise to slightly above freezing, and a period of heavy thunderstorms or heavy rain occurs before the ice can melt. Because of ice restricting flow into storm sewers, falling rain can lead to rapid ponding on roads and low-lying areas. If the storm water infrastructure is not obstructed, a heavy glaze on the land will prevent absorption by soils, and will direct falling rain directly into area streams, which may rise rapidly. It should be noted that these scenarios to date are extremely rare, and reports in Minnesota have been highly localized.

River flooding can occur after a major ice storm if a large snowpack had been present and/or additional rain falls over a large area. The melted snow would be the initial cause of rising river levels, which would then be exacerbated by rain falling over ice, and to a lesser extent by the melting ice itself. Like flash-flooding, these situations are not common and would require a convergence of many factors. The main risks would occur during the late winter snowmelt period.

Severe weather

In rare situations, it is possible for ice storms to follow or be followed by a significant severe weather event. November, March, and April are currently the most likely months. Power outages and compromised communications from ice storms may limit situational awareness needed to heed severe weather warnings. A direct hit by a major severe weather event on an area recently affected by an ice storm would further complicate damages and compound clean-up efforts. Similarly, an ice storm following a damaging severe weather event would threaten to worsen the impacts significantly, with additional tree, power, structural, and interior damage possible.

4.3.13.5. Geographic scope of hazard B1c

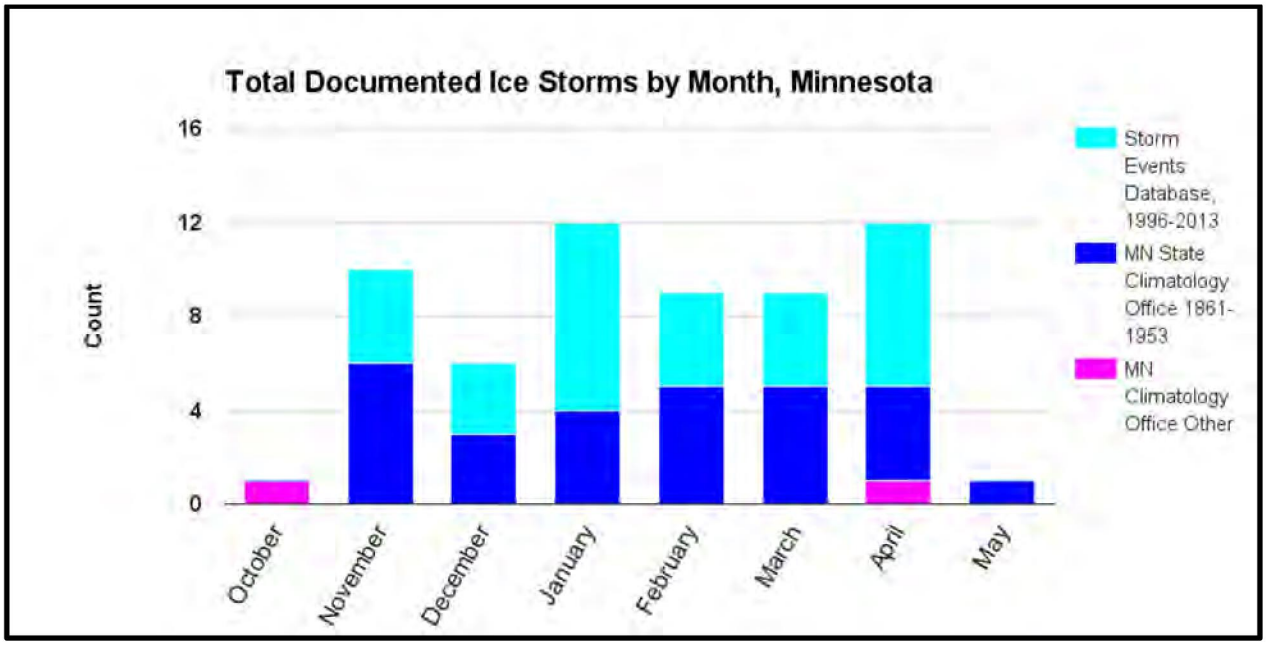
Most major ice storms in Minnesota affect thousands to tens of thousands of square miles--generally an area the size of 10-20 southern Minnesota counties. There have been larger events, and ice storms in the central and southern US often cover 50-100 thousand square miles at a time, with total footprint of up to 250 thousand square miles in some cases.

The State Climatology Office has noted that historically, ice storms have tended to favor higher terrain locations just inland from the north shore of Lake Superior, and along the Buffalo Ridge in southwestern Minnesota. While ice storms have affected every part of Minnesota, these areas have elevated frequencies.

4.3.13.6. Chronologic patterns (seasons, cycles, rhythm)

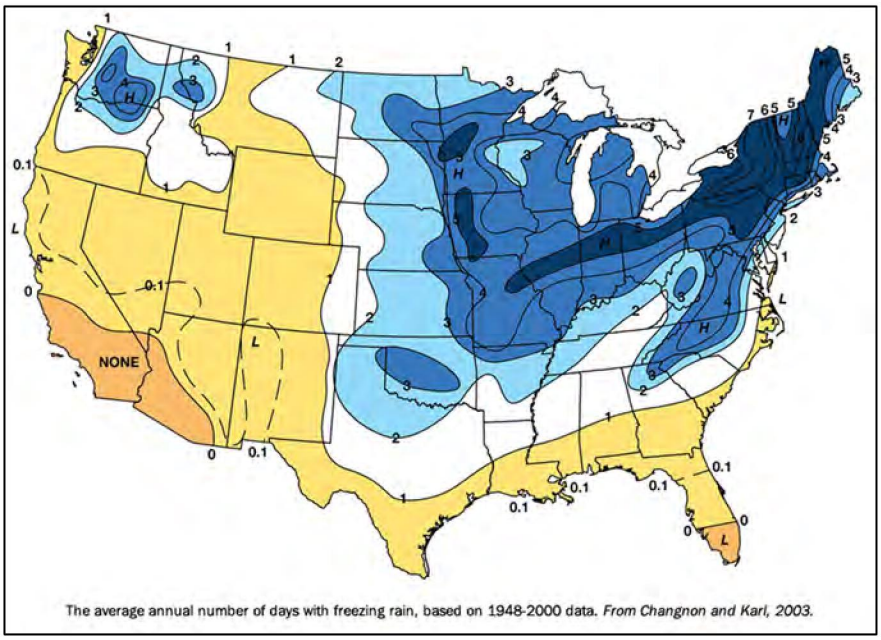
GRAPHIC 4.3.13A shows the peak months, historically, for ice storms in Minnesota are January and April, but the main season should be considered November through April. Rare ice storms have occurred in Minnesota in October and May.

GRAPHIC 4.3.13A



4.3.13.7. Historical (statistical) data/previous occurrence B1d

Most parts of Minnesota average between 3 to 5 days of exposure per season. Approximately 6 to 9 hours of that time includes freezing rain. It should be noted that freezing rain and drizzle can occur while transitioning between rain and snow weather patterns.



The average annual number of days with freezing rain, based on 1948-2000 data. *From Changnon and Karl, 2003.*

The frequency of true ice storms, however, is much lower. Thirty ice storms affected Minnesota in the 20 winter seasons between 1995-96 and 2014-15, yielding an approximate frequency of 1.5 per year. However, ice storms can be highly episodic and clustered in time, with no ice storms in five of those years (25%), and six events during the 1996-97 winter alone.

The following noteworthy ice storms affected various parts of Minnesota:

Feb. 22, 1922.
Blizzard, ice and thunderstorms across Minnesota, with winds hitting 50 mph in Duluth while thunderstorms were reported in the Twin Cities. Heavy ice over southeast Minnesota with 2 inches of ice on wires near Winona. Over two inches of precipitation fell in many areas. This was also one of the largest ice storms in Wisconsin history with ice four inches in diameter on telegraph wires. One foot of ice-covered wire weighed 11 pounds.

Jan. 9-10, 1934.
*S*leet and ice storm over southwest Minnesota. Hardest hit was Slayton, Tracy, and Pipestone. The thickest ice was just east of Pipestone with ice measuring 6 to 8 inches in diameter. At Holland in Pipestone County 3 strands of #6 wire measured 4 ½ inches in diameter and weighed 33 ounces per foot. The ice was described as: "very peculiar in formation being practically round on three sides, the lower side being ragged projectiles like icicles: in other words, pointed. The frost and ice were wet, not flaky like frost usually is. In handling this, it could be squeezed into a ball and did not crumble."

March 3-5, 1935.
Called "the worst ice storm in Duluth's history," the area covered by this storm was centered on Duluth and extended up the Lake Superior coast to Beaver Bay, and east to Ashland, WI. The worst of the storm extended about 40 miles to the west and south of Duluth. The storm began in the evening of March 3, with rain and wet snow falling at the Duluth Weather Bureau, and a temperature of 26 degrees. By morning the snow stopped but the rain continued. Ice had accumulated to ⅜ inches by 11 AM and ⅞ inches at 4PM, at which point the lights started going out. By the morning of the 5th, ice coatings were measured at 1.5 inches and Duluth was virtually cut off from the outside world, except for short wave radio. A local ham radio operator sent the Duluth Weather Bureau reports. Four streetcars had to be abandoned in the storm, three of them in the western part of the city. A heavy salt mixture and pick axes were used to try to free the stuck streetcars. A one-mile stretch of telephone poles along Thompson's Hill was "broken off as if they were toothpicks" due to the ice. A Duluth, Masabi & Northern Railway engineer estimated up to 7 inches of ice on cables in Proctor. 75% of shade trees were reported ruined in Moose Lake, with thousands of trees stripped of their limbs. Hibbing also had damage due to ice with the breaking of large and small branches. The Portal Telephone Company in the city of Superior, Wisconsin noted ice from ½ to 1 ½ inches in diameter.

Nov. 10-11, 1940
(Armistice Day Storm). This destructive storm also produced up to ½ inch of ice on wires with ice thickness to 1 inch in Pine City and Lake Benton. Combined with fierce winds, damage to power poles was widespread. In correspondence with M.R. Hovde, the meteorologist in charge of the US Weather Bureau Office, Northwestern Bell reported:

- *Northwestern Bell and Tri-State Telephone & telegraph Company Repairs and Replacements. $79,000 total estimated cost.*
- *Thickness of ice on wires- Generally 1/8-to-1/2-inch diameter. 1 inch in diameter in two small areas.*
- *Time ice first began to form- Early morning of November 11, 1940*
- *Length of time ice remained on wires- About 24 hours.*
- *Locality of heaviest ice formation- 1-inch diameter in small area near Pine City. 1-inch diameter in vicinity of Lake Benton.*

- *Approximate number of wires down -1600*
- *Approximate number of poles down -2400*
- *Extent of delay of service- Average 18 hours for toll and 36 hours for exchange lines out of service.*
- *Remarks: The above covers damage to both Northwestern Bell and Tri-State Telephone Company plant in Minnesota. The greatest damage was in the area about 20 miles east and west of a line from Sandstone to Albert Lea.*

Jan. 14, 1952.
Glaze, sleet and ice storm across Minnesota from St Cloud south into Iowa. 1,100 Northwestern Bell telephone wires down. The Buffalo Ridge in the Pipestone area the hardest hit with ¾ inches of solid ice on Northern State Power wires with icicles to 3 inches. Northwestern Bell reported ice to 1 ½ inches of ice on their wires in the same area. Thunder and a shower of ice pellets accompanied the storm in New Ulm and Mankato. Minneapolis General Hospital treated 81 victims of falls on icy streets.

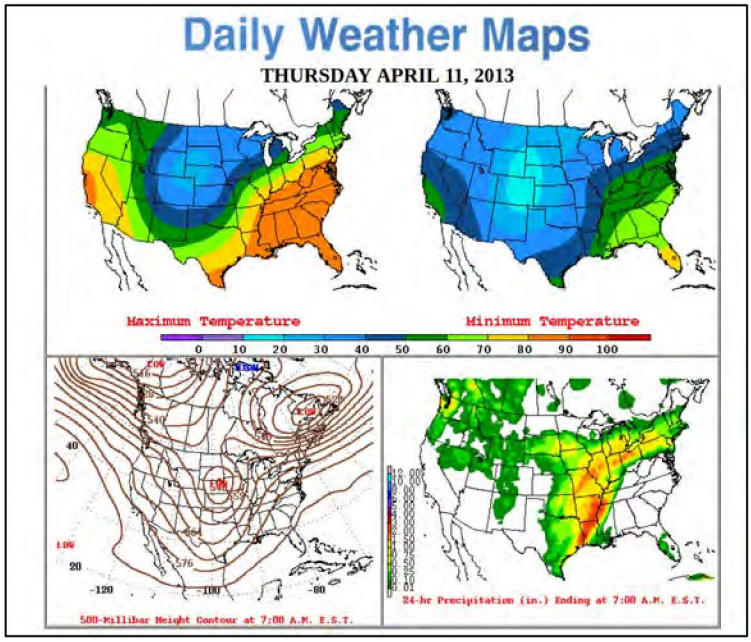
North Shore Ice Storm, March 23-24, 2009.
A vigorous area of low pressure moved out of western Nebraska on March 22, and an area of moderate rain reached northeast Minnesota after midnight on March 23rd. The surface air was warm enough in places like Ely and Hibbing for only minor ice accumulations. However, along the north shore of Lake Superior, near-surface air temperatures remained below freezing. Moderate rain continued through the day and tapered off by the early morning hours of March 24th. Two-day precipitation totals include .91 inches at Grand Marais and 1.94 inches at Duluth. The .91 inches at Grand Marais was freezing rain.



Power outages began as tree branches snapped and downed power lines. Some of the places hardest hit were Two Harbors, Finland, and Grand Marais. 2,000 people were without power in Lake County. The crashing sounds of tree branches could be heard in the woods at Wolf Ridge Environmental Learning Center.

November 20-21, 2010.
A dangerous weather situation set up late on Saturday November 20th and into early Sunday morning the 21st, as freezing drizzle and light freezing rain spread northward. Although ice accumulations were very light, the glaze caused treacherous driving conditions, resulting in over 400 accidents and two deaths in Minnesota.

Southwest Minnesota Ice Storm, April 9-11, 2013.



A slow-moving low-pressure system pumped copious amounts of moisture up into a subfreezing air mass, resulting in up to 48 hours of nearly continuous freezing rain in southwestern Minnesota, eastern Nebraska, northwestern Iowa, and eastern South Dakota. Just north of the freezing rain, heavy, wet snow accumulated 6-14 inches. In southwestern Minnesota, hundreds of trees and power poles were snapped by the ice, which accumulated to nearly 1" thick near Worthington. Extensive secondary damage occurred to residences and vehicles, as tree limbs snapped off and crashed through windows. Power outages lasted days in some areas. Governor Dayton issued Executive Order 13-03, to authorize state assistance for recovery efforts in southwestern Minnesota.

There have been no other incidents that are within the scope of this plan.

4.3.13.8. Future trends/likelihood of occurrence B1e

Little is known about future trends with respect to ice storm activity. On one hand, damaging ice storm frequency may decrease, as more and more winter events fall as above-freezing liquid. Another argument is that more events that would have been snowstorms will contain freezing rain, and hence, more ice storms. Yet another line of reasoning suggests that increased wintertime moisture will result in more heavy precipitation events, including heavy rain and freezing rain. The topic has received little research attention, so there is virtually no "consensus" about what is likely to happen.

4.2.13.9. Indications and Forecasting

The Twin Cities/Chanhassen forecast office of the National Weather Service is the official forecasting authority for major winter weather events affecting Hennepin County, including ice storms. High-intensity winter storms are usually well anticipated by the numerical weather prediction models, often up to a week in advance, and forecasters tend to have high awareness of potentially dangerous winter conditions two days or more before they develop. The potential for significant ice accumulation 1-3 days out is also monitored by the Weather Prediction Center, at NOAA/NWS headquarters.

4.3.13.10. Detection & Warning

Warning authority for ice storms also lies with the Twin Cities/Chanhassen forecast office of the National Weather Service. An urgently severe ice storm will be covered by an Ice Storm Warning, which indicates

over a quarter inch of ice accumulation is expected. These situations may lead to damage and power outages, in addition to dangerous or impossible travel.

If a severe ice storm is expected with other winter hazards, especially snow, the NWS may cover all hazards under a Winter Storm Warning. Similarly, lesser ice accumulations with lighter accumulating snow may be covered under a Winter Weather Advisory.

4.3.13.11. Critical values and thresholds

Ice storm or Winter Storm Warnings will be issued when over ¼ inch of ice accumulation is expected. Damage to trees, along with power outages, increase dramatically after ½" of ice accumulation.

4.3.13.12. Preparedness

Because ice storms are likely to disrupt power and disable local transportation routes, before the storm strikes, homes, offices, and vehicles should be stocked with needed supplies. At home or work, primary concerns are loss of heat, power and telephone service, and a shortage of supplies in prolonged or especially severe and disruptive events.

Essential Supplies

- Flashlight and extra batteries
- Battery-powered NOAA Weather Radio and portable radio to receive emergency information.
- Extra food and water such as dried fruit, nuts and granola bars, and other food requiring no cooking or refrigeration.
- Extra prescription medicine
- Baby items such as diapers and formula
- First-aid supplies
- Heating fuel
- Emergency heat source: properly ventilated fireplace, wood stove, or space heater
- Fire extinguisher, smoke alarm; test smoke alarms once a month to ensure they work properly.
- Extra pet food and warm shelter for pets
- Back-up generator (optional) but never run a generator in an enclosed space.
- Carbon monoxide detector
- Outside vents should be clear of leaves, and debris, and cleared of snow after the storm.

4.3.13.13. Mitigation

Education and Awareness Programs

- Vehicle fleet crews and others who spend substantial time on the road should be familiar with NWS warning products, jurisdictions, and be familiar with how to obtain pertinent information. All professional drivers should carry winter weather survival supplies.
- Members of the general public should understand the risks posed by winter storms, and should review the information available at https://dps.mn.gov/divisions/hsem/weather-awareness-preparedness/Pages/winter-storms.aspx.

4.3.13.14. Recovery

Recovery from a major ice storm can take days, or even weeks if it is complicated by a combination of other weather hazards. In forested areas, logging activities may be significantly impacted, and fuel loads from fallen trees may exacerbate the potential for wildland fire. In addition to power outages, persistent wind loading on structures, associated with powerful winter storms, has at times caused gas line ruptures.

4.3.13.15. References

Changnon, S. A., & Karl, T. R. (2003, 09). Temporal and Spatial Variations of Freezing Rain in the Contiguous United States: 1948–2000. *Journal of Applied Meteorology J. Appl. Meteor., 42*(9), 1302-1315. doi:10.1175/1520-0450(2003)0422.0.co;2

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SECTION 5	VULNERABILITY ASSESSMENT

After hazards were identified, they were given a ranking of “high”, “medium” or “low”. This was based on their probability of occurrence, their impact on population, critical infrastructure, and the economy. Each participating municipality may have differing degrees of risk exposure and vulnerability compared to others due their geographic proximity to the hazard. However, many of the hazards are countywide risks due to their size and their impacts, and because not all are geographically specific. Under each map portion is a hazard ranking justification statement of why the hazard was given the ranking it received.

5.1 Hazard Ranking Maps B1b

The following pages provide hazard rankings (in alphabetical order) for the following hazards:

GRAPHIC 5.1A	Blizzard	212
GRAPHIC 5.1B	Climate Change	213
GRAPHIC 5.1C	Drought	214
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GRAPHIC 5.1F	Extreme, Heat	217
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GRAPHIC 5.1H	Flooding, River	219
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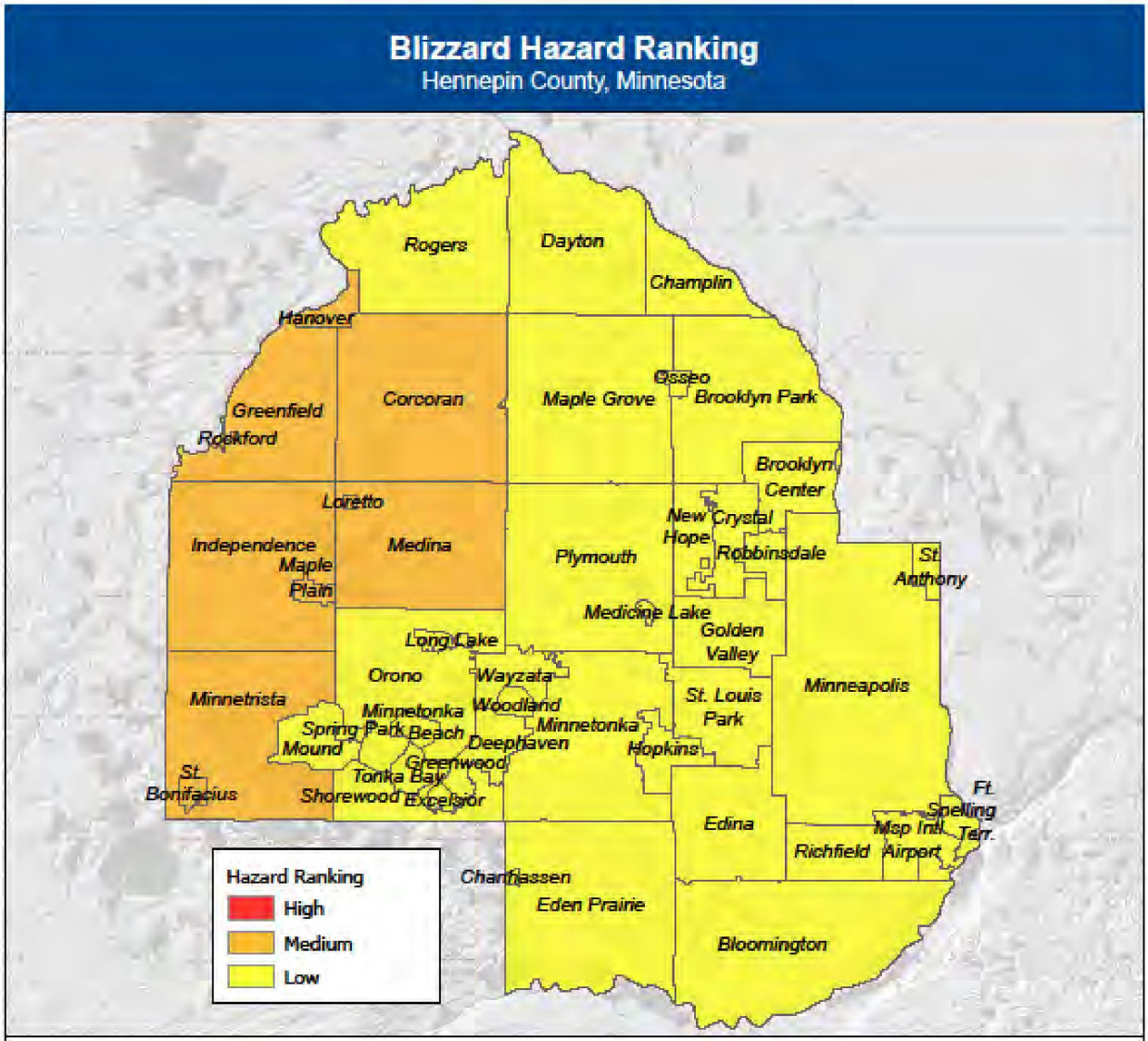
GRAPHIC 5.1N	Winds, Non-Convective	225
GRAPHIC 5.1O	Winds, Straight-Line	226
GRAPHIC 5.1P	Winter Storm	227

GRAPHIC 5.1A Blizzard



Hazard Ranking Justification

Occurrences, impacts and land use were all used in the methodology for ranking Blizzards as a hazard in Hennepin County. Hennepin County has winter storms with high winds occur each year, and being blizzards are the most dangerous class of winter storms, they come with high impacts. In addition to blizzard conditions occurring each year in Minnesota, the MLCCS Hennepin County Land Cover map was used to determine areas of Hennepin County with artificial surface. These artificial surfaces are strongly associated with where buildings and higher populated areas are. The areas with less than 50% artificial surfaces were ranked at higher risks for blizzards because they are more susceptible to high winds and blowing snow with visibilities less than ¼ mile. It is tougher, although not impossible, to get visibility less than ¼ with areas that are built up more because of building blocking wind and blowing snow.

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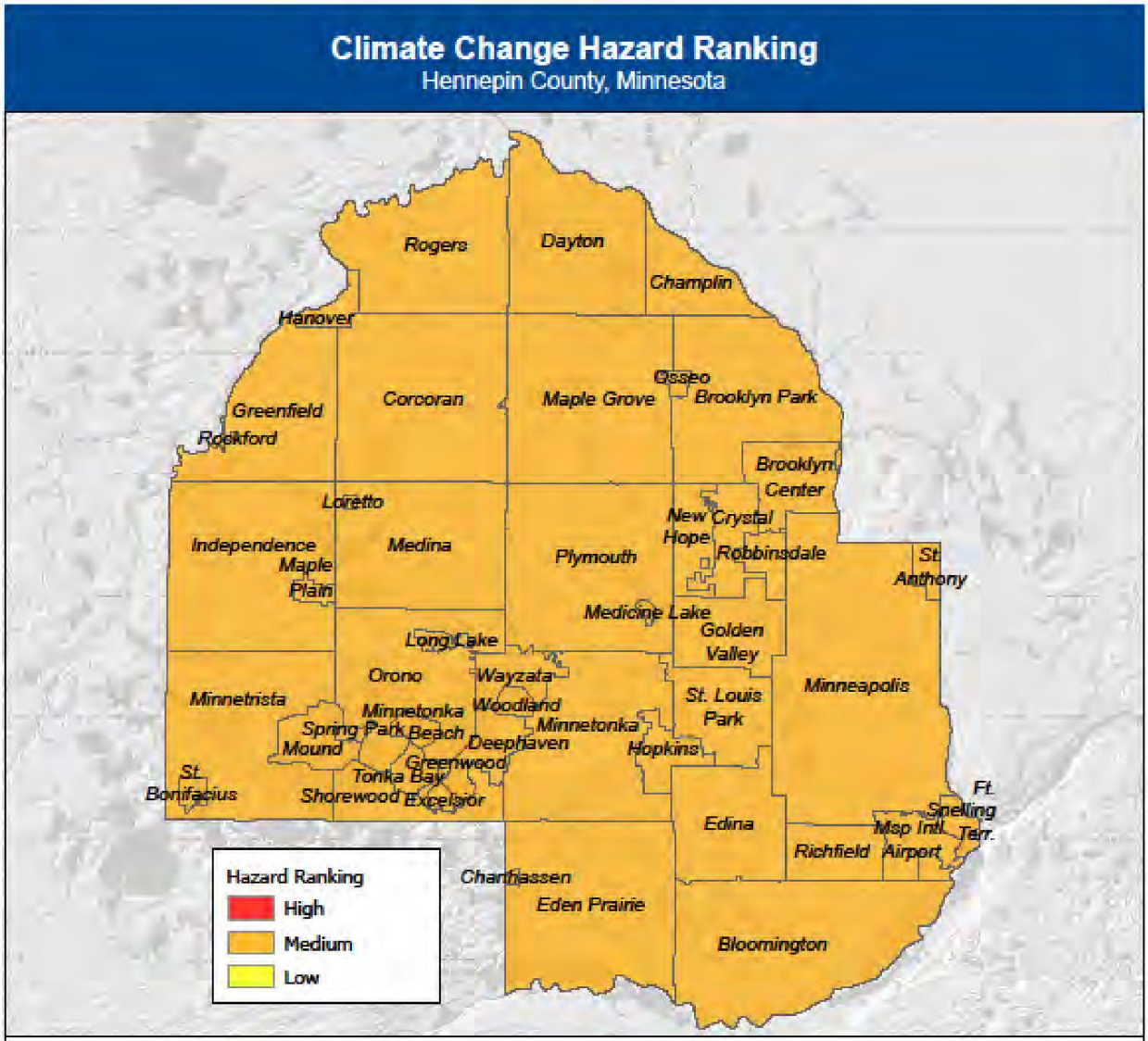
GRAPHIC 5.1B Climate Change



Hazard Ranking Justification

Impacts, its long lasting consequences, and time onset were the primary methods used in ranking Climate Change as a hazard in Hennepin County. Unlike other hazards, climate change is slow onset and we will not see day to day consequences, but long term consequences. Reasoning behind why because of this slow onset that climate change across Hennepin County is ranked as medium is because of the impacts and consequences as it applies to other hazards within Hennepin County.

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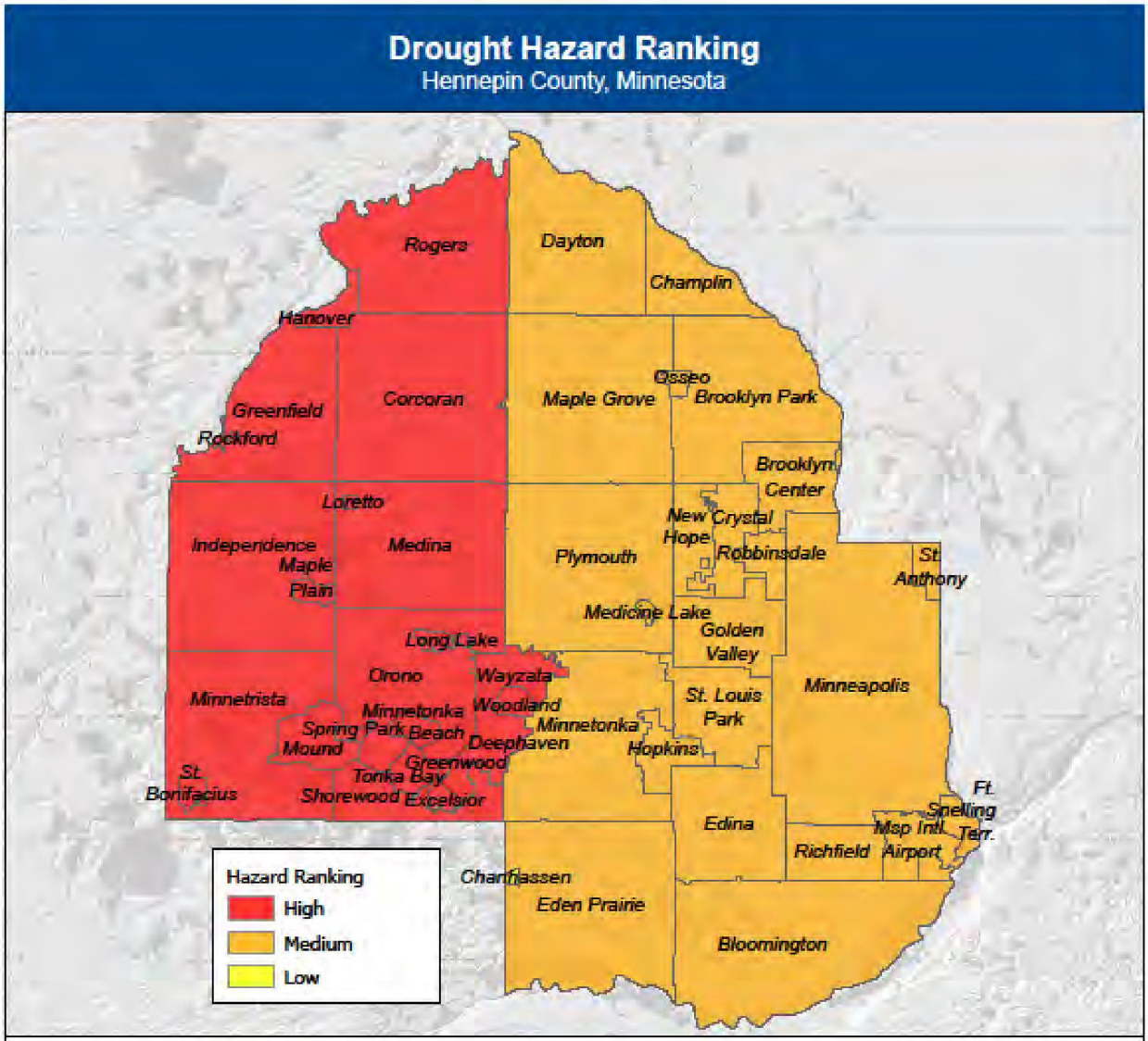
GRAPHIC 5.1C Drought



Hazard Ranking Justification

Occurrences and impacts were the primary methods used to rank Drought as a hazard across Hennepin County. Every single year, part if not all of Hennepin County is included within a level of drought according to the United State Drought Monitor. Drought can have impacts on many aspects across the county, which is what started the baseline at medium ranking for this hazard. The western side of the county is much more agriculture heavy than the east side, which can have more impacts and consequences because of drought, which is what gave the west side of Hennepin County a high ranking.

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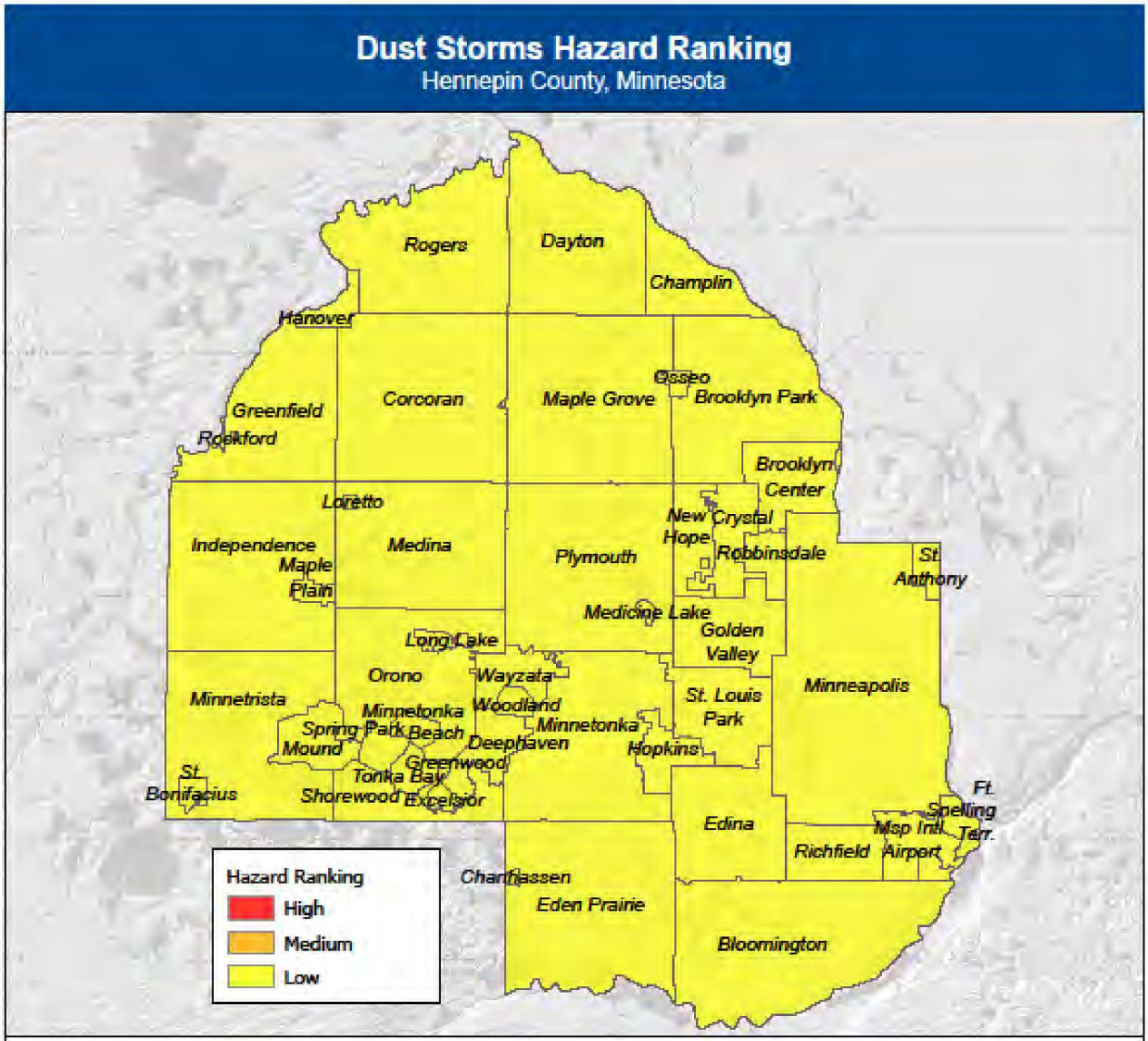
GRAPHIC 5.1D Dust Storms



Hazard Ranking Justification

Occurrences and historical data were the primary methods used to rank Dust Storms as a hazard across Hennepin County. Dust storms are rare across Hennepin County. Although they can happen, this low frequency and since we have not seen a true dust storm in many years are the reasons this hazard is ranked low.

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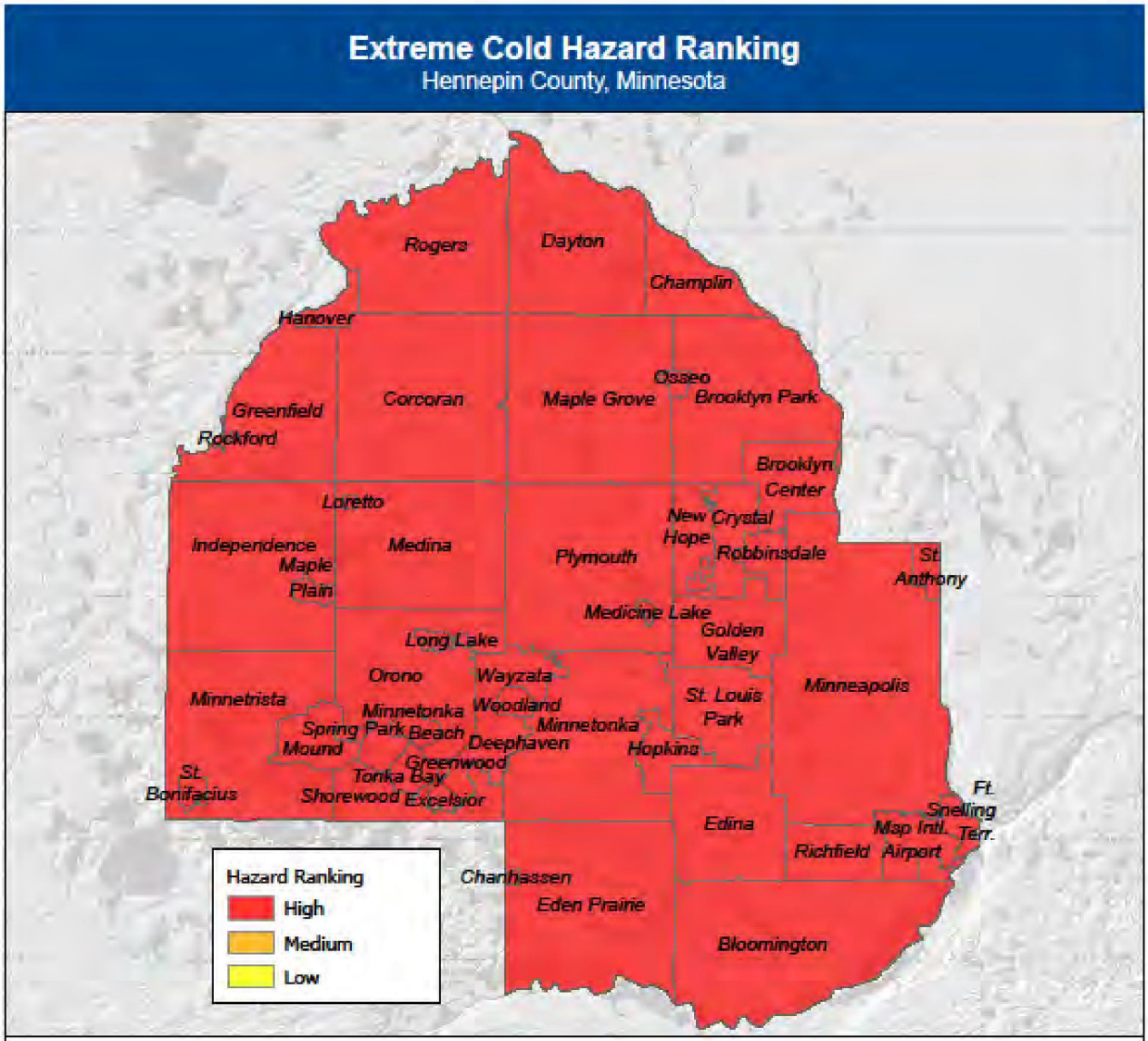
GRAPHIC 5.1E Extreme Cold



Hazard Ranking Justification

Occurrence and impacts were the primary methods used to rank Extreme Cold as a hazard across Hennepin County. Extreme cold temperatures occur every year across Hennepin County. In addition, they can have extreme consequences and impacts, especially if extreme cold conditions persist for long periods of time.

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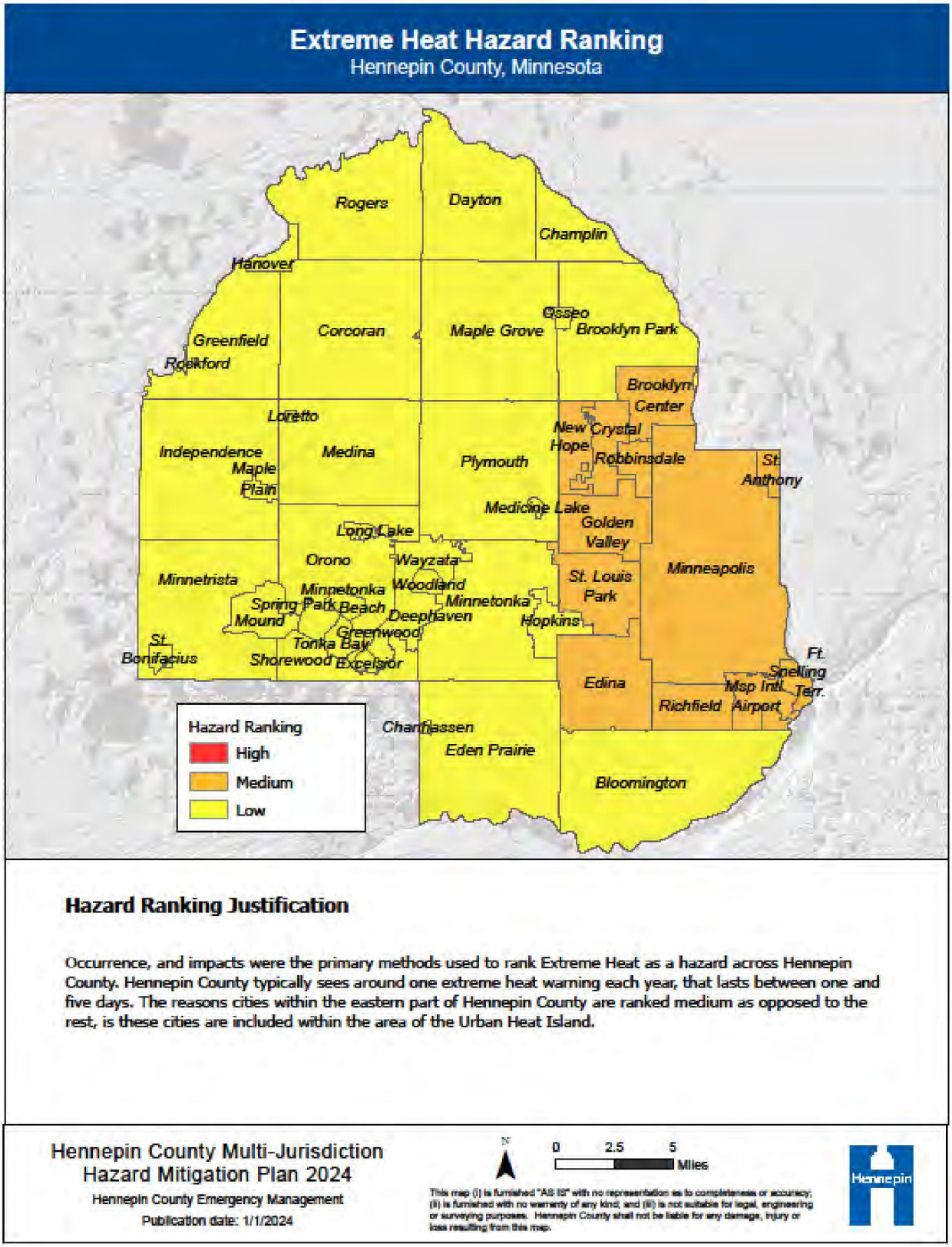
GRAPHIC 5.1F Extreme Heat



Hazard Ranking Justification

Occurrence, and impacts were the primary methods used to rank Extreme Heat as a hazard across Hennepin County. Hennepin County typically sees around one extreme heat warning each year, that lasts between one and five days. The reasons cities within the eastern part of Hennepin County are ranked medium as opposed to the rest, is these cities are included within the area of the Urban Heat Island.

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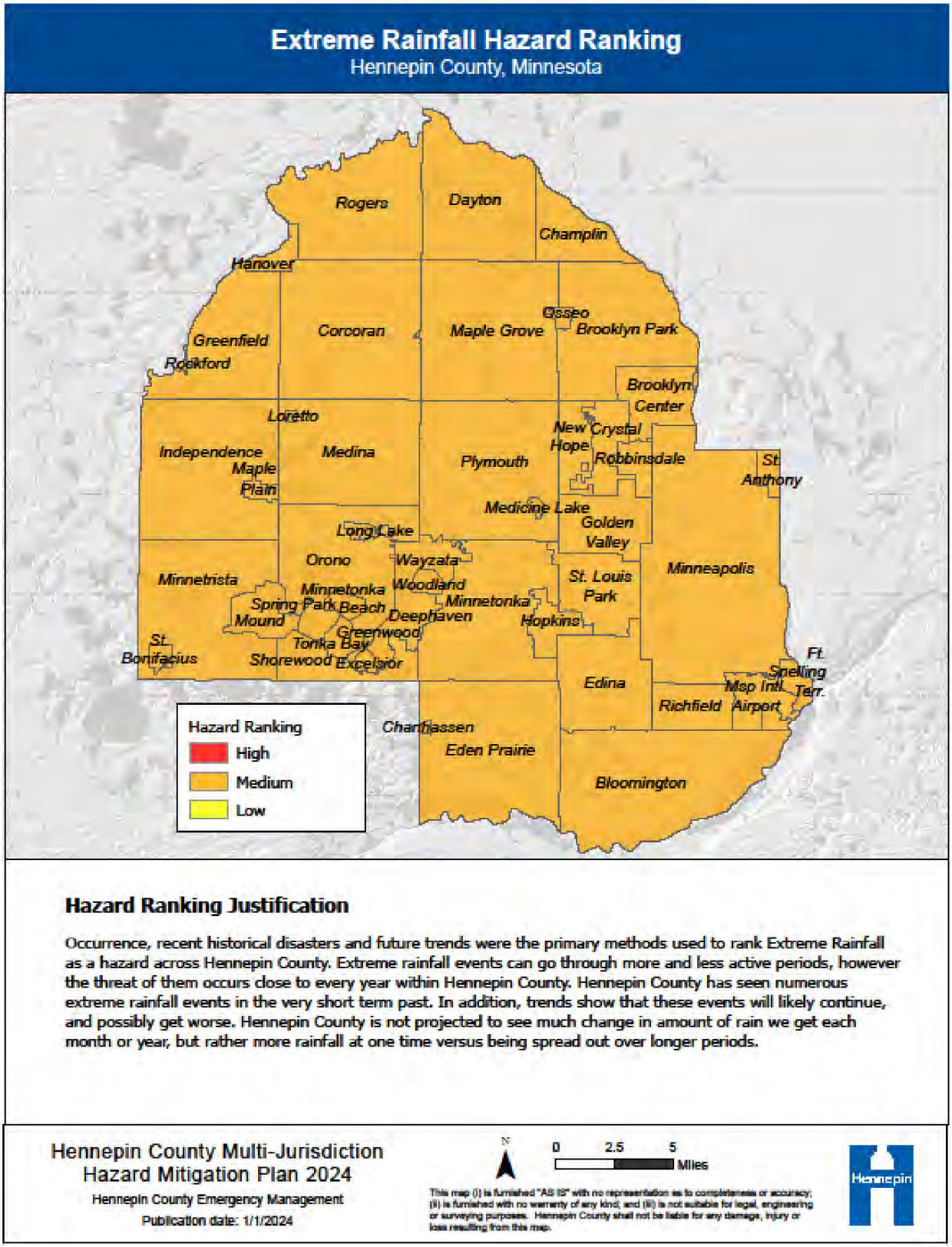
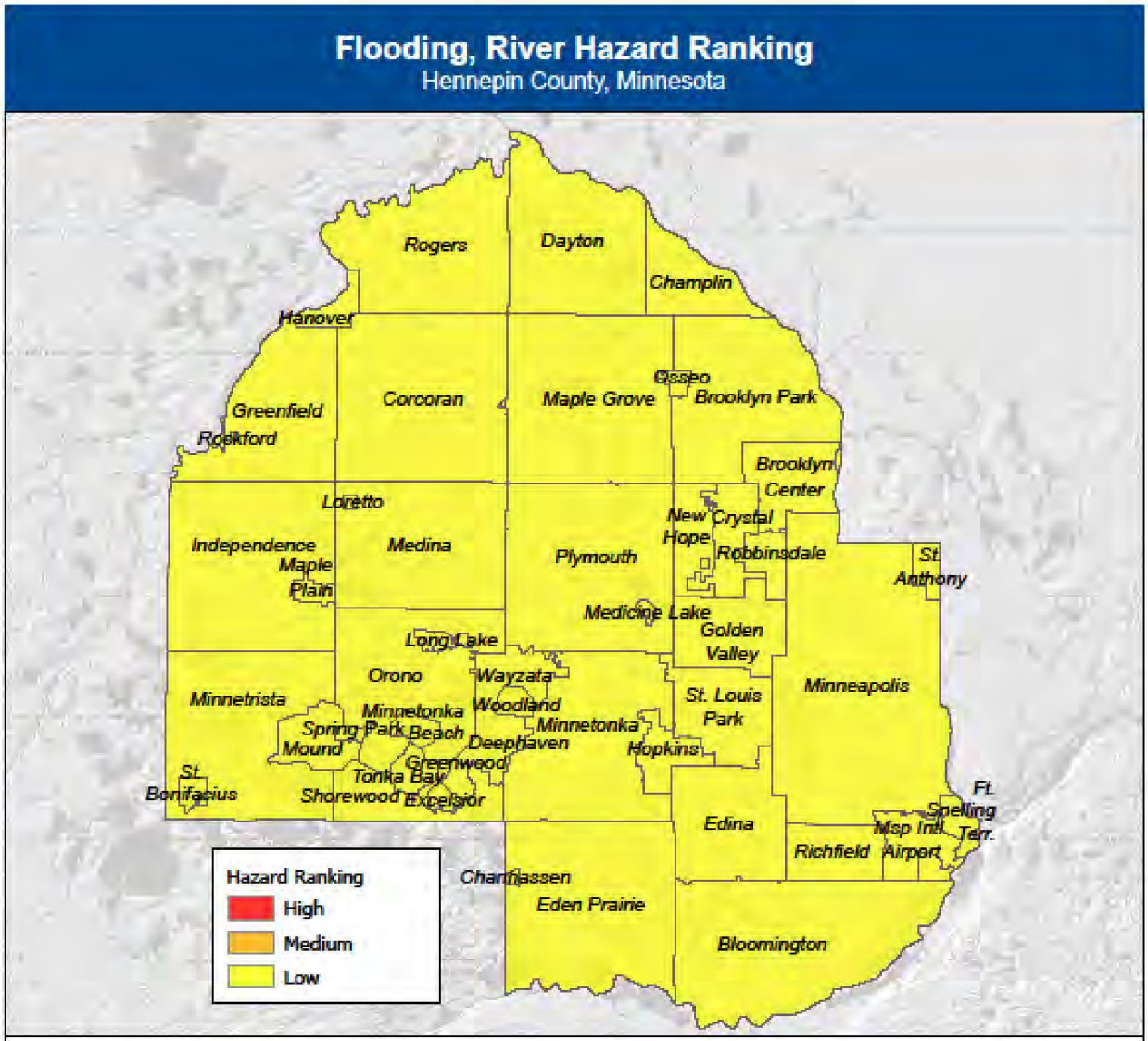
GRAPHIC 5.1G Extreme Rainfall



GRAPHIC 5.1H Flooding, River



Hazard Ranking Justification

Occurrence, impacts, and the Hennepin County FEMA Floodplains Map were the primary methods used to rank River Flooding as a hazard across Hennepin County. Hennepin County has three major river basins that travel along its boarders: Crow River, Mississippi River, and the Minnesota River. Every year at least one of these rivers has warnings issued. The Crow River on the northwest side of Hennepin County is ranked higher has hazardous than the Mississippi and Minnesota Rivers because the Crow River does not have as high of banks, cliffs associated with it. The FEMA Floodplains Map shows all the rivers being impacted by a 100 year flood. However, there is more infrastructure that could be damaged along the crow more easily than along the Mississippi or the Minnesota Rivers.

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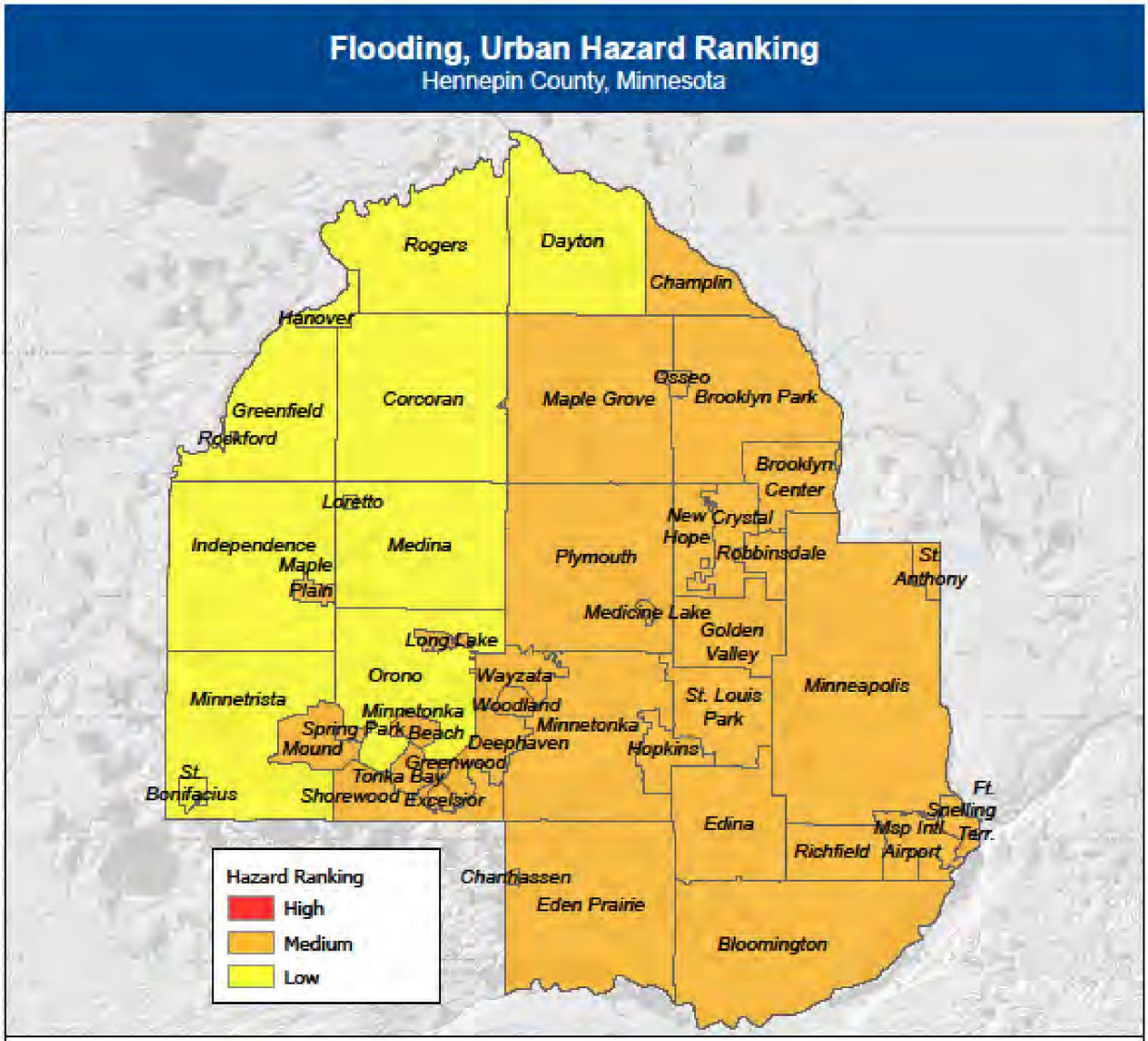
GRAPHIC 5.1I Flooding, Urban



Hazard Ranking Justification

Land use, and the Hennepin County FEMA Floodplains Map were the primary methods used to rank Urban Flooding as a hazard across Hennepin County. If cities had greater than 50% area covered by artificial services, there were ranked as medium versus low like the rest of the county. This is because the more artificial surface, the more runoff we will see versus infiltration. The FEMA Floodplains Map was used to guide the area around Lake Minnetonka. Every city around the lake looks to be impacted by the 100-year flood.

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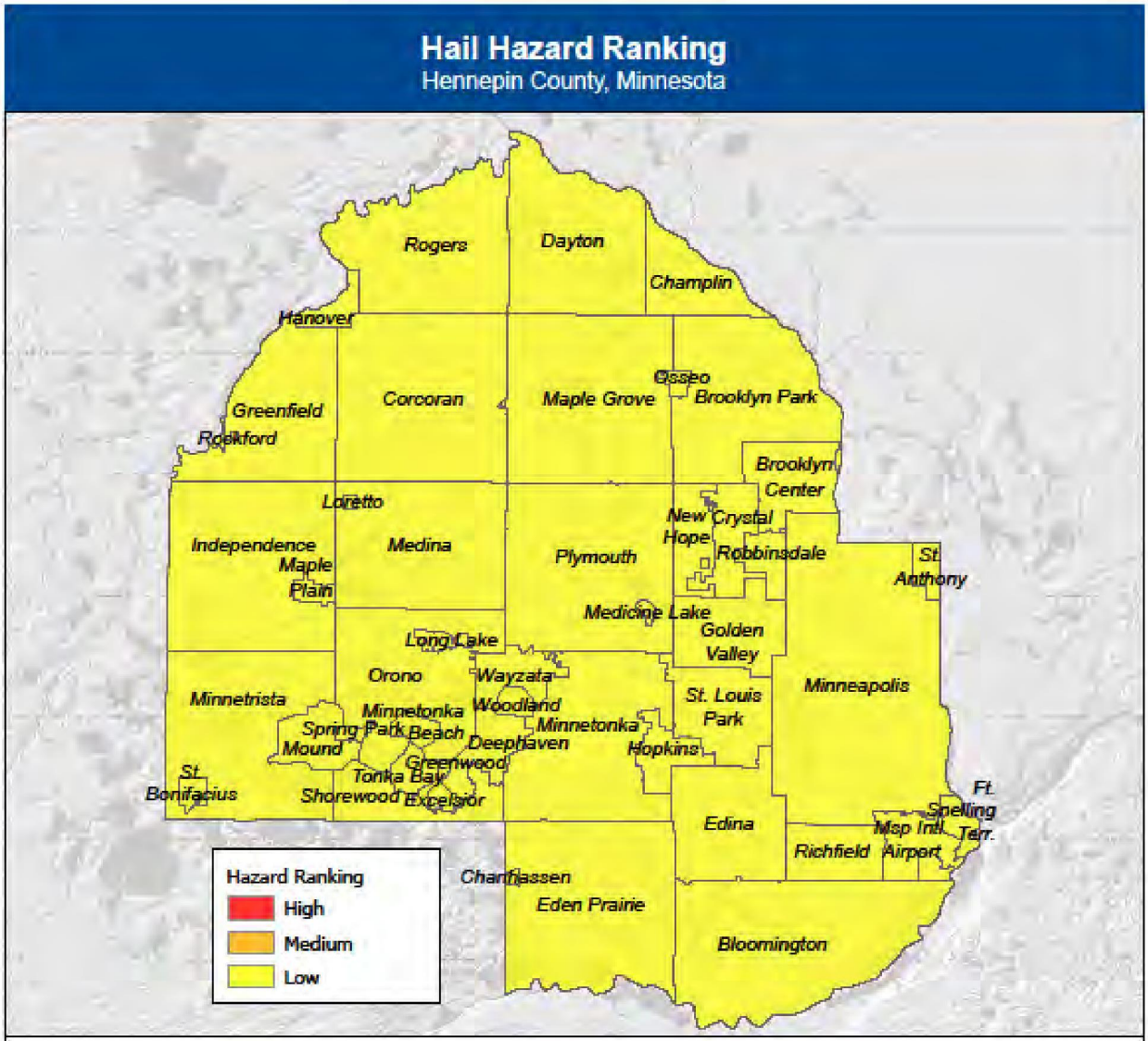
GRAPHIC 5.1J Hail



Hazard Ranking Justification

Occurrence, impacts, and historical evidence were the primary methods used to rank Hail as a hazard across Hennepin County. Hail within the borders of Hennepin County occur every year. While we have seen hail in excess of three inches in diameter, the majority of hail occurring within Hennepin County has been less than two inches. In addition, there typically is less of a threat to public infrastructure than private residences with hail storms. While hail storms can cost a lot in damages, those high cost hail storms do not occur within Hennepin County on a frequent basis.

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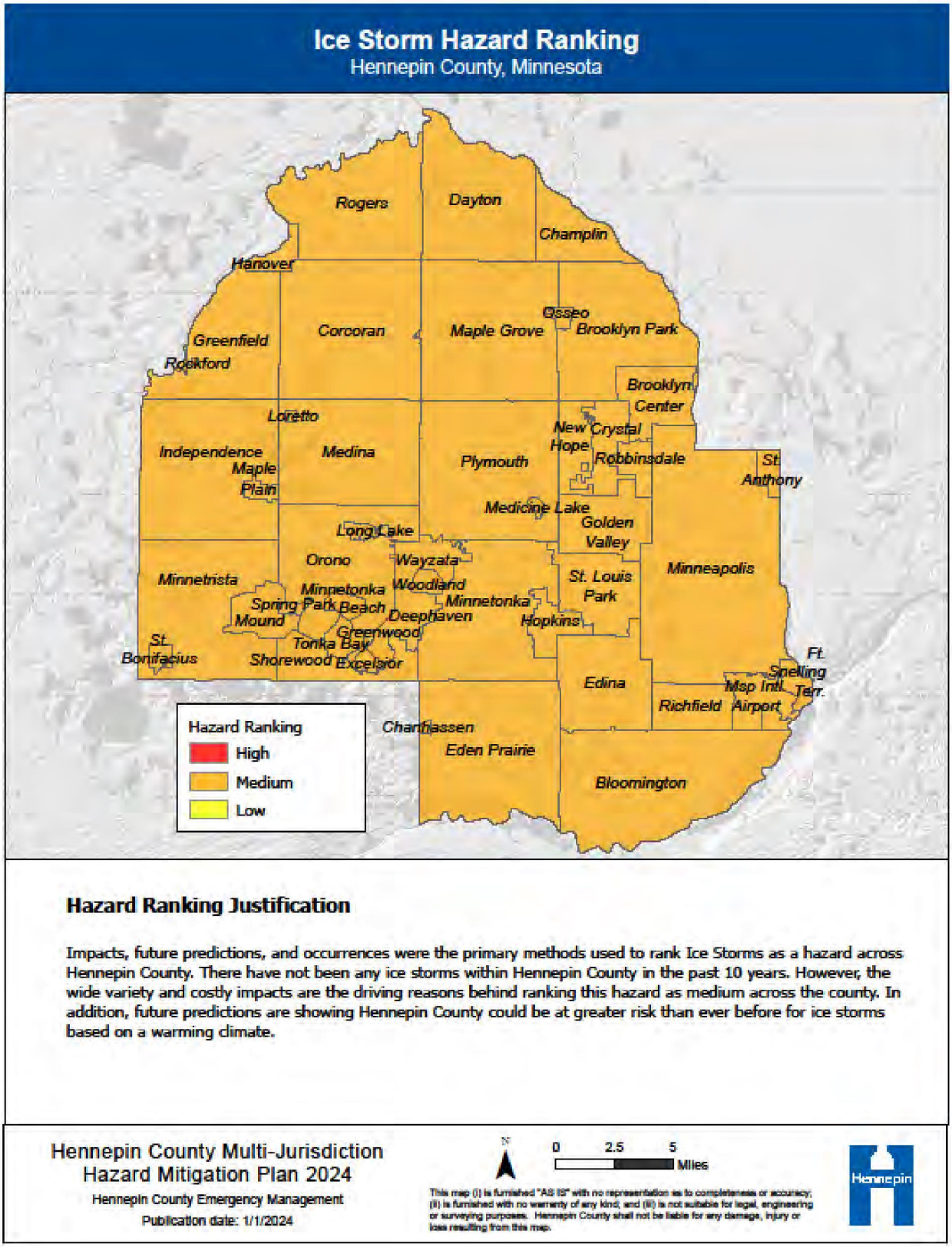
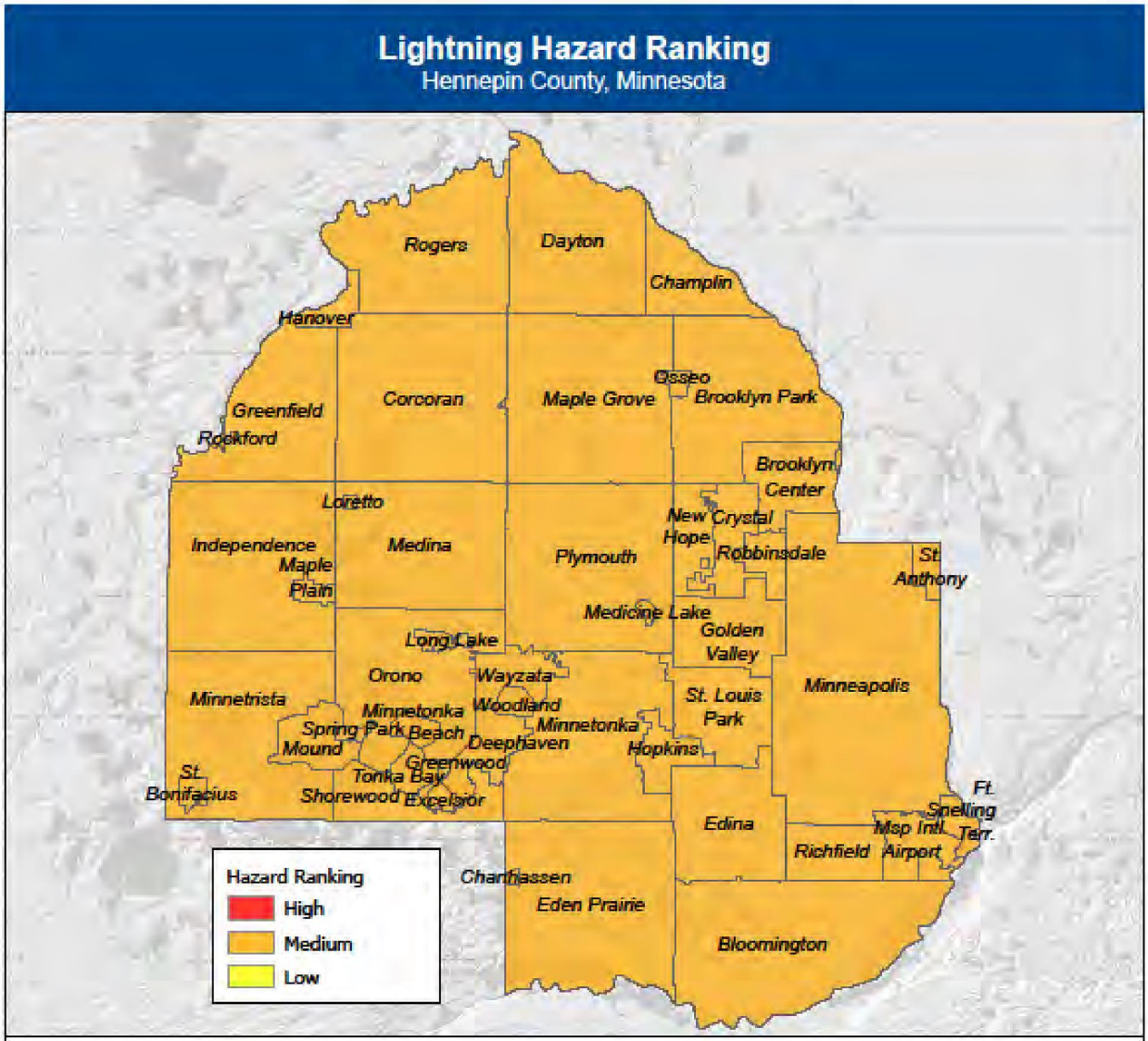
GRAPHIC 5.1K Ice Storm



Hazard Ranking Justification

Impacts, future predictions, and occurrences were the primary methods used to rank Ice Storms as a hazard across Hennepin County. There have not been any ice storms within Hennepin County in the past 10 years. However, the wide variety and costly impacts are the driving reasons behind ranking this hazard as medium across the county. In addition, future predictions are showing Hennepin County could be at greater risk than ever before for ice storms based on a warming climate.

GRAPHIC 5.1L Lightning



Hazard Ranking Justification

Occurrence and impacts were the primary methods used to rank Lightning as a hazard across Hennepin County. Lightning occurs with every single thunderstorm, and Hennepin County receives an abundance of thunderstorms every year. While magnitude of lightning is variable from storm to storm, nationwide it poses great cost every single year as well as millions of dollars' worth of damage in Hennepin County each year. Lighting is also one of the leading causes of deaths among the natural hazards each year across the nation.

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Hennepin County Emergency Management
Publication date: 1/1/2024

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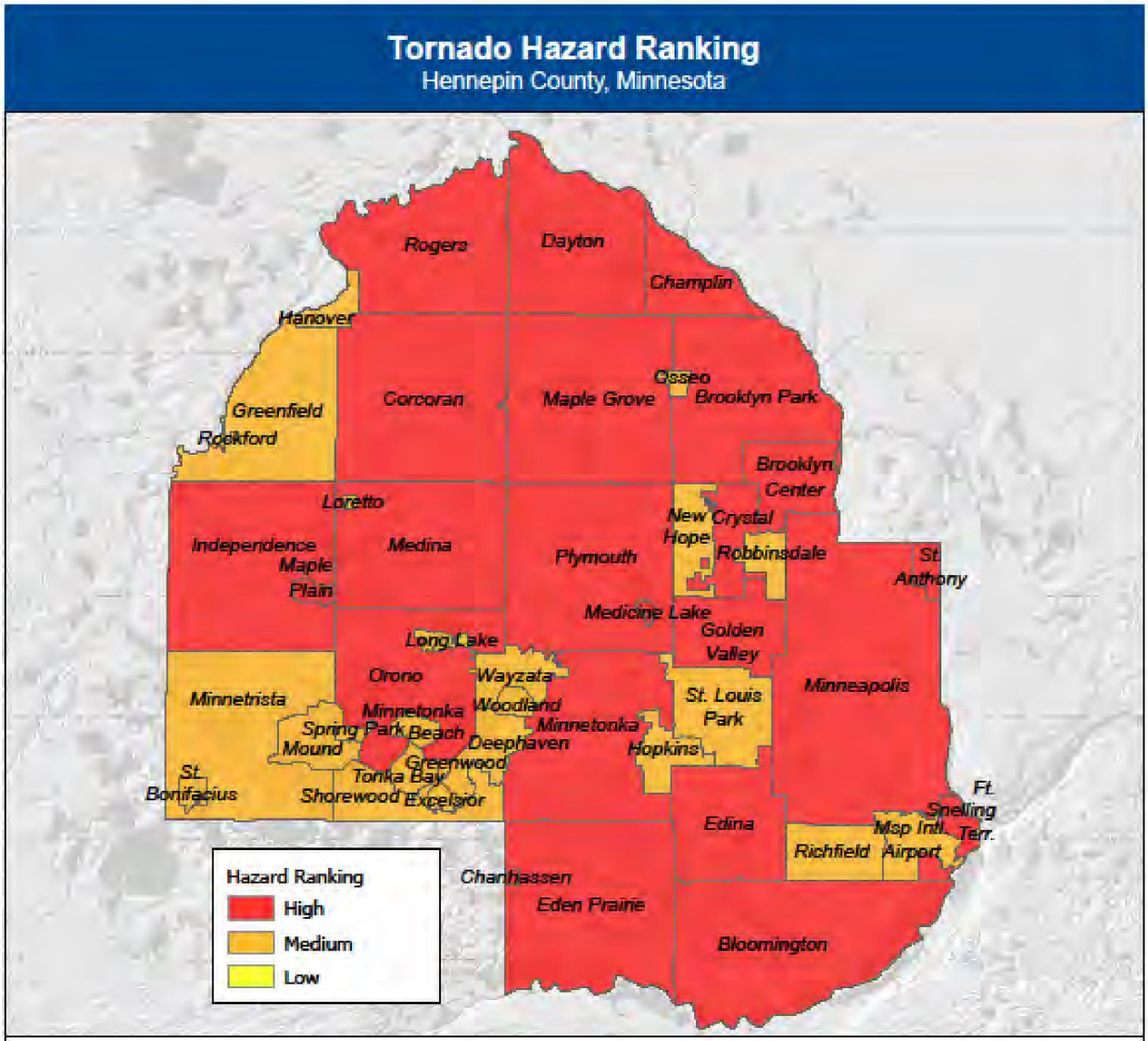
GRAPHIC 5.1M Tornado



Hazard Ranking Justification

Occurrences, historical data, impacts, and size of city were the primary methods used to rank Tornadoes as a hazard across Hennepin County. Tornadoes do not occur every year within Hennepin County. However meteorologically, the chances of tornadoes occurring within Hennepin County are possible every single year, and with high impacts and a variety of consequences possible, the baseline ranking was medium for this hazard. Historical data was used to find cities that had more than one tornado occur within city limits, with at least one of those being greater than an F/EF 2. These cities were ranked as high. Additionally, if a city had more than three F/EF1 tornadoes in history, there were also ranked as high. Lastly, city size was looked at. While meteorologically the chances are the same for any city to be affected by a tornado, cities that have less surface area, are not as likely to see a tornado within their city limits simply because there is less area for a tornado to hit.

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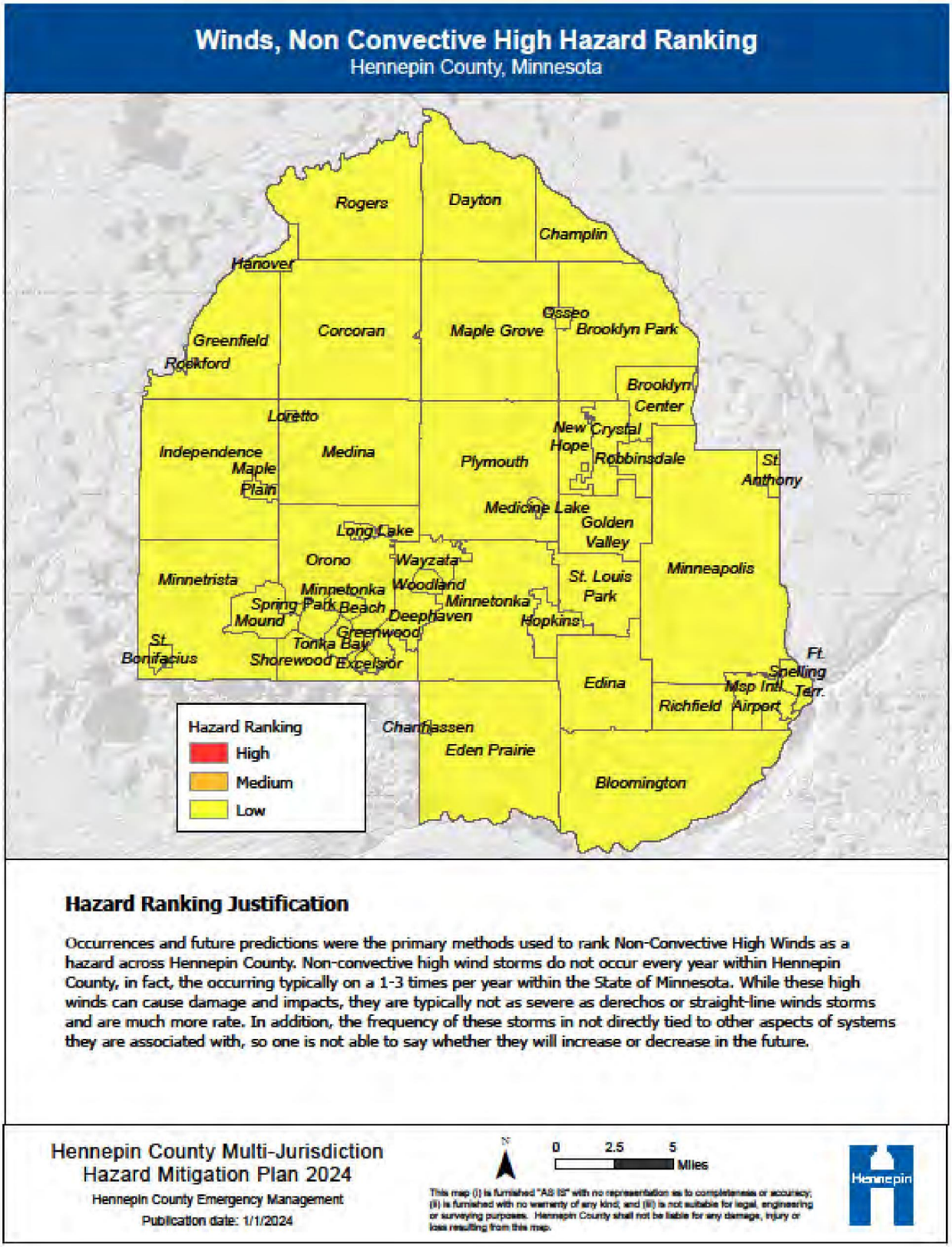
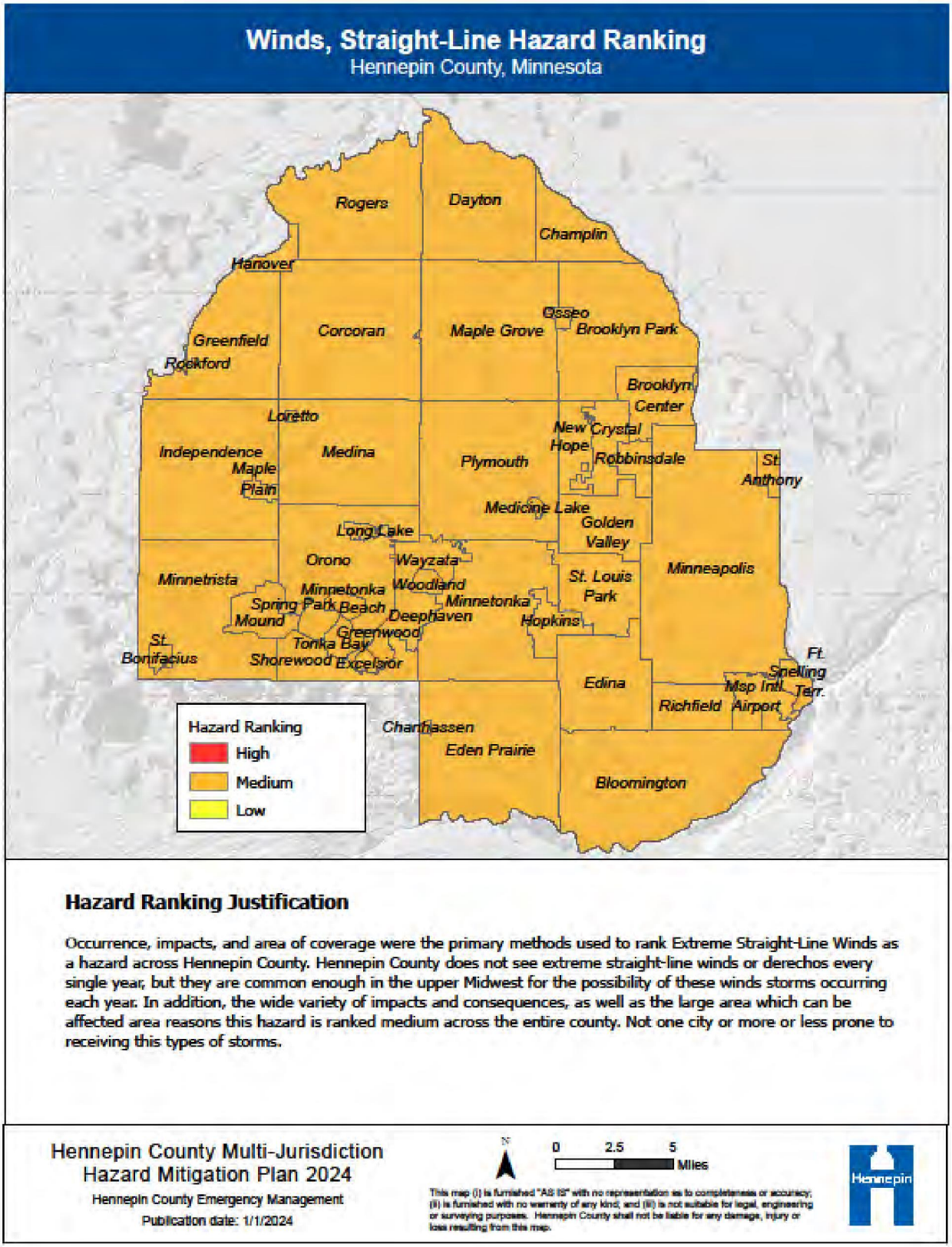
Hennepin

GRAPHIC 5.1N Winds Non-Convective



GRAPHIC 5.1O Winds, Straight-Line



Hazard Ranking Justification

Occurrence, impacts, and area of coverage were the primary methods used to rank Extreme Straight-Line Winds as a hazard across Hennepin County. Hennepin County does not see extreme straight-line winds or derechos every single year, but they are common enough in the upper Midwest for the possibility of these winds storms occurring each year. In addition, the wide variety of impacts and consequences, as well as the large area which can be affected area reasons this hazard is ranked medium across the entire county. Not one city or more or less prone to receiving this types of storms.

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0 2.5 5 Miles

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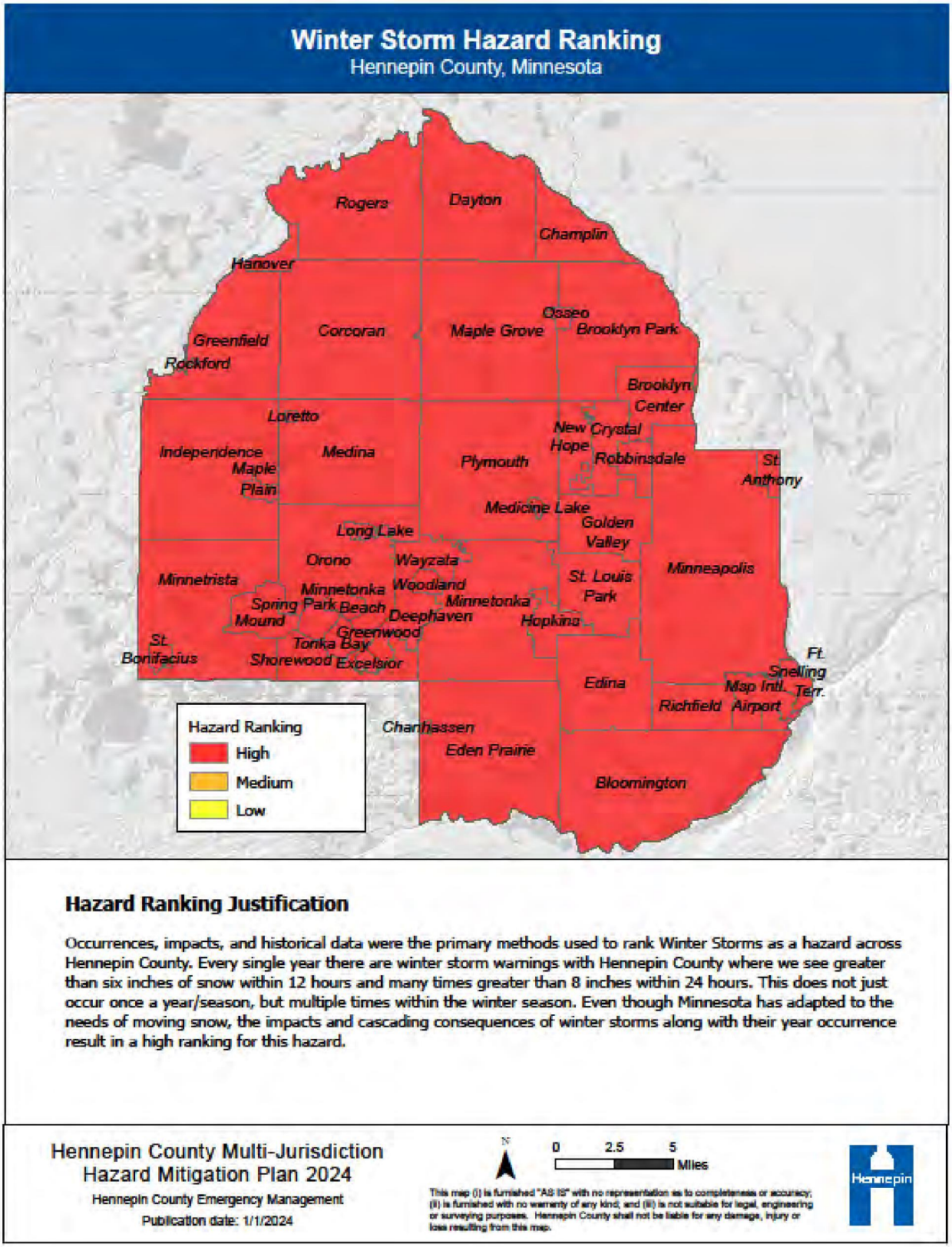
GRAPHIC 5.1P Winter Storm



Hazard Ranking Justification

Occurrences, impacts, and historical data were the primary methods used to rank Winter Storms as a hazard across Hennepin County. Every single year there are winter storm warnings with Hennepin County where we see greater than six inches of snow within 12 hours and many times greater than 8 inches within 24 hours. This does not just occur once a year/season, but multiple times within the winter season. Even though Minnesota has adapted to the needs of moving snow, the impacts and cascading consequences of winter storms along with their year occurrence result in a high ranking for this hazard.

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SECTION 6	Cultural Resources Inventory

6.1. Inventories

The effects of a disaster can be wide-ranging from human casualty to property damage to the disruption of governmental, social, and economic activity. Often not considered, is the potential devastating effects of disasters on historic properties and cultural resources. Historic buildings and structures, artwork, monuments, family heirlooms, and historic documents are often irreplaceable, and may be lost forever in a disaster if not considered in the mitigation planning process. The loss of these resources is more painful and ironic considering how often residents rely on their presence after a disaster to reinforce connections with neighbors and the larger community, and to seek comfort in the aftermath of a disaster.

To inventory the county's cultural resources, the Steering Committee collected information from the following sources:

- National Register of Historic Places
- Minnesota's National Historic Landmarks

6.2. National Register of Historic Places - Hennepin County

It should be noted that these lists may not be complete, as they may not include those currently in the nomination process and note yet listed. **TABLE 9.2A** provides registered historical sites, please go to the National Register of Historic Places website for additional information.

TABLE 6.2A Registered Historical Sites

National Register of Historic Places – Hennepin County	
Advanced Thresher /Emerson – Newton Implement Company City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Ames-Florida House** City: Rockford Historic Significance: Architecture/Engineering Period of Significance: 1856
Anoka-Champlin Mississippi River Bridge City: Champlin Historic Significance: Commerce/Engineering Period of Significance: 1925-1949	**Architects and Engineers Building** City: Minneapolis Historic Significance: Commerce/Engineering Period of Significance: 1900-1924
Atwater, Isaac, House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899, 1850-1874	**Baird, George W., House** City: Edina Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
Bardwell-Ferrant House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Barry, Margaret, Settlement House** City: Minneapolis Historic Significance: Education/Social History Period of Significance: 1900-1924
Bartholomew, Riley Lucas, House City: Richfield	**Basilica of St. Mary Catholic** City: Minneapolis

National Register of Historic Places – Hennepin County	
Historic Significance: Person Period of Significance: 1875-1899, 1850-1874	Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Bennett-McBride House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Bovey, Charles Cranston & Kate Koon, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Bremer, Frederika, Intermediate School City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Burwell, Charles H., House** City: Minnetonka Historic Significance: Architecture/Engineering Period of Significance: 1875-1899, 1850-1874
Butler Brothers Company City: Minneapolis Historic Significance: Architecture Period of Significance: 1900-1924	**Cahill School** City: Edina Historic Significance: Person Period of Significance: 1925-1949, 1900-1924, 1875-1899, 1850-1874
Calhoun Beach Club City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Cappelen Memorial Bridge** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Carpenter, Elbert L., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Carpenter, Eugene J., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Cedar Avenue Bridge City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Chadwick, Loren L., Cottages** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Chamber of Commerce City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Chamber of Commerce Building** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Chicago, Milwaukee & St. Paul Railroad Grade Separation City: Minneapolis Historic Significance: Event Period of Significance: 1900-1924	**Chicago, Milwaukee, St. Paul & Pacific Depot** City: Saint Louis Park Historic Significance: Event Period of Significance: 1925-1949, 1900-1924, 1875-1899
Chicago, Milwaukee, St. Paul & Pacific Depot, Freight House & Train Shed City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Christ Church Lutheran** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Church of St. Stephen (Catholic) City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Coe, Amos B., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899

National Register of Historic Places – Hennepin County	
Como-Harriet Streetcar Line & Trolley City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924, 1875-1899	**Country Club Historic District** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Crane Island Historic District City: Minnestrista Historic Significance: Event Period of Significance: 1925-1949, 1900-1924	**Cummins, John R., Farmhouse** City: Eden Prairie Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
Cutter, B.O., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1850-1874	**Dania Hall** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
East Lake Branch Library City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Edina Mills** City: Edina Historic Significance: NA Period of Significance: NA
Eitel Hospital City: Minneapolis Historic Significance: Event, Person Period of Significance: 1925-1949, 1900-1924	**Excelsior Fruit Growers Association Building** City: Excelsior Historic Significance: Agriculture, Commerce Period of Significance: 1925-1949, 1900-1924
Excelsior Public School City: Excelsior Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Farmers & Mechanics Savings Bank** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1950-1974, 1925, 1949
Farmers & Mechanics Savings Bank City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Fire Station No. 19** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
First Church of Christ Scientist City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**First Congregational Church** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
First National Bank – Soo Line Building City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1950-1974, 1925-1949, 1900-1924	**Fisk, Woodbury, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1850-1874
Flour Exchange Building City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Fort Snelling** City: Minneapolis Historic Significance: Event Period of Significance: 1900-1924, 1875-1899, 1850-1874, 1825-1849, 1800-1824
Fort Snelling – Mendota Bridge City: Minneapolis Historic Significance: Architecture/Engineering	**Forum Cafeteria** City: Minneapolis Historic Significance: Architecture/Engineering

National Register of Historic Places – Hennepin County	
Period of Significance: 1925-1949	Period of Significance: 1925-1949
Foshay Tower City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Fournier, Lawrence A. & Mary, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Fowler Methodist Episcopal Church City: Minneapolis Historic Significance: Architecture/Social History Period of Significance: 1900-1924, 1875-1899	**Franklin Branch Library** City: Minneapolis Historic Significance: Event/Person Period of Significance: 1900-1924
Gethsemane Episcopal Church City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Gideon, Peter, Farmhouse** City: Shorewood Historic Significance: Person Period of Significance: 1875-1899, 1850-1874
Glen Lake Children's Camp City: Eden Prairie Historic Significance: Health/Medicine Period of Significance: 1925-1949	**Gluek, John G, & Minnie, House & Carriage House** City: Shorewood Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Grace Evangelical Lutheran Church City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Great Northern Implement Company** City: Wayzata Historic Significance: Architecture/Engineering Period of Significance: 1925-1950, 1900-1924
Grimes, Jonathan Taylor, house City: Edina Historic Significance: Architecture/Engineering Period of Significance: 1875-1899, 1850-1874	**Hagel Family Farm** City: Rogers Historic Significance: Architecture/Engineering Period of Significance: 1950-1974, 1925-1949, 1900-1924, 1875-1899, 1850, 1874
Handicraft Guild Building City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924	**Hanover Bridge** City: Rogers Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Healy Block Residential Historic District City: Minneapolis Historic Significance: Event Period of Significance: 1875-1899	**Hennepin County Library** City: Robbinsdale Historic Significance: Event Period of Significance: 1925-1949
Hennepin Theater City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Hewitt, Edwin, H., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Hinkle-Murphy House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Holmes, Henry E., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Intercity Bridge City: Minneapolis	**Interlachen Bridge (Ford Bridge)** City: Minneapolis

National Register of Historic Places – Hennepin County	
Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Interlachen Bridge (Cottage City Bridge) City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Jones, Harry W., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-2949, 1900-1924, 1875-1899
Lakewood Cemetery Memorial Chapel City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Legg, Harry F., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Linden Hills Branch Library City: Minneapolis Historic Significance: Event/Person Period of Significance: 1925-1949	**Little Sister of the Poor Home for Aged** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
Lock and Dam No. 2 City: Minneapolis Historic Significance: Event Period of Significance: 1900-1924, 1875-1899	**Lohmar, John, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Lumber Exchange Building City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Madison School** City: Minneapolis Historic Significance: NA Period of Significance: NA
Martin, Charles J., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Masonic Temple** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Maternity Hospital City: Minneapolis Historic Significance: Person Period of Significance: 190-1924	**Milwaukee Ave Historic District** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Minneapolis Armory City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Minneapolis Brewing Company** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924, 1875-1899
Minneapolis City Hall-Hennepin County Courthouse City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Minneapolis Fire Department Repair Shop** City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924
Minneapolis Pioneers & Soldiers Memorial Cemetery City: Minneapolis Historic Significance: Event	**Minneapolis Public Library, North Branch** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899

National Register of Historic Places – Hennepin County	
Period of Significance: 1925-1949	
Minneapolis Warehouse Historic District City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924, 1875-1899, 1850-1874	**Minneapolis YMCA Central Building** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Minnehaha Grange Hall City: Edina Historic Significance: Architecture/Engineering Period of Significance: 1875-1899. 1850-1874	**Minnehaha Historic District** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899, 1850-1874, 1825-1849
Minnesota Soldiers' Home Historic District City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 192-1949, 1900-1924. 1875-1899	**Minnetonka Town Hall** City: Minnetonka Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Moline, Milburn & Stoddard Company City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Morse Jr., Elisha & Lizzie, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1850-1874
Neils, Frieda & Henry J., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1950-1974	**New Century Mill (Boundary Increase)** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
New Century Mill (Boundary Decrease) City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**New Century Mill (Boundary Increase)** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
New Main – Augsburg Seminary City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Newell, George R., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
Nicollet Hotel City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Nokomis Knoll Residential Historic District** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
North East Neighborhood House City: Minneapolis Historic Significance: Event Period of Significance: 1950-1974, 1925-1949, 1900-1924	**Northwestern Bell Telephone Company Building** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Northwestern Knitting Company Factory City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Ogden Apartment Hotel** City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924
Old Log Theater	**Owre, Dr. Oscar, house**

National Register of Historic Places – Hennepin County	
City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Parker, Charles & Grace, House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Peavey-Haglin experimental Concrete Grain Elevator** City: Saint Louis Park Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Pence Automobile Company Building City: Minneapolis Historic Significance: Event/Person Period of Significance: 1925-1949, 1900-1924	**Phi Gamma Delta Fraternity House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Pillsbury A Mill City: Minneapolis Historic Significance: Event Period of Significance: 1875-1899	**Pioneer Steel Elevator** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899
Pond, Gideon H., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Prescott House** City: Minneapolis Historic Significance: Person Period of Significance: 1850-1874
Prospect Park Water Tower & Tower Hill Park City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Purcell, William Gray, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
Queene Avenue Bridge City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Rand Tower** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Roosevelt Branch Library City: Minneapolis Historic Significance: Person Period of Significance: 1924-1949	**Sanford, Maria, House** City: Minneapolis Historic Significance: Person Period of Significance: 1900-1924
Sears, Roebuck & Company Mail-Order Warehouse & Retail Store City: Minneapolis Historic Significance: Event Period of Significance: 1950-1974, 1925-1949	**Second Church of Christ, Scientist, Administration Building** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Semple, Anne C & Brank B., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Shubert, Same S., Theater** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Smith, H. Alden, House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Smith, Leno O., House** City: Minneapolis Historic Significance: Person Period of Significance: 1925-1949

National Register of Historic Places – Hennepin County	
South Ninth Street Historic District City: Minneapolis Historic Significance: NA Period of Significance: NA	**St. Anthony Falls Historic District** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924, 1875-1899, 1850-1874, 1825-1849
State Theater City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924	**Station 13 Minneapolis Fire Department** City: Minneapolis Historic Significance: Event Period of Significance: 1900-1924
Station 28 Minneapolis Fire Department City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924	**Stevens Square Historic District** City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924
Stewart Memorial Presbyterian Church City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1925	**Summer Branch Library** City: Minneapolis Historic Significance: Person/Event Period of Significance: 1925-1949, 1900-1924
Swinford Townhouses & Apartments City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Thirty-Sixth Street Branch Library** City: Minneapolis Historic Significance: Event/Person Period of Significance: 1925-1949, 1900-1924
Thompson Summer House City: Minnetonka Beach Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924, 1875-1899	**Turnblad, Sawn, House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949, 1900-1924
Twin City Rapid Transit Company Steam Power Plant City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924	**United States Post Office** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924
University of Minnesota Old Campus Historic District City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	**Van Cleve, Horatio P., House** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899, 1850-1874
Van Dusen, George W & Nancy B., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	**Walker Branch Library** City: Minneapolis Historic Significance: Event/Person Period of Significance: 1925-1949, 1900-1924
Washburn A Mill Complex City: Minneapolis Historic Significance: Event Period of Significance: 1900-1924, 1875-1899	**Washburn Park Water Tower** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Washburn – Fair Oaks Mansion District City: Minneapolis	**Wesley Methodist Episcopal Church** City: Minneapolis

National Register of Historic Places – Hennepin County	
Historic Significance: Architecture/Engineering Period of Significance: 1900-1924, 1875-1899	Historic Significance: Architecture/Engineering Period of Significance: 1875-1899
Westminster Presbyterian Church City: Minneapolis Historic Significance: Event Period of Significance: 1925-1949, 1900-1924, 1875-1899	**White Castle Building No. 8** City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949
Wiley, Malcolm., House City: Minneapolis Historic Significance: Architecture/Engineering Period of Significance: 1925-1949	**Wirth, Theodore, House – Administration Building** City: Minneapolis Historic Significance: Person Period of Significance: 1925-1949, 1900-1925
Wyer, Allemarinda & James, House City: Excelsior Historic Significance: Architecture/Engineering Period of Significance: 1875-1899	

6.3. Hennepin County Historic Landmark Maps

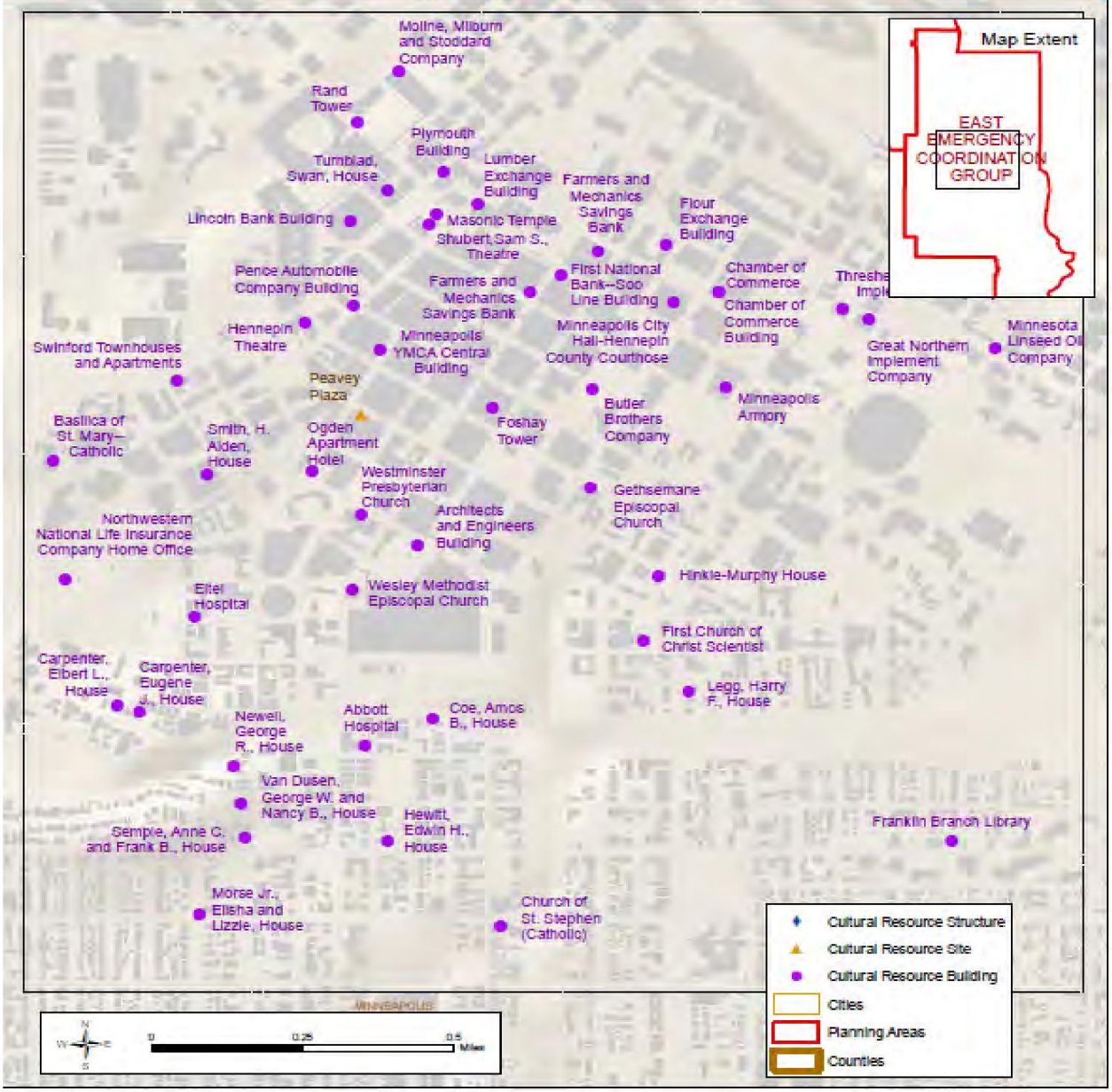
National Historic Landmarks (NHLs) are historic places that possess exceptional value in commemorating or illustrating the history of the United States. The National Park Service's National Historic Landmarks Program oversees the designation of such sites. The following Hennepin County sites were designated by the United States Secretary of the Interior because they met one of the criteria below

- Sites where events of national historic significance occurred.
- Places where prominent persons lived or worked.
- Icons of ideas that shaped the nation.
- Outstanding examples of design or construction.
- Places characterizing a way of life or.
- Archeological sites able to yield information.

TABLE 6.3A Minnesota's National Historic Landmarks- Hennepin County

Minnesota's National Historic Landmarks – Hennepin County	
Landmark	Year
Christ Church Lutheran, Minneapolis	1/16/09
Fort Snelling,	12/19/60
Peavey-Haglin Experimental Concrete Grain Elevator, Saint Louis Park	12/21/81
Pillsbury A Mill, Minneapolis	11/13/66
Washburn A Mill Complex, Minneapolis	5/4/83

Nation Register Historic Places - Hennepin County 2015
Minneapolis (Downtown)



Hennepin County 2015 Mitigation Plan
Publication date: 11/4/2015

Source: National Park Service
National Register Historic Places (NHRP)
Public Dataset Spatial Data (GIS)

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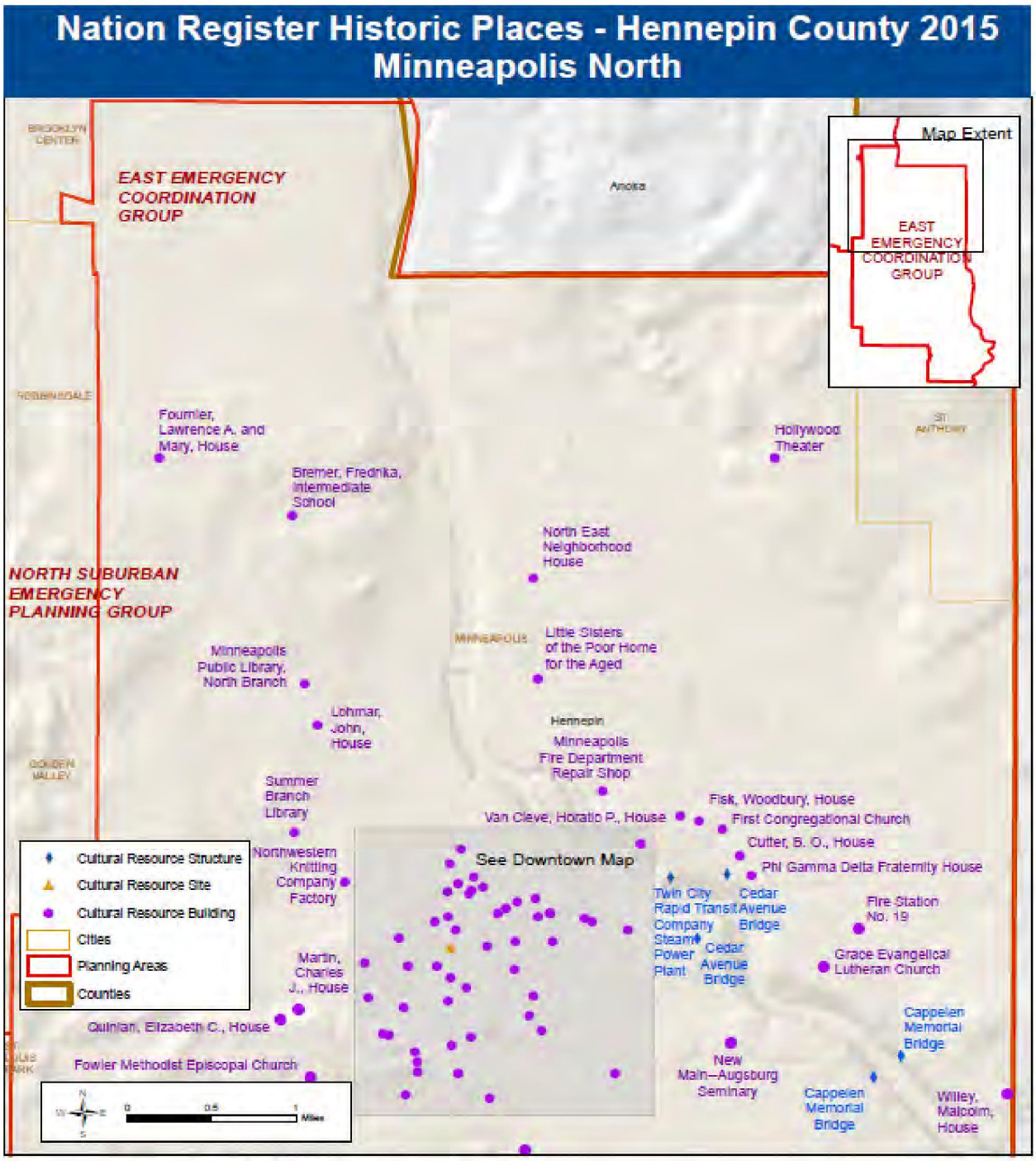
Hennepin County Emergency Management



Hennepin County 2015 Mitigation Plan
Publication date: 11/13/2015
Source: National Park Service
National Register Historic Places (NHRP)
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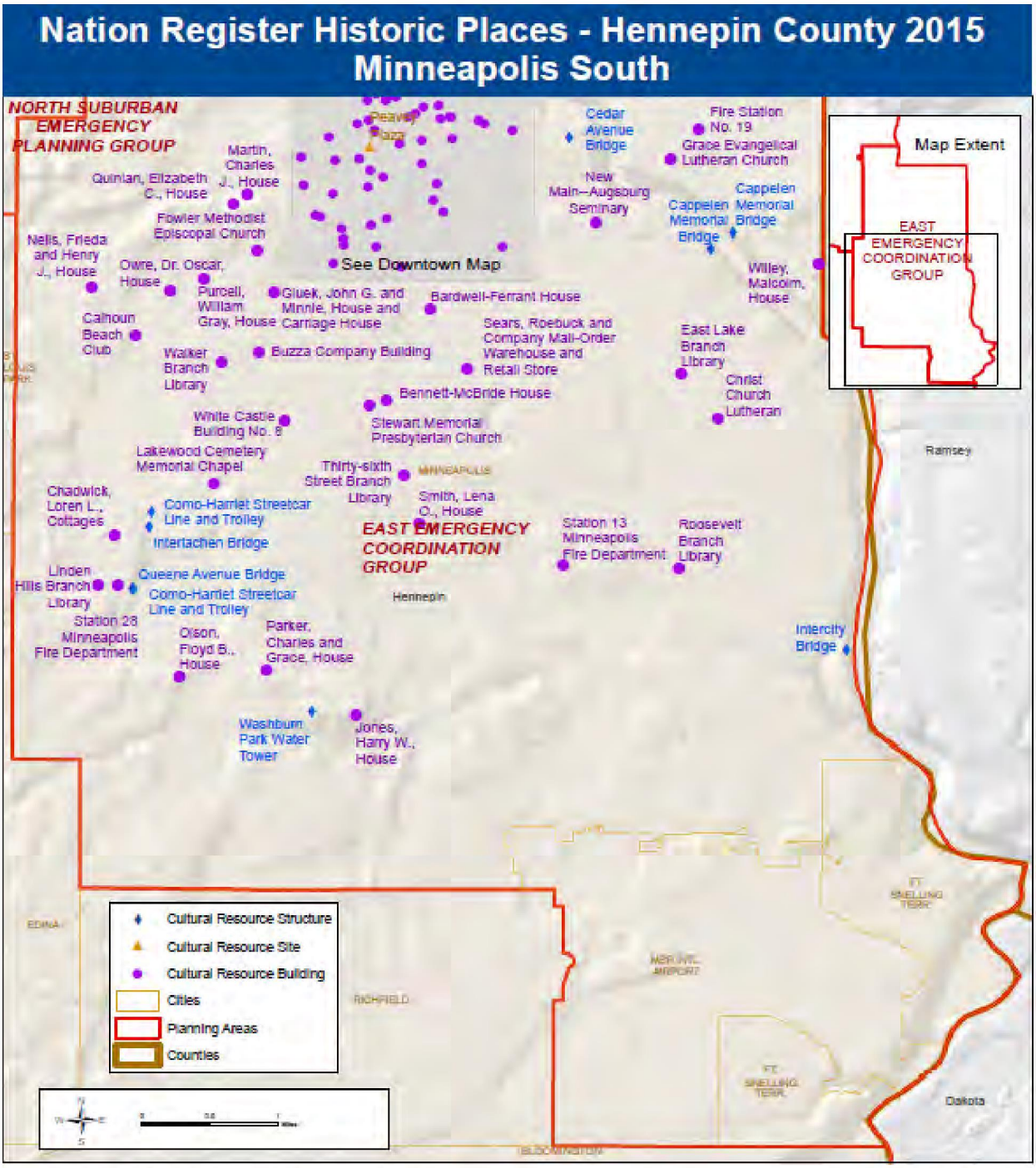

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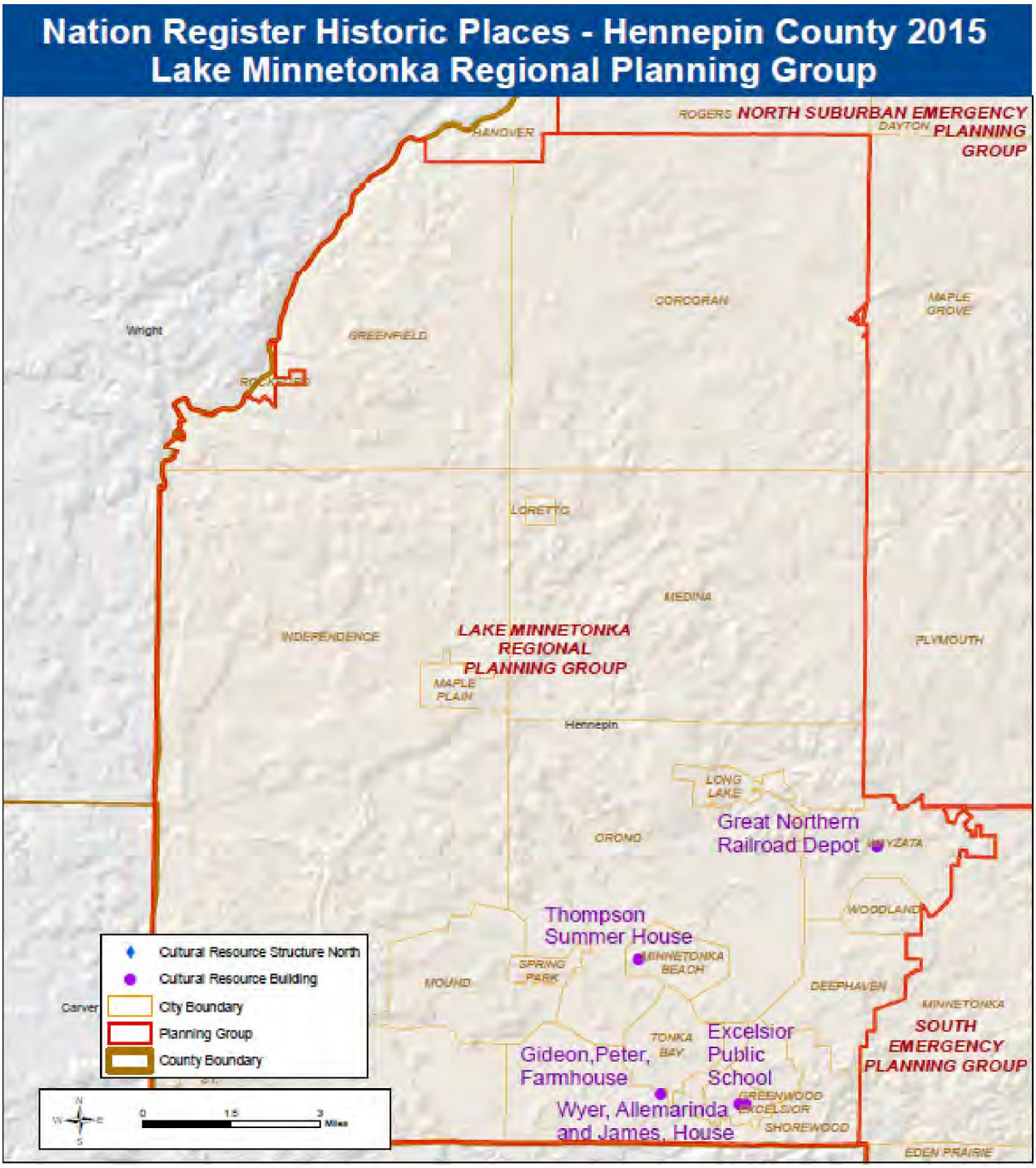
Hennepin County Emergency Management



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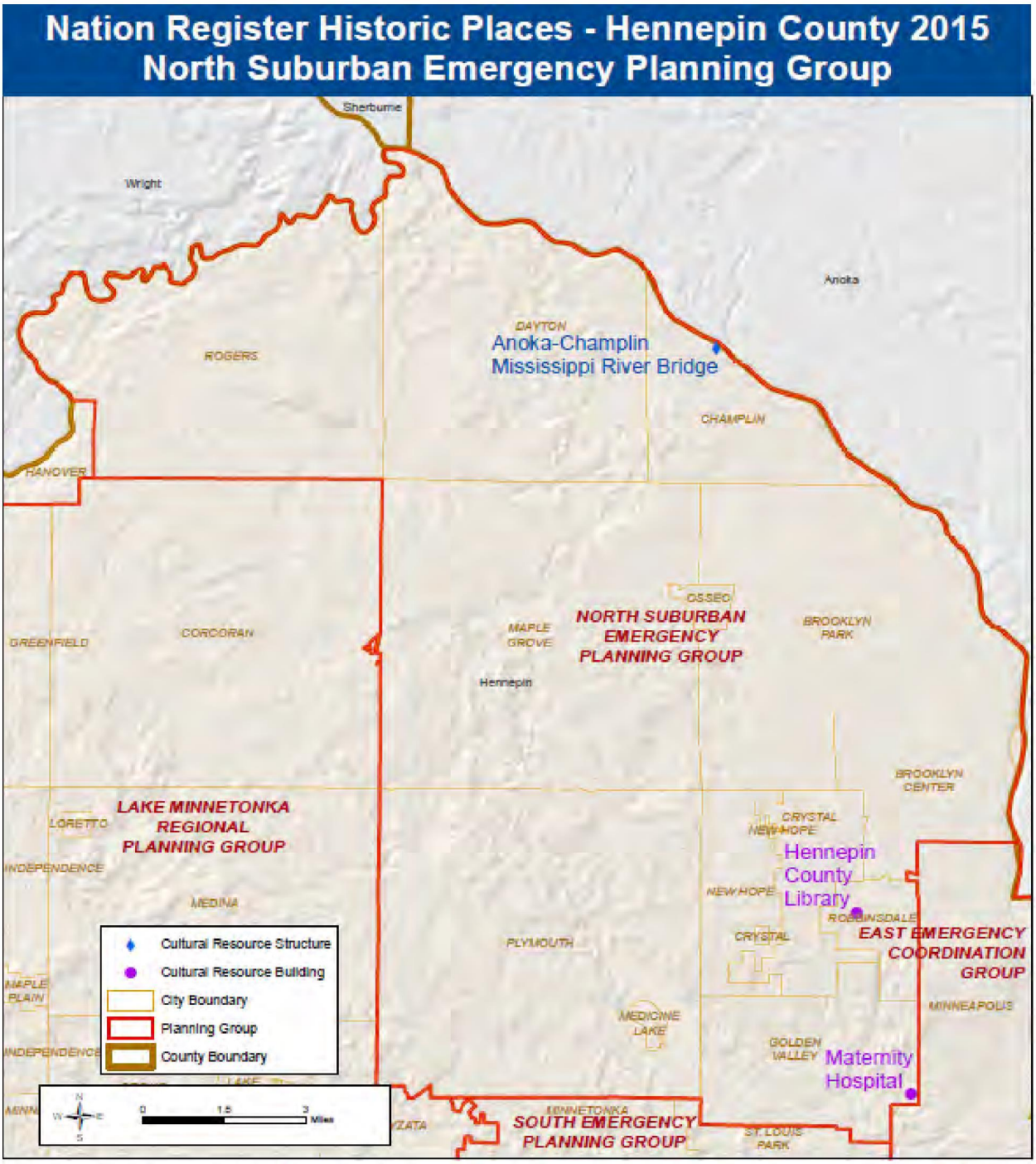
Hennepin County Emergency Management



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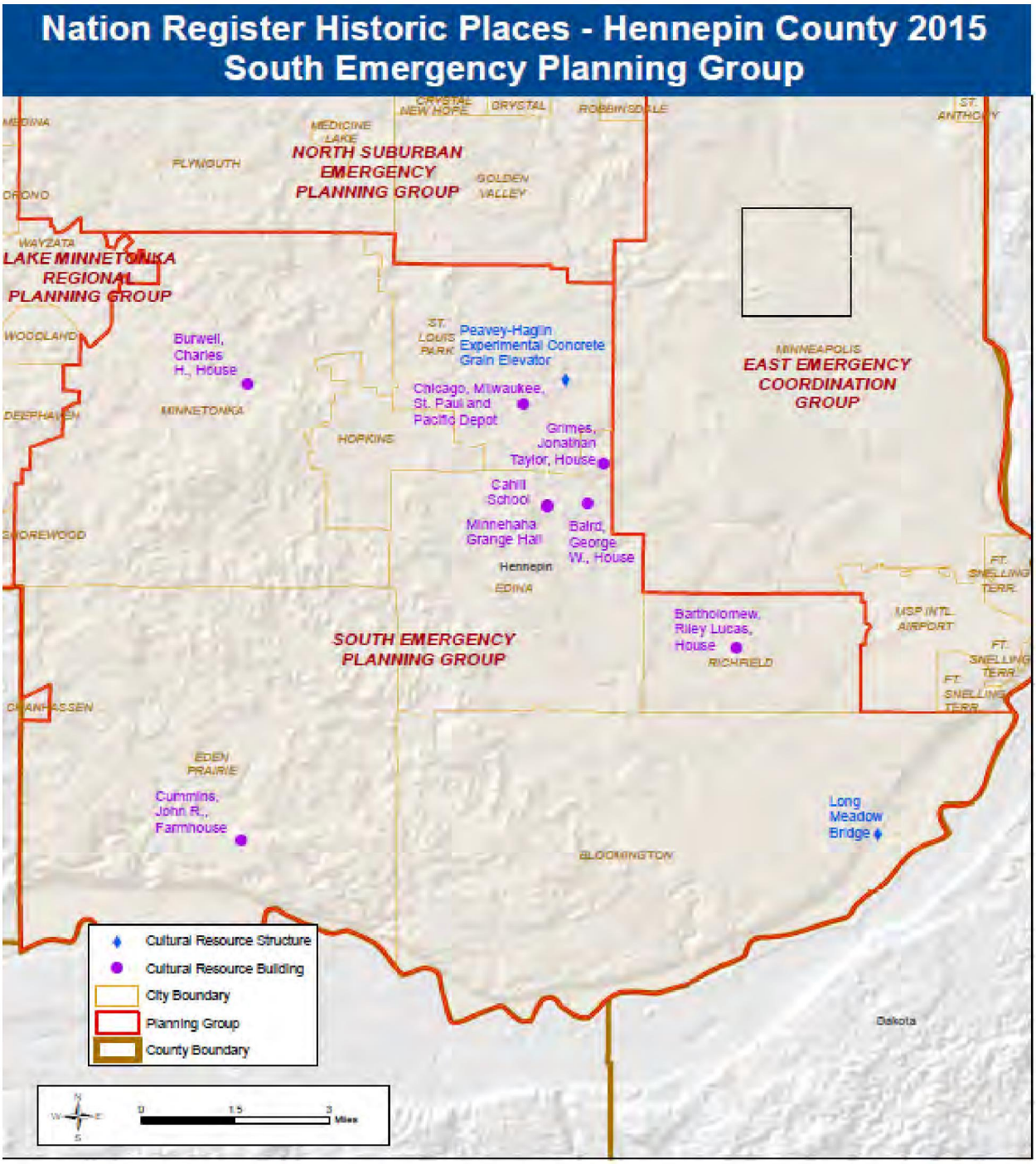
Hennepin County Emergency Management



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Hennepin County Emergency Management

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SECTION 7	CRITICAL INFRASTRUCTURE & CRITICAL FACILITY INDEX (CFI) RANKING

Critical facilities and infrastructure are those that are essential to the health and welfare of the population. These become especially important after a hazard event. Critical facilities typically include police and fire stations, schools, and emergency operation centers. Critical infrastructure can also include roads and bridges that provide ingress and egress and allow emergency vehicles access to those in need, and the utilities that provide water, electricity, and communication services to the community.

7.1. Critical Facilities Index (CFI) Numbering Scoring System

For this update to the mitigation plan, Hennepin County Emergency Management (HCEM) ranked the restoration priority of a facility using a score index of 1 to 5, 1 being the most critical to the overall health of the community. Jurisdiction understand this as those critical facilities within their community that must operate during times of disaster. The score is identified as an “all-hazards” CFI, which applies to private and public critical facilities and is directly related to business continuity and continuity of government. The following are definitions of each score index:

- **CFI Priority 1:** facility is identified as "critical" to public health, safety. These include Hospitals and emergency medical facilities, emergency shelters, fire stations, police stations, prisons/jails, fire rescue facilities, water pumping and wastewater facilities, major communication facilities, major flood control structures, financial institutions, military installations, and critical electric utility facilities. If possible, must be operational within 2 hours.
- **CFI Priority 2:** facility may include some of the same types of facilities described for CFI Priority 1. These facilities provide significant public services but are deemed to be somewhat less critical by government agencies. These include Nursing homes, major water and sewer facilities, fire and police stations, minor flood control structures, fuel transfer/loading facilities (ports), airports, schools and park facilities used to support other critical government purposes. If possible, must be operational within 8 hours.
- **CFI Priority 3:** facility may include some of the same types of facilities described for CFI Priority 2 above. These facilities provide public services but are deemed to be somewhat less critical by government agencies. These include apartment complexes for the elderly, assisted living facilities, grocery distribution/large cold storage facilities, local water and sewer facilities, local fire and police stations, medical service facilities (such as dialysis centers) and facilities having critical impact on the environment. If possible, must be operational within 48 hours.
- **CFI Priority 4:** These facilities provide public services but are deemed to be somewhat less critical by government agencies, and include: supermarkets, banks, gas stations, hotels/motels, and lodging. If possible, must be operational within 72 hours.
- **CFI Priority 5:** These facilities provide a public service but are deemed to be less critical that the other priority tiers.

CFI is used by HCEM with the intent for the coordination of restoration and post disaster economic re-development and in coordination with infrastructure service providers. This information is intended to improve communication with local EOCs and other coordination centers during any type of emergency

event. This scoring system, as well as planning during normal operations, will ensure that community services are restored in a flexible and coordinated manner.

The following communities participated in the Critical Facilities Index 1-5 priorities risk assessment. Each community used the 19 hazards in this plan and determined if the hazard affects their pre-identified priority 1 facilities.

- Bloomington
- Brooklyn Center
- Brooklyn Park
- Champlin
- Corcoran
- Crystal
- Dayton
- Deephaven
- Eden Prairie
- Edina
- Excelsior
- Golden Valley
- Greenfield
- Greenwood
- Hanover
- Hopkins
- Independence
- Long Lake
- Loretto
- Maple Grove
- Maple Plain
- Medicine Lake
- Medina
- Minneapolis
- Minnetonka
- Minnetonka Beach
- Minnetrista
- Mound
- New Hope
- Orono
- Osseo
- Plymouth
- Richfield
- Robbinsdale
- Rockford
- Rogers
- Saint Anthony
- Saint Bonifacius
- Saint Louis Park
- Shorewood
- Spring Park
- Tonka Bay
- Wayzata
- Woodland

Each city has two documents in this section.

1. The CFI 1 Facilities Hazard Vulnerability Assessment.
2. The Critical Infrastructure and Key Resources Overview

HENNEPIN COUNTY
MINNESOTA

2024 HENNEPIN COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

VOLUME 3
Community Mitigation Strategies

01 February 2024

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HENNEPIN COUNTY EMERGENCY MANAGEMENT
1600 Prairie Drive, Medina, Minnesota 55304

February 1, 2024

On behalf of Hennepin County Emergency Management (HCEM), we are pleased to present the 2024 Hennepin County Multi-Jurisdictional Hazard Mitigation Plan.

The purpose of this plan is to identify the Counties major hazards, assess the vulnerability, and to reduce risk using a variety of data and best practice measures to implement mitigation projects. This plan identifies goals, objectives, recommended actions, and costs by reviewing and working on initiatives with each county jurisdiction or partner to reduce and/prevent injury and damage from hazardous events. The intent of the Plan is to provide unified guidance for coordinating mitigation efforts prior to or following a major emergency/disaster by implementing an on-going comprehensive county hazard mitigation strategy intended to reduce the impact of loss of life and property due to effects of natural hazards.

Through continued collaboration with each jurisdiction by providing staff expertise, support, training and education opportunities, Hennepin County Emergency Management will continue to increase its resiliency to minimize the effects of natural hazards.

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SECTION 1	MITIGATION STRATEGY, GOALS AND OBJECTIVES

1.1. INTRODUCTION

The mitigation strategy provides a blueprint for Hennepin County to enhance its resiliency against a wide spectrum of natural hazards. It is based on the efforts of the Planning Team, the findings and conclusions of the Risk Assessment, and input from the public and stakeholders. The mitigation strategy includes hazard mitigation objectives and hazard mitigation actions. The objectives serve as the guiding principles for local future mitigation policy and project administration; actions serve as implemental items that support and provide a way to reach those objectives. The mitigation strategy includes a process for evaluating mitigation actions to ensure actions are feasible based on community capabilities, tied to plan goals, and effective in reducing hazard losses for current and future structures and populations. This section outlines the goals, objectives, and mitigation action evaluation and prioritization process undertaken in Hennepin County. Each jurisdiction provided objectives, actions and prioritization and are included in the Mitigation Action Plan (MAP), which can be found for each jurisdiction located in Section 3: Mitigation Plans

1.2. 2024 HENNEPIN COUNTY HAZARD MITIGATION PLAN GOALS C3a

The plan goals are broad and reflect current needs and priorities of the county. They are intended to reduce long-term vulnerability to all hazards identified in this plan. The 2024 Hennepin County AHMJMP goals were developed by the Mitigation Steering Committee and reviewed by the regional planning working group. The planning team reviewed the goals and opted to keep the goals as written. The mitigation planning goals are listed in **TABLE 1-2A**

TABLE 1-2A Hennepin County Mitigation Goals

Goal Number	Goal
1	Minimize loss of life, injury, and damage to property, the economy, and the environment from natural and man-made hazards.
2	Increase education, outreach, and awareness.
3	Protect natural and cultural resources.
4	Identify areas of greatest impact from hazards.
5	Enhance hazard mitigation coordination and communication with federal, state and local governments.
6	Promote disaster-resistant future development.
7	Build and support local capacity and commitment to become less vulnerable to hazards.
8	Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.
9	Mitigate against the potential impacts of climate change on local communities, the economy, and the environment.
10	Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards.

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SECTION 2	MITIGATION ACTION PLAN

2.1. SELECTION OF MITIGATION ACTIONS E2a

Selected objectives and actions are provided within this volume. This volume is a functional plan for action and is considered to be the most essential part of the mitigation planning process. This volume includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for each participating jurisdiction. Each action includes accompanying information such as the department responsible for completing the action, timeline, and cost estimate.

This volume provides each jurisdiction a description of their plan in implementing mitigation actions providing an opportunity to reduce vulnerability over time. Further, the volume provides a mechanism to monitor progress over time. Each action also considers the benefits and costs of an action, to ensure it is cost effective, which is included in the priority. These actions are reviewed and revised by each municipality, who prioritize these actions based on their own specific needs.

2.2. PRIORITIZATION OF MITIGATION ACTIONS C5a

All actions are considered cost-effective including a cost-benefit review for prioritization. In addition, local knowledge or need, may necessitate a change in priority from the guidelines presented for priority below: A priority number scale has been used with 1 being top priority and sequential numbers being less priority. The scale may be limited on the number of identified actions for any objective listed.

- **Low Priority Projects**: Projects that is associated with low or infrequent hazard probability and least likely to prevent loss of life. (Scale 8-10)
- **Medium Priority Projects**: Projects associated with a less probable hazard with potential to save lives or damage to property. (Scale 4-7)
- **High Priority Projects**: Projects identified in response to one or more of the highest probability hazards combined with the ability to save lives. (Scale 1-3)

2.3. IMPLEMENTATION OF MITIGATION ACTIONS

This volume includes several measures to ensure actions are implemented. HCEM will serve as the coordinating agency. However, each action is tied to a responsible agency or individual who will be responsible for leading the completion of the mitigation action. By assigning responsibility, it increases accountability and the likelihood of action.

In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date has been considered to assess whether actions are being implemented in a timely fashion. Further, the county continues to look for and research funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. Potential funding sources continue to be discussed for proposed actions listed in this volume.

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SECTION 3	MITIGATION ACTIONS AND PROJECTS

3.1. JURISDICTION PARTICIPATION

The following list contains each jurisdiction, the point of contact, title, agency, and which group they have planning membership. Each planning group routinely meets 4-12 times a year to meet the planning needs and requirements for their jurisdiction. Each planning group accounts for its own membership, participation, and completion of the requirements within this plan. Participation is voluntary.

Jurisdiction	Point of Contact	Title	Agency	How participated
Bloomington	U. Seal	Fire Chief	Fire Department	South Region Planning
Brooklyn Center	T. Berg	Fire Chief	Fire Department	North Region Planning
Brooklyn Park	S. Conway	Fire Chief	Fire Department	North Region Planning
Champlin	T. Schmidt	Police Chief	Law Enforcement	North Region Planning
Corcoran	M. Gottschalk	Police Chief	Law Enforcement	Lakes Region Planning
Crystal	M. Ray	Dir of Public Works	City of Crystal	North Region Planning
Dayton	G. Henrickson	Fire Chief	Fire Department	North Region Planning
Deephaven	C. Johnson	Police Chief	Law Enforcement	Lakes Region Planning
Eden Prairie	S. Gerber	Fire Chief	Fire Department	South Region Planning
Edina	A. Slama	Fire Chief	Fire Department	South Region Planning
Excelsior	B. Tholen, C. Mackey	Police Chief	Law Enforcement	Lakes Region Planning
Fort Snelling	B. Kelii	Deputy Director	HCEM	County Planning
Golden Valley	J. Crelly	Fire Chief	Fire Department	North Region Planning
Greenfield	M. Webb	City Administrator	City of Greenfield	Lakes Region Planning
Greenwood	M. Meehan	Police Chief	Law Enforcement	Lakes Region Planning
Hanover	J. Nash	Emergency Mgr.	City of Hanover	County Planning
Hopkins	D. Specken	Fire Chief	Fire Department	South Region Planning
Independence	G. Kroells	Police Chief	Law Enforcement	Lakes Region Planning
Long Lake	M. Schultz	Police Chief	Law Enforcement	Lakes Region Planning
Loretto	J. Nelson	Police Chief	Law Enforcement	Lakes Region Planning
Maple Grove	T. Bush	Fire Chief	Fire Department	North Region Planning
Maple Plain	G. Kroells	Police Chief	Law Enforcement	Lakes Region Planning
Medicine Lake	J. Hauble	City Admin	City of Medicine Lake	North Region Planning
Medina	J. Nelson	Police Chief	Law Enforcement	Lakes Region Planning
Minneapolis	E. Gustafson	Emergency Mgr.	City of Minneapolis	County Planning
Minnetonka Beach	C. Farniok	Police Chief	Law Enforcement	Lakes Region Planning
Minnetonka	A. Morris	Fire Chief- Assist	Fire Department	South Region Planning
Minnetrista	P. Falls	Dir of Public Safety	Law Enforcement	Lakes Region Planning
Mound	G. Pederson	Fire Chief	Fire Department	Lakes Region Planning
Minneapolis/St. Paul International Airport	K. Rollwagen/ B. Lane	Emergency Mgr.	MSP Airport	County Planning
New Hope	S. Larson	Fire Chief	City of New Hope	North Region Planning
Orono	C. Farniok	Police Chief	Law Enforcement	Lakes Region Planning

Jurisdiction	Point of Contact	Title	Agency	How participated
Osseo	S. Mikkelson	Police Chief	Law Enforcement	North Region Planning
Plymouth	E. Fadden	Police Chief	Law Enforcement	North Region Planning
Richfield	J. Henthorne	Police Chief	Law Enforcement	South Region Planning
Robbinsdale	P. Foley	Police Chief	Law Enforcement	North Region Planning
Rockford	R. Harkins	Fire	Fire Department	County Planning
Rogers	B. Feist/ P. Farrens	Fire Chief	Fire Department	North Region Planning
Shorewood	B. Tholen, C. Mackey	Police Chief	Law Enforcement	Lakes Region Planning
Spring Park	C. Farniok	Police Chief	Law Enforcement	Lakes Region Planning
St. Anthony	M. Sitarz	Fire Chief	Fire Department	North Region Planning
St. Bonifacius	P. Falls	Police Chief	Law Enforcement	Lakes Region Planning
St. Louis Park	S. Koering	Fire Chief	Fire Department	South Region Planning
Tonka Bay	B. Tholen, C. Mackey	Police Chief	Law Enforcement	Lakes Region Planning
Wayzata	M. Schultz	Police Chief	Law Enforcement	Lakes Region Planning
Woodland	C. Johnson	Police Chief	Law Enforcement	Lakes Region Planning

3.2. Funding Sources

Mitigation Projects can receive funding through a variety of sources. This document will detail common funding sources that have potential applications for each project. The below indicators will be used for each project to reduce the size of this document:

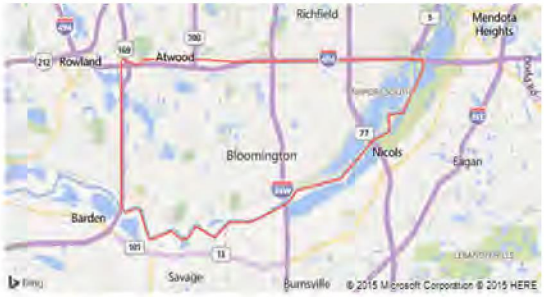
Indicator:	Potential Funding Source:
1	Local Funds
2	State Funds
3	Federal Funds
4	Building Resilient Infrastructure and Communities (BRIC)
5	Hazard Mitigation Grant Program (HMGP)
6	Flood Mitigation Assistance (FMA)

3.3.1. CITY OF BLOOMINGTON C4a, C4b, C5b, E2B

Hennepin County - Bloomington

Website: City of Bloomington MN





Bloomington is the fifth largest city in Minnesota. Located on the north bank of the Minnesota River above its confluence with the Mississippi River, Bloomington lies at the heart of the southern metro area, 10 miles (16) south of downtown Minneapolis. Bloomington was established as a Post -World War II housing boom suburb connected to the urban street grid of Minneapolis and serviced by two major highways, Interstate 35W and Interstate 494. Bloomington's residential areas include upper-tier households in the western Bush Lake area and traditional middle-class families in its rows of single-family homes in the central to eastern portions. Large-scale commercial development is concentrated along the Interstate 494 corridor. Besides an extensive park system, with over 1,000feet (93^2) of parkland per capita, the city's south border with the Minnesota River is buffered by the Minnesota Valley National Wildlife Refuge. Bloomington has more jobs per capita than either Minneapolis or St. Paul. Its economy includes headquarters of major companies such as Ceridian, HealthPartners and Toro. The city is a hospitality and retail magnet, recognized nationally for the United States' largest enclosed shopping center, Mall of America.

Population density: 2,517 people per square mile (average).

Tornado activity: Bloomington-area historical tornado activity is slightly above Minnesota state average. It is 33% greater than the overall U.S. average.

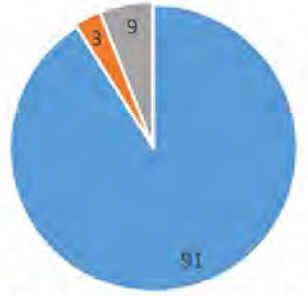
Earthquake activity: Bloomington-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	89,244
H.S. Diploma or More - % of Adults 25+ (2022)	92.8%
Bachelor's Deg. or More - % of Adults 25+ (2022)	44.9%
Households (2022)	37,653
Total Housing Units (2022)	39,347
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.5%

Latitude/Longitude:	44.824372, -93.298096
Area:	38.40 sq. miles
Area - Land only:	34.67 sq. miles (90%)
Area - Water only:	3.73 sq. miles (10%)

Language



https://apps.mla.org/map_data

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1F2), (7A1), (7A2)
- Maintain/Revise the city's Continuity of Operations (COOP) and Emergency Operations Plan (EOP)

1 Mitigation Priority 2 (1D3)
- Maintain basic terrorism response capabilities- Chempack, detection, decon, etc.

1 Mitigation Priority 3 (1F1)
- Critical infrastructure failure planning- water systems, communication systems and power

Vulnerability

- Bridges 204
- Functional Needs 991
- Rail
- Mall of America
- Blue Line: Light Rail
- Monticello NPP: 40 miles

Capability

- Law Enforcement
- Fire Protection
- Animal Control/Shelter
- Bloomington Public Health Division
- GIS Mapping
- Streets and Highways Dept (342 miles)
- Park and Recreation Dept (700 Acres)
- Sewage
- Water Supply
- FCC Registered amateur radio licenses: 380

Corporate/Employers

- Mall of America 11,000
- Health Partners 3,533
- Bloomington School District 1,950
- Seagate Technology 1,365
- Toro 1,150

School District

- 271 Bloomington (15)

https://www.city-data.com/city/Bloomington-Minnesota.html

2024 Bloomington Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding/Dam Failure: Develop a comprehensive approach to reducing the possibility of damage and losses due to failure							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Update inundation map every 10 years	PW	Undetermined	6 Months	Complete		
1A2	Review and compare existing flood control standards, zoning, and building requirements	CD	Undetermined	1 Year	Ongoing	Low	1
1A3	Review and update policies that discourage growth in flood-prone areas	CD	Undetermined	3 Months	Ongoing	Low	1
1A4	Review and update city wide evacuation plan	EM	NA	6 Months	Incomplete	Low	1
1A5	Periodically exercise flood/dam failure response actions	EM, PW	NA	8 Months	Ongoing	Low	1, 3
1A6	Update flooding/dam failure response actions in Regional EOP	EM	Undetermined	6 Months	Incomplete	Low	1
Objective 1B: Wildland Fire: Develop a comprehensive approach reducing the possibility of damage and losses due to wildfire							
1B1	Develop and publicize evacuation plans and routes in areas threatened by wildland fires, as resources are available	FD	Undetermined	1 Year	Incomplete	Low	1
1B2	Ensure defensible firefighting space is afforded adjacent to wildland and open space areas in new developments, as resources are available	FD	Undetermined	Ongoing	Ongoing	5	1, 2, 5
Objective 1C: Hazardous Material Release							
1C1	Facility inspections for code compliance and planning to include protect in place/evacuation strategies	FD	Undetermined	Ongoing	Ongoing	Low	1
1C2	Maintain data on materials in fixed facilities	FD	Undetermined	Ongoing	Ongoing	Low	1
1C3	Train/plan for transportation related HazMat emergencies	FD	Undetermined	Ongoing	Ongoing	Low	1, 2
1C4	Train for HazMat emergencies in fixed facilities	FD	Undetermined	Ongoing	Ongoing	Low	1, 2
Objective 1D: Terrorism							
1D1	Continue to collaborate with LE, MNJAC and emergency service partners to maintain situational awareness of possible threats	FD, PD, MA	Undetermined	Ongoing	Ongoing	Low	1

1D2	Plan/Train for terrorism incident response and recovery	FD, PD	Undetermined	Ongoing	Ongoing	Low	1, 3
1D3	Maintain basic terrorism response capabilities- Chempack, detection, decon, etc.	FD, PD	Undetermined	Ongoing	Ongoing	2	1, 3
Objective 1E: Severe Weather							
1E1	Maintain outdoor warning/alert capability- cities 22 warning sirens	FD	Undetermined	Ongoing	Ongoing	Low	1
1E2	Increase severe weather awareness	FD, EM	Undetermined	Ongoing	Ongoing	Low	1
1E3	Encourage severe weather planning in residential and commercial occupancies.	FD, EM	Undetermined	Ongoing	Ongoing	Low	1
Objective 1F: Critical Infrastructure Failure							
1F1	Critical infrastructure failure planning- water systems, communication systems and power	EM, FD, PD, PW, CD	Undetermined	6 Months	Ongoing	3	1, 4
1F2	Maintain/Revise the city's Continuity of Operations (COOP) and Emergency Operations Plan (EOP)	FD, EM	Undetermined	6 Months	Ongoing	1	1
1F3	Contingency planning for vulnerable populations	FD, EM, CS	Undetermined	8 Months	Ongoing	Low	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions	EM, FD	Undetermined	Ongoing	Ongoing	Low	1
2A2	Provide information to the public on the city website and through public education opportunities	EM, FD, CS	Undetermined	Ongoing	Ongoing	Low	1
Objective 2B: Promote partnerships between the state, county, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions							
2B1	Participate as a member in local or regional hazard mitigation planning groups	PW, FD, PD	Undetermined	Ongoing	Ongoing	Low	1
2B2	Support or provide public sector events, workshops, symposiums, and continued education opportunities	FD, EM, CS	Undetermined	Ongoing	Ongoing	Low	1

Objective 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community							
2C1	Increase awareness and knowledge of hazard mitigation principles and practices	FD, PW, PD, EM	Undetermined	Ongoing	Ongoing	Low	1
2C2	Encourage businesses to develop and implement hazard mitigation actions	FD, EM, PD, PW	Undetermined	Ongoing	Ongoing	Low	1
2C3	Support or provide private sector events, workshops, symposiums, and continued education opportunities	FD, EM, PW, PD	Undetermined	Ongoing	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Work with watershed districts to address water quality and storm water planning							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Update/adjust comprehensive plan to reflect system capabilities for extreme events	CD, PW, FD, PD, CS	Undetermined	1 Year	Ongoing	Low	1
3A2	Monitor current systems for potential weakness or failures and ability to adjust	EM	Undetermined	Ongoing	Ongoing	Low	1
Objective 3B: Maintain protections and monitor the Native American burial mounds on public and private property							
3B1	Continue to monitor public and private properties for development/encroachments into protected sites	CD	Undetermined	Ongoing	Ongoing	Low	1
Objective 3C: Maintain parks and support National Wildlife Refuge							
3C1	Monitor for drought impact and invasive species	P&R, FD, PW	Undetermined	Ongoing	Ongoing	Low	1
3C2	Wildfire suppression/ and assist in wildland management of fuels	FD, P&R	Undetermined	Ongoing	Ongoing	4	1, 2, 5
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Update flood zone maps							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Work with FEMA, Watershed Districts, and City Engineer to update/maintain current flood zone maps to reflect current and potential event predictions. Evaluate new	PW, FD, EM	Undetermined	2 Years	Ongoing	Low	1, 5, 6

	models that increase impacted properties and intense event levels						
Objective 4B: Update/maintain vulnerable populations locations and readiness capabilities							
4B1	Identify nursing homes, assisted living care facilities and group homes COOP planning and resilience/self-reliance capabilities and measures	CD, FD, CS/PH, EM	Undetermined	1 Year	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Utilize current models and predictions for development requirements							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Enforce existing codes to ensure developments meet standards	CD, FD	Undetermined	Ongoing	Ongoing	Low	1
6A2	Encourage disaster resistant development plans for new developments and redevelopments	CD, FD	Undetermined	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Maintain COOP planning effort							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Update the city COOP	FD, EM	Undetermined	6 Months	In process	1	1
7A2	TTX the COOP to identify gaps	FD, EM	Undetermined	8 Months	2nd ¼ 2024	1	1
Objective 7B: Maintain EOP/EOC planning effort and capabilities							
7B1	Update the EOP	FD, EM	Undetermined	6 Months	2nd ¼ 2024	Low	1
7B2	TTX the EOP and practice EOC activation	EM	Undetermined	8 Months	3rd ¼ 2024	Low	1
Objective 7C: Encourage EOP/COOP planning effort for our business and non-profit partners in the community							
7C1	Outreach and assist community business and non-profit in the EOP/COOP planning effort to increase community resiliency	FD, EM	Undetermined	2 Years	Planned	Low	1

Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Bloomington 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding/Dam Failure: Develop a comprehensive approach to reducing the possibility of damage and losses due to failure	
Project Title/Action	1A1: Update inundation map every 10 years
Project Status	Complete
Responsible Agency	Emergency Management
Project Title/Action	1A2: Review and compare existing flood control standards, zoning, and building requirements
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1A3: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1A4: Review and update city wide evacuation plan
Project Status	Incomplete
Responsible Agency	Emergency Management
Project Title/Action	1A5: Periodically exercise flood/dam failure response actions
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1A6: Update flooding/dam failure response actions in regional EOP
Project Status	Incomplete
Responsible Agency	Emergency Management
OBJECTIVE: 1B: Wildland Fire: Develop a comprehensive approach reducing the possibility of damage and losses due to wildfire	
Project Title/Action	1B1: Develop and publicize evacuation plans and routes in areas threatened by wildland fires, as resources are available
Project Status	Incomplete
Responsible Agency	Emergency Management
Project Title/Action	1B2: Ensure defensible firefighting space is afforded adjacent to wildland and open space areas in new developments, as resources are available
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 1C: Hazardous Material Release	
Project Title/Action	1C1: Facility inspections for code compliance and planning to include protect in place/evacuation strategies
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1C2: Maintain data on materials in fixed facilities
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1C3: Train/plan for transportation related HazMat emergencies
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1C4: Train for HazMat emergencies in fixed facilities
Project Status	Ongoing

Responsible Agency	Emergency Management
OBJECTIVE: 1D: Terrorism	
Project Title/Action	1D1: Continue to collaborate with LE, MNJAC, and emergency service partners to maintain situational awareness of possible threats
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1D2: Plan/Train for terrorism incident response and recovery
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1D3: Maintain basic terrorism response capabilities – Chempack, detection, decon, etc.
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 1E: Severe Weather	
Project Title/Action	1E1: Maintain outdoor warning/alert capability – cities 22 warning sirens
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1E2: Increase severe weather awareness
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1E3: Encourage severe weather planning in residential and commercial occupancies
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 1F: Critical Infrastructure Failure	
Project Title/Action	1F1: Critical infrastructure failure planning – water systems, communication systems and power
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1F2: Maintain/Revise the city's Continuity of Operations (COOP) and Emergency Operations Plan (EOP)
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	1F3: Contingency planning for vulnerable populations
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2A: Educate the Public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	Ongoing
Responsible Agency	Emergency Management

OBJECTIVE: 2B: Promote partnerships between the state, county, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning groups
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	2B2: Support or provide public sector events, workshops, symposiums, and continued education opportunities
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	2C2: Encourage businesses to develop and implement hazard mitigation actions
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	2C3: Support or provide private sector events, workshops, symposiums, and continued education opportunities
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 3A: Work with watershed districts to address water quality and storm water planning	
Project Title/Action	3A1: Update/adjust comprehensive plan to reflect system capabilities for extreme events
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	3A2: Monitor current systems for potential weakness or failures and ability to adjust
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 3B: Maintain protections and monitor the Native American burial mounds on public and private properties	
Project Title/Action	3B1: Continue to monitor public and private properties for development/encroachments into protected sites
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 3C: Maintain parks and support National Wildlife Refuge	
Project Title/Action	3C1: Monitor for drought impact and invasive species
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	3C2: Wildlife suppression/ and assist in wildland management of fuels
Project Status	Ongoing
Responsible Agency	Emergency Management

OBJECTIVE: 4A: Update flood zone maps	
Project Title/Action	4A1: Work with FEMA, Watershed Districts, and City Engineer to update/maintain current flood zone maps to reflect current and potential event predictions. Evaluate new models that increase impacted propertied and intense event levels
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 4B: Update/maintain vulnerable populations locations and readiness capabilities	
Project Title/Action	4B1: Identify nursing homes, assisted living care facilities and group homes COOP planning and resilience/self-reliance capabilities and measures
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 6A: Utilize current models and predictions for development requirements	
Project Title/Action	6A1: Enforce existing codes to ensure developments meet standards
Project Status	Ongoing
Responsible Agency	Emergency Management
Project Title/Action	6A2: Encourage disaster resistant development plans for new developments and redevelopments
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 7A: Maintain COOP planning effort	
Project Title/Action	7A1: Update the City COOP
Project Status	In Progress
Responsible Agency	Emergency Management
Project Title/Action	7A2: TTX the COOP to identify gaps
Project Status	In Progress
Responsible Agency	Emergency Management
OBJECTIVE: 7B: Maintain EOP/EOC planning effort and capabilities	
Project Title/Action	7B1: Update the EOP
Project Status	In Progress
Responsible Agency	Emergency Management
Project Title/Action	7B2: TTX the COOP to identify gaps
Project Status	In Progress
Responsible Agency	Emergency Management
OBJECTIVE: 7C: Encourage EOP/COOP planning effort for our businesses and non-profit partners in the community	
Project Title/Action	7C1: Outreach and assist community businesses and non-profit in the EOP/COOP planning effort to increase community resiliency
Project Status	In Progress
Responsible Agency	Emergency Management

3.3.2. CITY OF BROOKLYN CENTER

Hennepin County - Brooklyn Center

Website: www.brooklyncentermn.gov





Brooklyn Center lies on the west bank of the Mississippi River on the northwest border of Minneapolis in Hennepin County. Brooklyn Center is one of the oldest inner-ring suburbs of Minneapolis-St. Paul, with about 3.2 million residents. Formed as the center of local trade in Brooklyn Township since 1873, the rural area farmed market gardening for the nearby growing population of Minneapolis. The village incorporated in 1911, splitting from Brooklyn Township, to avoid annexation from the expanding city of Minneapolis. The city became a bedroom community and industrial job center following postwar growth.

Population density: 4,139 people per square mile (average).

Tornado activity: Brooklyn Center-area historical tornado activity is slightly above Minnesota state average. It is 27% greater than the overall U.S. average.

Earthquake activity: Brooklyn Center-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	33,109
H.S. Diploma or More - % of Adults 25+ (2022)	88.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	24.2%
Households (2022)	11,294
Total Housing Units (2022)	11,648
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.4%

Latitude/Longitude:	45.063637, -93.3159775
Area:	8.33 sq. miles
Area - Land only:	7.95 sq. miles (95%)
Area - Water only:	0.38 sq. miles (5%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Adopt the new Emergency Operation Plan and safety manual then train employees.

8 Mitigation Priority 2 (8A1)
- Community outreach programs through the OPCHS. Opioid training, etc.

8 Mitigation Priority 3 (8A2)
- ART Team Model

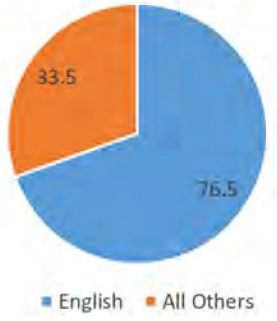
Vulnerability
- Bridges 10
- Functional Need 182
- Monticello NPP: 27 Miles

Capability
- Law Enforcement
- FBI Regional Field Office
- Parks and Recreation Dept.
- Fire Protection
- Sewer/water

Corporate/Employer
- Hennepin County 9300
- Medtronic 1100
- Luther Auto Group 555
- Caribou Coffee 200

School District
- 11 Anoka
- 279 Osseo
- 281 Robbinsdale
- 286 Brooklyn Center

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Brooklyn-Center-Minnesota.html

2024 Brooklyn Center Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Preparation for Severe Weather Response							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Adopt the new Emergency Operation Plan and safety manual then train employees.	City of Brooklyn Ctr.	10,000	Short	Ongoing	1	1
1A2	Construct a new Public Works garage that allows for improved operations, space for new and existing equipment, and storage of materials.	City of Brooklyn Ctr.	$20,000,000-$30,000,000	Medium	Delayed	Medium	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate and inform the public and local businesses on how to better prepare and protect themselves from the impacts of severe weather							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Develop an Emergency Preparedness website which could educate the public and local businesses about how to prepare their homes and businesses from effects of severe weather. Due to the diversity within the community this information will need to be translated into various languages	City of Brooklyn Ctr.	$25,000	Long	In progress	Med	1
Objective 2B: Notify and inform the public							
2B1	Purchase and install electronic reader boards at key critical infrastructure locations to aid in the dissemination of emergency information.	City of Brooklyn Ctr.	$120,000	Medium	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury All Overhead Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community	City of Brooklyn Ctr.	$5,000,000-$20,000,000	Long	Continuous	Low	1, 4, 5
Objective 7B: Provide auxiliary power							
7B1	Install an emergency generator at City Hall/Community Center so the facility could be used as a congregate care facility	City of Brooklyn Ctr.	$300,000	Medium	Will work in with the new building construction	Med	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Community outreach programs through the OPCHS, Opioid training, etc.	City of Brooklyn Ctr.	$60,000 – 90,000 (Opioid funds)	Short	Planning	2	1

8A2	ART team model	Henn CO./ City of Brooklyn Ctr.	$80k – 120k	Short	Likely starting early 2024	3	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Electrify the City's fleet of vehicles; this would include installing charging stations at City buildings	City of Brooklyn Ctr.	$1,000,000-$5,000,000	Long	Ongoing	Long	1, 3
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Brooklyn Center 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Preparation for Severe Weather Response	
Project Title/Action	1A1: Upgrade technology within the EOC to aid in better mitigation of a natural or manmade disaster
Project Status	Complete
Project Title/Action	1A2: Improve the capability of the community's backup EOC
Project Status	Complete
Responsible Agency	City of Brooklyn Center
OBJECTIVE: 2A: Educate and inform the public and local businesses on how to better prepare and protect themselves from the impacts of severe weather	
Project Title/Action	2A1: Develop an Emergency Preparedness website which could educate the public and local businesses about how to prepare their homes and businesses from effects of severe weather. Due to the diversity within the community, this information will need to be translated into various languages
Project Status	Delayed
Responsible Agency	City of Brooklyn Center
OBJECTIVE: 2B: Notify and inform the public	
Project Title/Action	2B1: Purchase and install electronic reader boards at key critical infrastructure locations to aid in the dissemination of emergency information
Project Status	On-Schedule
Project Title/Action	2B2: Purchase an emergency notification system, such as Everbridge, to aid in the dissemination of emergency information
Project Status	Canceled
Responsible Agency	City of Brooklyn Center
OBJECTIVE: 7A: Bury All Overhead Power Lines	
Project Title/Action	7A1: Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community
Project Status	On-Schedule
Responsible Agency	City of Brooklyn Center
OBJECTIVE: 7B: Provide auxiliary power	
Project Title/Action	7B1: Install an emergency generator at City Hall/Community Center so the facility could be used as a congregate care facility
Project Status	Delayed
Responsible Agency	City of Brooklyn Center

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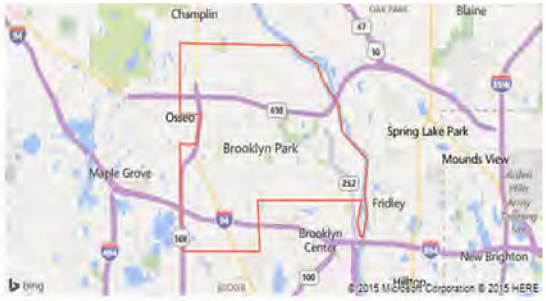
3.3.3. CITY OF BROOKLYN PARK

Hennepin County - Brooklyn Park

Website: https://www.brooklynpark.org/



https://www.statsamerica.org/town/



Brooklyn Park lies on the west bank of the Mississippi River upstream from downtown Minneapolis in northern Hennepin County. Brooklyn Park is the fourth-largest suburb of Minneapolis/St. Paul. The city is known for Edinburgh USA Golf Course, North Hennepin Community College and a campus of Hennepin Technical College. A traditional bedroom community of both major cities, Target Corporation is currently expanding its Northern Campus into a $1.78 billion dollar office, retail, and housing city center providing 26,600 jobs.- Once Brooklyn Township, the township split in 1860 with the southeastern village incorporating into Brooklyn Center and Crystal Lake

Population density: 3,244 people per square mile (average).

Tornado activity: Brooklyn Park-area historical tornado activity is slightly above Minnesota state average. It is 25% greater than the overall U.S. average.

Earthquake activity: Brooklyn Park-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	84,951
H.S. Diploma or More - % of Adults 25+ (2022)	88.2%
Bachelor's Deg. or More - % of Adults 25+ (2022)	31.6%
Households (2022)	29,603
Total Housing Units (2022)	30,483
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.1%

Latitude/Longitude:	45.108821, -93.3403165
Area:	26.58 sq. miles
Area - Land only:	26.10 sq. miles (98%)
Area - Water only:	0.48 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Upgrade technology within the EOC to aid in a better mitigation of a natural or manmade disaster.

1 Mitigation Priority 2 (1A2)
- Improve the capability of the community back-up EOC.

2 Mitigation Priority 3 (2A1)
- Update the department website to include sections for Emergency Preparedness which could educate the public and local businesses about how to prepare their homes and businesses from effects of severe weather. Due to the diversity within the community this information will need to be translated into various languages

Vulnerability

- Functional Need 209
- Bridges 69
- Monticello NPP: 26 miles
- High Hazard Occupancy
  - Americold
  - Styrotech
  - HC Transfer Facility
  - Andpak
  - Takeda
  - Caterpillar
  - LCS
  - Technical Plating
  - BOP Water Tx Plant
  - Midwest Finishing
  - Rust Oleum
  - Sherwin Williams

Corporate/Employer

- North Hennepin Community College
- Hennepin Technical College

Capability

- FT Emergency Manager
- Law Enforcement
- Fire Protection
- Park And Recreation
- FCC Amateur Radio Licenses 131

School District

- 279 Osseo
- 11 Anoka-Hennepin
- 281 Robbinsdale

Language



English Spanish All Others

https://apps.mla.org/map_data

Social Media:
Facebook: City of Brooklyn Park
Twitter: City of Brooklyn Park

https://www.city-data.com/city/Brooklyn-Park-Minnesota.html

2024 Brooklyn Park Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve preparation for Severe Weather Response							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Upgrade technology within the EOC to aid in a better mitigation of a natural or manmade disaster.	Brooklyn Park Fire/EM Department	$50,000	Short	In-Progress	1	1
1A2	Improve the capability of the community back-up EOC.	Brooklyn Park Fire/EM Department	$20,000	Medium	Reviewing	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate and inform the public and local businesses on how to better prepare and protect themselves from the impacts of severe weather							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Update the department website to include sections for Emergency Preparedness which could educate the public and local businesses about how to prepare their homes and businesses from effects of severe weather. Due to the diversity within the community this information will need to be translated into various languages	Brooklyn Park Fire/EM Department	$10,000	Short	In-Progress	3	1
Objective 2B: Notify and inform the public							
2B1	Purchase an emergency notification system such as Everbridge to aid in the dissemination of emergency information.	Brooklyn Park Fire/EM Department	$20,000	Short	Reviewing	4	1, 3
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Develop a comprehensive approach to reducing the possibility of damage and losses due to a hazardous materials spill							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Continue to use Brooklyn Park GIS to map and update locations of fixed facilities using hazardous materials and associated transportation routes in a timely manner.	Brooklyn Park Fire/EM Department	No Cost	Ongoing	Ongoing	7	1
4A2	Provide Railroad & Pipeline Safety Awareness Level training for First Responders.	Brooklyn Park Fire/EM Department	No Cost	Short/Ongoing	Ongoing	5	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury all overhead power lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community.	Brooklyn Park Fire/EM Department	$2,500,000	Long	Reviewing	6	1, 4, 5
Objective 7B: Educate first responders to increase awareness of hazards and opportunities for mitigation actions							
7B1	Ensure that all essential city departments (police, fire, public works) have the latest edition of the Emergency Response Guidebook	Brooklyn Park Fire/EM Department	No Cost	Ongoing	Ongoing	8	1, 2
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Brooklyn Park 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Improve preparation for Severe Weather Response	
Project Title/Action	1A1: Upgrade technology within the EOC to aid in a better mitigation of a natural or manmade disaster
Project Status	Anticipated completion date: June 2026
Project Title/Action	1A2: Improve the capability of the community back-up EOC
Project Status	Anticipated completion date: June 2026
Responsible Agency	Brooklyn Park Fire / EM Department
OBJECTIVE: 2A: Educate and inform the public and local businesses on how to better prepare and protect themselves from the impacts of severe weather	
Project Title/Action	2A1: Update the department website to include sections for Emergency Preparedness, which could educate the public and local businesses about how to prepare their homes and businesses from the effects of severe weather. Due to the diversity within the community, this information will need to be translated into various languages
Project Status	Anticipated completion date: June 2024
Responsible Agency	Brooklyn Park Fire / EM Department
OBJECTIVE: 2B: Notify and inform the public	
Project Title/Action	2B1: Purchase an emergency notification system, such as Everbridge, to aid in the dissemination of emergency information
Project Status	Delayed
Responsible Agency	Brooklyn Park Fire / EM Departments
OBJECTIVE: 4A: Develop a comprehensive approach to reducing the possibility of damage and losses due to a hazardous materials spill	
Project Title/Action	4A1: Continue to use Brooklyn Park GIS to map and update locations of fixed facilities using hazardous materials and associated transportation routes in a timely manner
Project Status	Complete
Project Title/Action	4A2: Provide Railroad & Pipeline Safety Awareness Level training for First Responders
Project Status	Anticipated completion date: 2024
Responsible Agency	Brooklyn Park Fire / EM Department
OBJECTIVE: 7A: Bury All Overhead Power lines	
Project Title/Action	7A1: Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community
Project Status	Delayed
Responsible Agency	Brooklyn Park Fire / EM Department
OBJECTIVE: 7B: Educate first responders to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	7B1: Ensure that all essential city departments (police, fire, public works) have the latest edition of the Emergency Response Guidebook
Project Status	Complete
Responsible Agency	Brooklyn Park Fire / EM Department

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3.3.4. CITY OF CHAMPLIN

Hennepin County - Champlin

Website: Champlin, MN | Official Website





The city of Champlin is located along the Mississippi River, surrounded by the cities of Anoka, Dayton, Brooklyn Park, Maple Grove and Coon Rapids, about 18 miles northwest of Minneapolis. According to the U.S. Census Bureau, the city has a total area of 8.8 square miles, of which, 8.2 miles of it is land and 0.6 square miles is water. The average elevation is 875 feet above sea level. The settlement of the Champlin area began when Father Louis Hennepin, a Franciscan priest from whom Hennepin County gets its name, Michael Accult and Peter Dulay were captured by the Sioux Indians. An Indian trading post was eventually established in the area. Charles Miles created the first permanent settlement in what came to be called the Marshall Township. In 1859, it was split into two towns, Champlin and Dayton.

Population density: 2,871 people per square mile (average).

Tornado activity: Champlin-area historical tornado activity is slightly above Minnesota state average. It is 23% greater than the overall U.S. average.

Earthquake activity: Champlin-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	23,666
H.S. Diploma or More - % of Adults 25+ (2022)	97.7%
Bachelor's Deg. or More - % of Adults 25+ (2022)	36.4%
Households (2022)	8,647
Total Housing Units (2022)	8,774
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude: 45.1815475, -93.3755805
Area: 8.73 sq. miles
Area - Land only: 8.17 sq. miles (94%)
Area - Water only: 0.56 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1D1), (7A1)
- Improve the Data Backup and protection Protocols for City records

1 Mitigation Priority 2 (1E1)
- Improve Campus Security in the event of a large-scale protest or civil disobedience

1 Mitigation Priority 3 (1C1)
- The wellhead protection plan identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected

Vulnerability
- Bridges 5
- Functional Needs 25
- Monticello NPP: 21 miles
- Elm Creek Dam
- Father Hennepin Festival

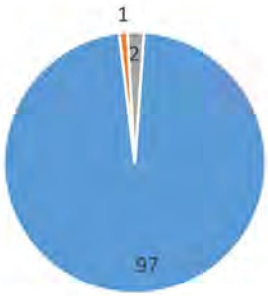
Capability
- Law Enforcement
- Fire Protection (shared)
- Park And Recreation
- Streets and Highways
- FCC Amateur Radio Licenses 66

Corporate/Employer
- Industrial on Trunk Highway 169/109th Ave

School District
- 11 Anoka-Hennepin

Social Media:
Facebook - https://www.facebook.com/CityofChamplin
Instagram - Champlin, Minnesota (@champlin_mn) • Instagram photos and videos

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Champlin-Minnesota.html

2024 Champlin Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flood Forecasting							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Work with a wide range of stakeholders to have a river gauge installed on the Mississippi river	City/DNR	$40,000 Installation	(L)3-5 yrs	Complete		
Objective 1B: Effective No Wake Activation							
1B1	Work with a wide range of stakeholders to have a river gauge installed on the Mississippi river	City/DNR	$40,000 $18,000	(L)3-5yrs	Complete		
Objective 1C: Wellhead Protection							
1C1	The wellhead protection plan identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected	City Engineer	$20,000	(M)10yrs	Ongoing	3	1
Objective 1D: Protection and Safeguarding of Vital City Data							
1D1	Improve the Data Backup and protection Protocols for City records	City IT	$22,000 $4,000	(M)5yrs	Ongoing	1	1
Objective 1E: Protection and Safeguarding of Vital City Data							
1E1	Improve Campus Security in the event of a large-scale protest or civil disobedience	City PW Director/Police	$1.5 Million	3-5 yrs	Ongoing	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Flood Forecasting							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Work with a wide range of stakeholders to have a river gauge installed on the Mississippi river	City/DNR	$40,000 Installation	(L)3-5yrs	Complete		
Objective 2B: Shoreline Stabilization							
2B1	Work with a wide range of stakeholders to improve shoreline stabilization on Elm Creek and the Mississippi River	City / NNR / Watershed	$150,000 x3= $450,000.00	(L)20yr	Complete		
Objective 2C: Wellhead Protection Plan							

2C1	The wellhead protection plan is updated every 10 years and identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected.	City Engineer	$20,000	(M)10yrs	Ongoing	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Shoreline Stabilization							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with a wide range of stakeholders to improve shoreline stabilization on the Mississippi River and repair riverbank erosion	City / NNR / Watershed	$150,000 x3= $450,000. 00	(L)20yr	Ongoing	Low	1, 2, 5
3A2	Work with a wide range of stakeholders to improve shoreline stabilization on the Champlin Mill Pond and repair reservoir erosion	City / NNR / Watershed	$150,000 x3= $450,000. 00	(L)20yr	Ongoing	Low	1, 2, 5
3A3	Work with a wide range of stakeholders to improve shoreline stabilization on Elm Creek	City / NNR / Watershed	$150,000 x3= $450,000. 00	(L)20yr	Ongoing	5	1, 2, 5
Objective 3B: Wellhead Protection Plan							
3B1	The wellhead protection plan is updated every 10 years and identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected	City Engineer	$20,000	(M)10yrs	Ongoing	3	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Update the wellhead protection plan to identify potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected.	City Engineer	$20,000	(M)10yrs	Ongoing	3	1
Objective 4B: Flood Forecasting							

4B1	Work with a wide range of stakeholders to install a river gauge	City/DNR	$40,000 Installation	(L)3-5yrs	Complete		
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Flood Forecasting							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Work with a wide range of stakeholders to install a river gauge	City/DNR	$18,000 Annual Maintenance	(L)3-5yrs	Complete		
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Protection and Safeguarding of Vital City Data							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Improve the data backup and protection protocols for city records	City IT	$22,000 $4,000	(M)5yrs	Ongoing	1	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

9A1	Shoreline restoration of the Elm Creek as water levels change due to projected Climate change effecting source waters	City Engineer	$450,000	6 Months	Ongoing	Low	1, 5
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Upgrade and replace City Campus generator to ensure continuity of government services should a large-scale power outage occur	City Utility Services	$1.1 Million	5 years	Ongoing	4	1, 4, 5

Champlin 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flood Forecasting	
Project Title/Action	1A1: Work with a wide range of stakeholders to have a river gauge installed on the Mississippi River
Project Status	Complete
Responsible Agency	City/DNR
OBJECTIVE: 1B: Effective No Wake Activation	
Project Title/Action	1B1: Work with a wide range of stakeholders to have a river gauge installed on the Mississippi River
Project Status	Complete
Summary of Project	River Gauge Annual Maintenance
Responsible Agency	City/DNR
OBJECTIVE: 1C: Wellhead Protection	
Project Title/Action	1C1: The wellhead protection plan identified potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected
Project Status	On-Schedule
Responsible Agency	City Engineer
OBJECTIVE: 1D: Protection and Safeguarding of Vital City Data	
Project Title/Action	1D1: Improve the Data Backup and protection Protocols for City records
Project Status	Anticipated completion date: 08/2024
Responsible Agency	City IT
OBJECTIVE: 2A: Flood Forecasting	
Project Title/Action	2A1: Work with a wide range of stakeholders to have a river gauge installed on the Mississippi River
Project Status	Complete
Responsible Agency	City/DNR
OBJECTIVE: 2B: Shoreline Stabilization	
Project Title/Action	2B1: Work with a wide range of stakeholders to improve shoreline stabilization on Elm Creek and the Mississippi River
Project Status	On-Schedule
Responsible Agency	City/NNR/Watershed
OBJECTIVE: 2C: Wellhead Protection Plan	
Project Title/Action	2C1: The wellhead protection plan is updated every 10 years and identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected
Project Status	On-Schedule
Responsible Agency	City Engineer

OBJECTIVE: 3A: Shoreline Stabilization	
Project Title/Action	3A1: Work with a wide range of stakeholders to improve shoreline stabilization on the Mississippi River and repair riverbank erosion
Project Status	On-Schedule
Project Title/Action	3A2: Work with a wide range of stakeholders to improve shoreline stabilization on the Champlin Mill Pond and repair reservoir erosion
Project Status	Complete
Project Title/Action	3A3: Work with wide range of stakeholders to improve shoreline stabilization on Elm Creek
Project Status	On-Schedule
Responsible Agency	City/NNR/Watershed
OBJECTIVE: 3B: wellhead protection plan	
Project Title/Action	3B1: The wellhead protection plan is updated every 10 years and identifies potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected.
Project Status	On-Schedule
Responsible Agency	City Engineer
OBJECTIVE: 4A: Wellhead protection plan	
Project Title/Action	4A1: Update the wellhead protection plan to identify potential hazards to the groundwater supply from infiltration of wells that are not properly capped or protected
Project Status	On-Schedule
Responsible Agency	City Engineer
OBJECTIVE: 4B: Flood forecasting	
Project Title/Action	4B1: Work with a wide range of stakeholders to install a river gauge
Project Status	Complete
Responsible Agency	City/DNR
OBJECTIVE: 5A: Flood forecasting	
Project Title/Action	5A1: Work with a wide range of stakeholders to install a river gauge
Project Status	Complete
Responsible Agency	City/DNR
OBJECTIVE: 7A: Protection and Safeguarding of vital City data	
Project Title/Action	7A1: Improve the data backup and protection protocols for city records
Project Status	On-Schedule
Responsible Agency	City IT

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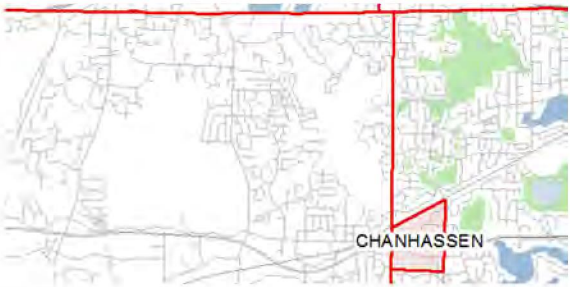
3.3.5. CITY OF CHANHASSEN

Hennepin County - Chanhassen

Website: Chanhassen, MN | Home (chanhassenmn.gov)





Chanhassen is located in both Hennepin and Carver counties. The original name comes from the Dakota word chanhasen, meaning "sugar-maple-tree" (chan, tree; haza, a tree with sap). U.S. Route 212 and Minnesota State Highway 5 and 41 are three of the main routes in the city. Chanhassen is home to the Minnesota Landscape Arboretum, the Chanhassen Dinner Theaters, and Paisley Park Studios.

Population density: 1,253 people per square mile (low).

Tornado activity: Chanhassen-area historical tornado activity is slightly above Minnesota state average. It is 31% greater than the overall U.S. average.

Earthquake activity: Chanhassen-area historical earthquake activity is significantly above Minnesota state average. It is 53% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	25,868
H.S. Diploma or More - % of Adults 25+ (2022)	98.5%
Bachelor's Deg. or More - % of Adults 25+ (2022)	64.5%
Households (2022)	9,578
Total Housing Units (2022)	10,096
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.6%

Latitude/Longitude:	44.843578, -93.5697225
Area:	22.88 sq. miles
Area - Land only:	20.44 sq. miles (89%)
Area - Water only:	2.44 sq. miles (11%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1
- Partner with local agencies to enhance resident understanding of local hazards.

4 Mitigation Priority 2
- Assess flood related hazards within the community.

5 Mitigation Priority 3
- Coordinate with regional water districts to assess flood vulnerability.

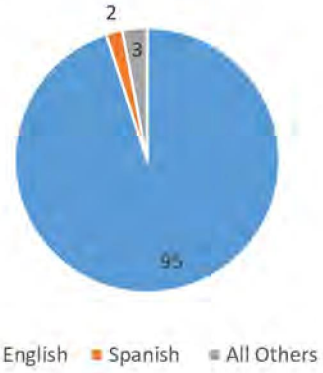
Vulnerability
- Bridges 30
- Functional Needs 13
- Monticello NPP: 33 Miles

Capability
- FCC Amateur Radio Licenses 53
- Law Enforcement
- Fire Protection
- Park and Recreation
- Roads and Highways

Corporate/Top Employers
- Lifetime Fitness 1171
- Instant Web Companies 718
- The Bernard Group 686
- Rosemount Inc 550

School District
- 112

Language



https://apps.mla.org/map_data

Social Media:
www.facebook.com/ChanhassenMN

https://www.city-data.com/city/Chanhassen-Minnesota.html

2024 Chanhassen Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Enhance resident awareness.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Partner with local agencies to enhance resident understanding of local hazards.	Emergency Management	Personnel Time	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Assess flood related hazards within the community.	Emergency Management	Personnel Time	Ongoing	Ongoing	2	1, 6
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordinate with water districts.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Coordinate with regional water districts to assess flood vulnerability.	Emergency Management	Personnel Time	Ongoing	Ongoing	3	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Chanhassen 2018 – 2024 Mitigation Strategies Progress Report
No Prior Projects.

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3.3.6. CITY OF CORCORAN

Hennepin County - Corcoran

Corcoran was settled in 1855 and was organized on May 11, 1858. The city is named after Patrick B. Corcoran, the first schoolteacher, merchant, and postmaster of the town. The city of Corcoran was incorporated on December 4, 1948.

Website: https://www.corcoranmn.gov/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	6,549
H.S. Diploma or More - % of Adults 25+ (2022)	95.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	48.4%
Households (2022)	2,402
Total Housing Units (2022)	2,423
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.9%

Latitude/Longitude:	45.1091235, -93.5841165
Area:	36.00 sq. miles
Area - Land only:	35.71 sq. miles (99%)
Area - Water only:	0.28 sq. miles (1%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Conduct a regional study for future public safety infrastructure including a public safety center (possibly including a training center), fire station(s), and storm shelters, including site plan development, to support disaster response.

1 Mitigation Priority 2 (1A1)
- Identify and improve streets that are repeatedly flooded and washed away with improvements that include modifying and raising roads/streets, providing improved drainage, and storm damage removal.

7 Mitigation Priority 3 (7B1)
- St. Therese- Work with St. Therese to mesh their EOP with the City's

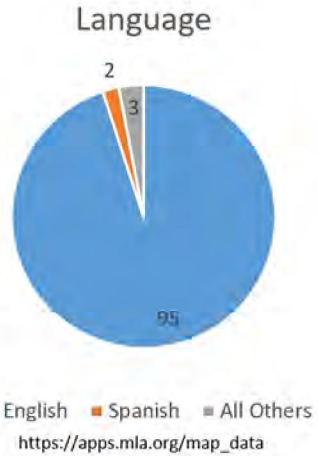
Vulnerability
- Lions Park
- Monticello NPP: 19 miles

Capability
- Law Enforcement
- Public Works
- Fire (shared)
- Parks and Recreation
- FCC Registered Amateur Radio Licenses: 15

Corporate/ Employer
- St. Therese
- Tessmer Dairy farm
- Farmers State Bank

School District
- 877 Buffalo-Hanover-Montrose
- 883 Rockford
- 279 Osseo
- 879 Delano
- 284 Wayzata

Social Media:
Facebook: https://www.facebook.com/CorcoranMN/
Facebook: https://www.facebook.com/CorcoranPDMN/



https://apps.mla.org/map_data

2024 Corcoran Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve storm water drainage capacity							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Identify and improve streets that are repeatedly flooded and washed away with improvements that include modifying and raising roads/streets, providing improved drainage, and storm damage removal.	City	$5,000,000.00	10 Years	On Schedule	2	1, 4, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Increase severe weather awareness information for citizens.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Create and distribute severe weather awareness information for citizens in print and on the internet.	EM	$2,000.00	3 years	Complete		
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Improve Area coverage maps							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Update all City Road and infrastructure maps in digital and print formats.	City	$10,000.00	5 Years	On Schedule	6	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							

Objective 6A: Improve Outdoor Warning Siren Coverage							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Install an outdoor warning siren in the City's northeast industrial district.	EM/City	$35,000.00	5 years	On Schedule	4	1, 2
Objective 6B: Improve Outdoor Warning Siren Coverage							
6B1	Install an outdoor warning siren in the City's northwest region.	EM/City	$35,000.00	10 Years	On Schedule	7	1, 2
Objective 6C: Upgrade outdated warning Sirens							
6C1	Develop a replacement schedule for all outdoor warning sirens.	EM	Staff Time	1 year	Delayed	8	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Locate and develop sites to build a public safety center, fire station(s), and storm shelter.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Conduct a regional study for future public safety infrastructure including a public safety center (possibly including a training center), fire station(s), and storm shelters, including site plan development, in order to support disaster response.	City	$100,000.00	5 Years	On Schedule	1	1, 4
7B1	St. Therese- Work with St. Therese to mesh their EOP with the City's	EM	$5,0000	3 Years	On Schedule	3	1
7C1	Hope Community- Work with Hope Community Development to mesh their EOP with the City's	EM	$5,0000	5 Years	On Schedule	5	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Corcoran 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Improve storm water drainage capacity	
Project Title/Action	1A1: Identify and improve streets that are repeatedly flooded and washed away with improvements that include modifying and raising roads/streets, providing improved drainage, and storm damage removal
Project Status	On-Schedule
Responsible Agency	City
OBJECTIVE: 2A: Increase severe weather awareness information for citizens	
Project Title/Action	2A1: Create and distribute severe weather awareness information for citizens in print and on the internet
Project Status	Complete
Responsible Agency	City
OBJECTIVE: 5A: Improve Area coverage maps	
Project Title/Action	5A1: Update all City Road and infrastructure maps in digital and print forms
Project Status	On-Schedule
Responsible Agency	City/EM
OBJECTIVE: 6A: Improve Outdoor Warning Siren Coverage	
Project Title/Action	6A1: Install an outdoor warning siren in the City's northeast industrial district
Project Status	On-Schedule
Responsible Agency	City/EM
OBJECTIVE: 6B: Improve Outdoor Warning Siren Coverage	
Project Title/Action	6B1: Install an outdoor warning siren in the City's northwest region
Project Status	On-Schedule
Responsible Agency	City/EM
OBJECTIVE: 6C: Upgrade outdated warning Sirens	
Project Title/Action	61C: Develop a replacement schedule for all outdoor warning sirens
Project Status	On-Schedule
Responsible Agency	EM
OBJECTIVE: 7A: Locate and develop sites to build a public safety center, fire station(s), and storm shelter	
Project Title/Action	7A1: Conduct a regional study for future public safety infrastructure including a public safety center (possibly including a training center), fire station(s), and storm shelters, including site plan development, to support disaster response
Project Status	Delayed
Responsible Agency	City

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3.3.7. CITY OF CRYSTAL

Hennepin County - Crystal

Website: www.crystalmn.gov





The city is bordered on the north by the city of Brooklyn Park, on the east by Brooklyn Center and Robbinsdale, on the south by Golden Valley and on the west by New Hope. Crystal has been awarded the "Minnesota Star City" designation for economic development. Minnesota State Highway 100 and County Road 81 are two of the main arterial routes in the city. Crystal Airport, a small general aviation field, is also located within the city limits.

Population density: 3,932 people per square mile (average).

Tornado activity: Crystal-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Crystal-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	22,954
H.S. Diploma or More - % of Adults 25+ (2022)	94.9%
Bachelor's Deg. or More - % of Adults 25+ (2022)	35.7%
Households (2022)	9,381
Total Housing Units (2022)	9,696
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.0361855, -93.361999
Area:	5.88 sq. miles
Area - Land only:	5.78 sq. miles (98%)
Area - Water only:	0.10 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2G1)
- Perform Home Safety Inspections

2 Mitigation Priority 2 (2H1)
- Distribute info via variety media sources

4 Mitigation Priority 3 (4C1)
- Increase the capacity of storm drainage system.

Vulnerability
- Bridges 1
- Soo Line RR
- Crystal Airport
- Monticello NPP: 28 Miles

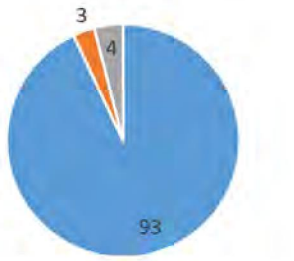
Capability
- Law Enforcement
- West-Metro Fire (shared)
- Parks and Recreation
- Water/Sewer
- Crystal Airport
- Housing and Community Development
- FCC Registered Amateur Radio Licenses: 87

Corporate/Employer

School District
- 281 Robbinsdale

Social Media:
YouTube
Facebook
Instagram
Nextdoor

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Crystal-Minnesota.html

2024 Crystal Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Increase Hail Risk Awareness							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Mail brochures with water bills.	City Admin	$648.00	Annually	Cancelled		
1A2	Post warnings at parks and public buildings	Public Works/Recreation	$258.00	Spring 2017	Cancelled		
1A3	Social Media	Public works	$240.00/Year	Annual	Complete		
Objective 1B: Lightning: Protect Critical Facilities and Equipment from Lightning.							
1B1	Install lightning protection devices	Public Works	$10,250	Spring 2017	In-Progress	Low	1, 4, 5
1B2	Install surge protection.	Public works	-		In-Progress	Low	1
Objective 1C: Protect Power Lines and Infrastructure from Severe Winds.							
1C1	Establish standards for all utilities regarding tree pruning around lines.	Private Utility Companies	-	Annually	Ongoing	Low	1
1C2	Continue to trim Boulevard trees	Streets Division	-	Annually	Ongoing	Low	1
Objective 1D: Protect Public Buildings and Infrastructure from Extreme Winter Weather.							
1D1	Add insulation to walls and attics	Public Works	$40,000	Spring 2018	Complete		
1D2	Retrofit buildings to withstand snow loads and prevent roof collapse.	City Engineer	Estimates for each project needed	Spring 2018	Delayed	Low	1, 4, 5
Objective 1E: Extreme Winter Weather							
1E1	Identify specific at-risk populations	PD/FD	Staff Hours	Fall 2017	Delayed	Low	1
1E2	Organize outreach programs.	PD/FD	Staff Hours	Fall 2017	Delayed	Low	1
Objective 1F: Protect Power Lines from Extreme Winter Weather.							
1F1	Bury existing power lines when possible.	Public works	Depends on the scope of the project	Ongoing	In-Progress	Low	1, 4, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Extreme Cold: Educate property owners about freezing pipes.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

2A1	Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of the building insulation or keeping them out of attics, crawl spaces and outside walls.	Community Dev/Public Works	$0	Annually during winter	Ongoing	Low	1
2A2	Educate homeowners that letting a faucet run a pencil width of water during extreme cold weather can prevent the buildup of excessive pressure in the pipe and avoid bursting.	Community Dev/ Public works	0	Annually during winter	Ongoing	Low	1
Objective 2B: Conduct Lightning Awareness Programs							
2B1	Post warning signs at parks and public buildings.	Parks and Rec	$2,000	Spring 2018	Cancelled		
Objective 2C: Increase Severe Wind Risk Awareness							
2C1	Inform residents of shelter locations.	Parks and Rec	Fall Billing $500	Spring Billing	Cancelled		
2C2	Ensure school district is aware of the best area of refuge in their buildings.	PD/FD	Staff Hours	Annual	Not started	Low	1
Objective 2D: Conduct Winter Weather Risk Awareness Actives							
2D1	Inform the public about severe winter weather impacts.	Public Works	$0	Ongoing	Ongoing	Low	1
Objective 2E: Conduct Tornado Awareness Activities							
2E1	Educate citizens through media outlets.	Communications	0	Ongoing	Ongoing	Low	1
2E2	Conduct tornado drills at public buildings.	Admin	0	Spring Annually	Ongoing	Low	1
Objective 2F: Increase Hazard Education and Risk Awareness.							
2F1	Develop and implement a multi-hazard public awareness program.	West Metro Fire/HSEM	Use FEMA available material at no cost. Minimal Cost to create Local specific material.	Ongoing	Ongoing	Low	1

Objective 2G: Perform Home Safety Inspections							
2G1	Maintain an in-home inspection program promoting fire safety.	FD	$8,000	Ongoing	Ongoing	1	1
2G2	Install smoke detectors and CO detectors in homes.	FD	$500	Ongoing	Ongoing	Low	1, 2
Objective 2H: Create a severe weather awareness campaign for citizens that covers sirens information, NOAA Weather Radios, How the National Weather Service issues warnings and the hazards that affect Hennepin County.							
2H1	Distribute info via variety media sources	Communications	0	Ongoing	Ongoing	2	1
Objective 2I: Educate the community on recreational fires and prohibit open burning							
2I1	Make recreational fire regulations readily available to community.	FD	0	Ongoing	Ongoing	Low	1
2I2	Use local media to increase awareness.	FD	0	Spring Annually	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Continue to use Surface Water Management Plan approved by both the Bassett Creek and Shingle Creek Water Management Commissions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Submit development plans for review	Community Dev/Public Works	0	Ongoing	Ongoing	Low	1
Objective 3B: Monitor Water Supply							
3B1	Regularly check for leaks to minimize water supply losses.	Public Works	$10,000	Ongoing	Delayed	Low	1
3B2	Improve water supply monitoring.	Utilities Division.	$3,000	Ongoing	Cancelled		
3B3	Replace/ Upgrade water pipes in conjunction with utility projects	Public Works	Depends on the project	Ongoing	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Improve Storm Water Management Planning							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Complete storm water drainage study for known problem areas.	Public Works	-	Spring 2017	Complete		
4A2	Prepare and adopt a storm water drainage plan and ordinance.	Commercial Dev/Public Works	-	Spring 2017	Complete		

4A3	Replace/ Upgrade sewer and storm system in conjunction with utility projects	Public Works	-	Ongoing	Ongoing	Low	1, 4, 5
Objective 4B: Join or Improve Compliance with National Flood Insurance Program (NFIP)							
4B1	Participating in NFIP	Community Dev	0	Ongoing	Ongoing	Low	1
4B2	Adopt ordinances that meet minimum Federal and State requirements to comply with NFIP.	Community Dev	0	Ongoing	Complete		
Objective 4C: Improve Storm Water Drainage System Capacity							
4C1	Increase the capacity of storm drainage system.	Utilities	Varies	Ongoing	Ongoing	3	1, 4, 5
4C2	Install rain gardens to slow runoff and improve water quality	Engineering	$100,000	Ongoing-Seeking improvement	Complete		
4C3	Continue with the established sewer maintenance program of jetting pipes.	Public Works	$10,000	Spring 2016, Ongoing	Ongoing	3	1
Objective 4D: Reduce Extreme Winter Weather impact to Roadways							
4D1	Plan for and maintain adequate road and debris clearing capabilities.	Public Works	-	Spring 2017	Ongoing	Low	1
Objective 4E: Assess Overall Community Risk, Identify Target Hazards in Community							
4E1	Obtain local data, list all properties that have the potential greatest impact on community safety. Include public buildings, private business, places of gathering, and other locations, maintain the database	FD	-	Spring 2016	Delayed	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Update local emergency plans as needed and work with neighboring cities on their plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Meet with neighboring cities about emergency plans (each department)	City Managers	0	Summer 2016	Ongoing	Low	1

5A2	Establish Joint EOC	West Metro, Both Cities	$80,000	Project Began December 2015	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Incorporate Flood Mitigation in Local Planning							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Mitigating hazards during infrastructure planning.	Commercial Dev	Project Dependent	Fall 2017	Ongoing	Low	1, 4, 5
6A2	Obtaining easements for planned and regulated public use of privately-owned land for temporary water retention and drainage	Commercial Dev	-	Spring 2018	In-Progress	Low	1
Objective 6B: Adopt and Enforce Building Codes to protect against extreme winter weather							
6B1	Adopt International Building Code and International Residential Code.	Community Development	0	Ongoing	Complete		
Objective 6C: Map and Assess Vulnerability to Subsidence							
6C1	Use GIS to map areas that are susceptible to subsidence.	HCEM	$0	Spring 2018	Ongoing	Low	1
Objective 6D: Ensure building compliance inspections are conducted on new construction projects.							
6D1	Review sites On Scheduled basis	Community Development	Inspection Hours	Ongoing	Ongoing	Low	1
6D2	Update and enforce zoning ordinances	Community Development	Inspection Hours	Annual	Ongoing	Low	1
Goal 7: Support local communities' capacity to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Create evacuation plan for a railroad emergency							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Determine a 1/2mile path on either side of the rail line.	HCEM	0	March 2016	Complete		
7A2	Educate the community on the evacuation plan.	Multiple	$1,000	Winter 2017	Delayed	Low	1
Objective 7B: Identify businesses in the community that have hazardous processes and/or materials.							

7B1	Pre plan businesses with inspections.	FD	0	Spring 2017	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8a							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Identify underserved communities, vulnerable populations, and those with access and functional needs	HCEM/City	Staff time		Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9a							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Leverage existing and future infrastructure plans to identify opportunities for mitigation efforts	Public works	Depends on project	Ongoing	Ongoing	Low	1
9A2	Leverage grant opportunities to expand mitigation components on existing programmed projects	Public works	Depends on project	Ongoing	Ongoing	Low	1, 4
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10a							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Connect critical infrastructure to fiber network for improved communications and monitoring	Public Works	$125,000	Multi-year	Complete		
10A2	Continue routine maintenance of critical infrastructure	Public Works	Varies	Ongoing	Ongoing	Low	1

Crystal 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Increase Hail Risk Awareness	
Project Title/Action	1A1: Mail brochures with water bills
Project Status	Canceled
Responsible Agency	City Admin
Project Title/Action	1A2: Post warnings at parks and public buildings
Project Status	Canceled
Responsible Agency	Public Works
Project Title/Action	1A3: Social media
Project Status	Complete
Responsible Agency	Public works
OBJECTIVE: 1B: Lightning: Protect Critical Facilities and Equipment from Lightning	
Project Title/Action	1B1: Install lightning protection systems
Project Status	Delayed
Responsible Agency	Public Works
Project Title/Action	1B2: Install surge protection
Project Status	Delayed
Responsible Agency	City of Crystal
OBJECTIVE: 1C: Protect Power Lines and Infrastructure from Severe Winds	
Project Title/Action	1C1: Establish standards for all utilities regarding tree pruning around lines
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	1C2: Continue to trim Boulevard trees
Project Status	Complete
Responsible Agency	Public works
OBJECTIVE: 1D: Protect Public Buildings and Infrastructure from Extreme Winter Weather	
Project Title/Action	1D1: Add insulation to walls and attics
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	1D2: Retrofit buildings to withstand snow loads and prevent roof collapse
Project Status	Canceled
Responsible Agency	City Engineer
OBJECTIVE: 1E: Extreme Winter Weather / Assist Vulnerable Populations	
Project Title/Action	1E1: Identify specific at-risk populations
Project Status	Delayed
Responsible Agency	PD / FD
Project Title/Action	1E2: Organize outreach programs
Project Status	Delayed
Responsible Agency	PD / FD
OBJECTIVE: 1F: Protect Power Lines from Extreme Winter Weather	
Project Title/Action	1F1: Bury existing power lines when possible
Project Status	On-Schedule
Responsible Agency	Public works

OBJECTIVE: 2A: Extreme Cold: Educate property owners about freezing pipes	
Project Title/Action	2A1: Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of the building insulation or keeping them out of attics, crawl spaces and outside walls
Project Status	Complete
Responsible Agency	Community Development/Public works
Project Title/Action	2A2: Educate homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipe and avoid bursting
Project Status	Complete
Responsible Agency	Community Development/Public Works
OBJECTIVE: 2B: Conduct Lightning Awareness Programs	
Project Title/Action	2B1: Post warning signs at parks and public buildings
Project Status	Canceled
Responsible Agency	Public works
OBJECTIVE: 2C: Increase Severe Wind Risk Awareness	
Project Title/Action	2C1: Inform residents of shelter locations
Project Status	Canceled
Responsible Agency	Parks and Rec
Project Title/Action	2C2: Ensure school district is aware of the best area of refuge in their buildings
Project Status	Delayed
Responsible Agency	FD
OBJECTIVE: 2D: Conduct Winter Weather Risk Awareness Activities	
Project Title/Action	2D1: Inform the public about severe winter weather impacts
Project Status	Complete
Responsible Agency	Public works
OBJECTIVE: 2E: Conduct Tornado Awareness Activities	
Project Title/Action	2E1: Educate citizens through media outlets
Project Status	Complete
Responsible Agency	Public works /Administration
Project Title/Action	2E2: Conduct tornado drills at schools and public buildings
Project Status	Complete
Responsible Agency	Administration
OBJECTIVE: 2F: Increase Hazard Education and Risk Awareness	
Project Title/Action	2F1: Develop and implement a multi-hazard public awareness program
Project Status	Delayed
Responsible Agency	West Metro Fire / HSEM
OBJECTIVE: 2G: Perform Home Safety Inspections	
Project Title/Action	2G1: Maintain an in-home inspection promoting fire safety
Project Status	Complete
Responsible Agency	FD
Project Title/Action	2G2: Install smoke detectors and CO detectors in homes
Project Status	Complete
Responsible Agency	FD

OBJECTIVE: 2H: Create a severe weather awareness campaign for citizens that covers sirens information, NOAA Weather Radios, How the National Weather Service issues warnings and the hazards that affect Hennepin County	
Project Title/Action	2H1: Distribute info via variety media sources
Project Status	Complete
Responsible Agency	Public works/ HCEM
OBJECTIVE: 2I: Educate the community on recreational fires and prohibit open burning	
Project Title/Action	2I1: Make recreational fire regulations readily available to community
Project Status	Complete
Responsible Agency	FD
Project Title/Action	2I2: Use local media to increase awareness
Project Status	Complete
Responsible Agency	FD/Communications
OBJECTIVE: 3A: Continue to use Surface Water Management Plan approved by both the Bassett Creak and Shingle Creek Water Management Commissions	
Project Title/Action	3A1: Submit development plans for review
Project Status	Complete
Responsible Agency	Public works
OBJECTIVE: 3B: Monitor Water Supply	
Project Title/Action	3B1: Regularly check for leaks to minimize water supply losses
Project Status	Delayed
Responsible Agency	Public Works
Project Title/Action	3B2: Improve water supply monitoring
Project Status	Complete
Responsible Agency	Utilities Division
Project Title/Action	3B3: Replace/Upgrade water pipes in conjunction with street projects
Project Status	Complete
Responsible Agency	Public works
OBJECTIVE: 4A: Improve Storm Water Management Planning	
Project Title/Action	4A1: Complete storm water drainage study for known problem areas
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	4A2: Prepare and adopt a storm water drainage plan and ordinance
Project Status	Complete
Responsible Agency	Community Development/Public Works
Project Title/Action	4A3: Replace/Upgrade sewer and storm system in conjunction with street projects
Project Status	Complete
Responsible Agency	Public Works

OBJECTIVE: 4B: Join or Improve Compliance with National Flood Insurance Program (NFIP)	
Project Title/Action	4B1: Participating in NFIP
Project Status	Complete
Responsible Agency	Community Development/Public Works
Project Title/Action	4B2: Adopt ordinances that meet minimum Federal and State requirements to comply with NFIP
Project Status	Complete
Responsible Agency	Community Development
OBJECTIVE: 4C: Improve Storm Water Drainage System Capacity	
Project Title/Action	4C1: Increase the capacity of storm drainage system
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	4C2: Install rain gardens to slow runoff and improve water quality
Project Status	Complete
Responsible Agency	Public works
Project Title/Action	4C3: Continue with the established sewer maintenance program of jetting pipes
Project Status	Complete
Responsible Agency	Public Works
OBJECTIVE: 4D: Reduce Extreme Winter Weather impact to Roadways	
Project Title/Action	4D1: Plan for and maintain adequate road and debris clearing capabilities
Project Status	Complete
Responsible Agency	Public Works
OBJECTIVE: 4E: Assess Overall Community Risk, Identify Target Hazards in Community	
Project Title/Action	4E1: Obtain local data, list all properties that have the potential greatest impact on community safety. Include public buildings, private business, places of gathering, and other locations, maintain the database
Project Status	Delayed
Responsible Agency	FD/Community Development
OBJECTIVE: 5A: Update local emergency plans as needed and work with neighboring cities on their plan	
Project Title/Action	5A1: Meet with neighboring cities about emergency plans (each department)
Project Status	Complete
Responsible Agency	City Managers/NSEMPG
Project Title/Action	5A2: Establish joint EOC
Project Status	Complete
Responsible Agency	West Metro FD, Crystal, New Hope
OBJECTIVE: 6A: Incorporate Flood Mitigation in Local Planning	
Project Title/Action	6A1: Mitigating hazards during infrastructure planning
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	6A2: Obtaining easements for planned and regulated public use of privately-owned land for temporary water retention and drainage
Project Status	Complete
Responsible Agency	Community Development/Public works

OBJECTIVE: 6B: Adopt and Enforce Building Codes to protect against extreme winter weather	
Project Title/Action	6B1: Adopt International Building Code and International Residential Code
Project Status	Complete
Responsible Agency	Community Development
OBJECTIVE: 6C: Map and Assess Vulnerability to Subsidence	
Project Title/Action	6C1: Use GIS to map areas that are susceptible to subsidence
Project Status	Delayed
Responsible Agency	LOGIS/County
OBJECTIVE: 6D: Ensure building compliance inspections are conducted on new construction projects	
Project Title/Action	6D1: Review sites on scheduled basis
Project Status	Complete
Responsible Agency	Community Development
Project Title/Action	6D2: Update and enforce zoning ordinances
Project Status	Complete
Responsible Agency	Community Development
OBJECTIVE: 7A: Create evacuation plan for a railroad emergency	
Project Title/Action	7A1: Determine a ½ mile path on either side of the rail line
Project Status	Complete
Responsible Agency	HCEM
Project Title/Action	7A2: Educate the community on the evacuation plan
Project Status	Delayed
Responsible Agency	Multiple
OBJECTIVE: 7B: Identify businesses in the community that have hazardous processes and/or materials	
Project Title/Action	7B1: Pre-Plan businesses with inspections
Project Status	Complete
Responsible Agency	FD

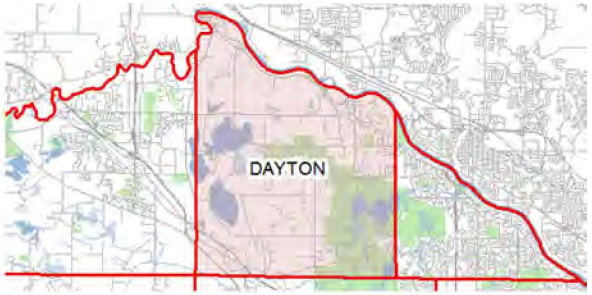
3.3.8. CITY OF DAYTON

Hennepin County - Dayton

Dayton is located in both Hennepin and Wright counties. It is the northernmost city in Hennepin County. The city of Dayton, platted in 1855, is named for city founder Lyman Dayton. Through his finances, Lyman Dayton was instrumental in bringing the railroad into Minnesota and development of the Lake Superior and Mississippi Railroad, of which he was President until 1865.

Website: Home - City of Dayton MN





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	7,745
H.S. Diploma or More - % of Adults 25+ (2022)	94.9%
Bachelor's Deg. or More - % of Adults 25+ (2022)	43.6%
Households (2022)	2,744
Total Housing Units (2022)	2,816
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.199291, -93.471923
Area:	25.14 sq. miles
Area - Land only:	23.25 sq. miles (92%)
Area - Water only:	1.90 sq. miles (8%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1C1)
- Work with a wide range of stakeholders to install a river gauge on the Crow River at the discharge into the Mississippi.

1 Mitigation Priority 2 (1E4)
- Upgrade EOC and Equipment for Severe Weather/Tornado Response.

1 Mitigation Priority 3 (1E3)
- Update Dayton's warning siren system.

Vulnerability
- Burlington Northern Railroad
- St. John the Baptist Catholic Church
- Monticello NPP: 14 miles

Capability
- Law Enforcement
- Fire
- Public Works
- FCC Registered Amateur Radio Licenses: 10

Corporate/Employer
- Local retail
- Golf courses (4)

School District
- 11 Anoka-Hennepin

Language



English Spanish All Others

https://apps.mla.org/map_data

2024 Dayton Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve water system in NW Dayton							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Establish a backup water supply source for system users in case of well failure	City of Dayton	$1 Mil	Short	Delayed	Low	1, 4, 5
1A2	Construct water storage to provide fire suppression	City of Dayton	$2 Mil	Short	Delayed	Low	1
1A3	Explore emergency water supply connections to an adjacent community system.	City of Dayton	$800,000	Short	Delayed	Medium	1
Objective 1B: Purchase Property in Flood Zone Area							
1B1	Update inundation map every 10 years	Wenck Engineering	$5000	Long	Ongoing	Low	1
1B2	Review and update policies that discourage growth in flood-prone areas	City of Dayton	$1,000	Medium	Ongoing	Medium	1
1B3	Educate homeowners in flood zone areas on options that can be offered to them	City of Dayton	$1,000	Medium	Ongoing	Low	1
1B4	Promote the purchase of flood insurance for all residents in the flood zone	City of Dayton	$1,000	Medium	Ongoing	Low	1
1B5	Promote community participation in the National Flood Insurance Program.	City of Dayton	$1,000	Medium	Ongoing	Medium	1
1B6	Maintain sandbags and flood fighting equipment	City of Dayton	$20,000	Long	Ongoing	Medium	1
Objective 1C: Flood Forecasting							
1C1	Work with a wide range of stakeholders to install a river gauge on the Crow River at the discharge into the Mississippi.	City of Dayton	$200,000	Long	Ongoing	1	1, 2
Objective 1D: Wild land fire							
1D1	Develop and publicize evacuation plans and routes in areas threatened by wildland fires.	City of Dayton	$1,000	Medium	Ongoing	Medium	1
1D2	Enforce burning restrictions	City of Dayton	$1,000	Medium	Ongoing	Medium	1

1D3	Encourage citizens to purchase and use smoke detectors.	City of Dayton	$1,000	Medium	Ongoing	Medium	1
Objective 1E: Severe Weather/Tornado Response							
1E1	Replace the storm shelter with a safe room at the Dayton Park Properties	City of Dayton	$353,000	Short	Complete		
1E2	Encourage residents with slab-on-grade homes to install a safe room during construction	City of Dayton	$1,000	Long	Ongoing	Medium	1
1E3	Update Dayton's warning siren system.	City of Dayton	$150,000	Long	Ongoing	3	1
1E4	Upgrade EOC and Equipment for Severe Weather/Tornado Response.	City of Dayton	$200,000	Long	Ongoing	2	1
1E5	Purchase generators or Install generators at Critical Infrastructure points in the city.	City of Dayton	$300,000	Long	Ongoing	Low	1, 4, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Shoreline/Bank Stabilization							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with a wide range of stakeholders to improve shoreline stabilization on the Mississippi River and repair riverbank erosion	City of Dayton	$600,000	Long	Ongoing	Low	1, 5
3A2	Work with various stakeholders to improve shoreline stabilization on the Crow River and repair riverbank erosion.	City of Dayton	$600,000	Long	Ongoing	Low	1, 5
3A3	Work with various stakeholders to improve bank stabilization along Oakview Ln wetlands and repair culverts.	City of Dayton	$170,000	Long	Complete		
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Siren							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Identify future sites for new sirens in the new developments	City of Dayton	$150,000	Long	Ongoing	Medium	1
Objective 6B: Purchase/Install generators							
6B1	Review and Install generators during the construction process of development	City of Dayton	$300,000	Long	Cancelled		
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Dayton	$450,000	Long	Ongoing	Medium	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Dayton 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Improve water system in NW Dayton	
Project Title/Action	1A1: Establish backup water supply source for system users in case of well failure
Project Status	Delayed
Project Title/Action	1A2: Construct water storage to provide fire suppression
Project Status	Delayed
Project Title/Action	1A3: Explore emergency water supply connection to adjacent community system
Project Status	Anticipated completion date: 2028
Responsible Agency	City of Dayton
OBJECTIVE: 1B: Purchase Property in Flood Zone Area	
Project Title/Action	1B1: Update inundation map every 10 years
Project Status	Delayed
Project Title/Action	1B2: Review and update policies that discourage growth in flood-prone areas
Project Status	Delayed
Project Title/Action	1B3: Educate homeowners in flood zone areas on options that can be offered to them
Project Status	Anticipated completion date: 2028
Project Title/Action	1B4: Promote the purchase of flood insurance for all residents in the flood zone
Project Status	Delayed
Project Title/Action	1B5: Promote community participation in the National Flood Insurance Program
Project Status	Anticipated completion date: 2028
Project Title/Action	1B6: Maintain sandbags and flood fighting equipment
Project Status	Anticipated completion date: 2026
Summary of Project	City of Dayton, Dayton Public Works
OBJECTIVE: 1C: Flood Forecasting	
Project Title/Action	1C1: Work with a wide range of stakeholders to have a river gauge installed on the Crow River at the discharge into the Mississippi
Project Status	Delayed
Responsible Agency	City of Dayton
OBJECTIVE: 1D: Wild Land Fire	
Project Title/Action	1D1: Develop and publicize evacuation plans and routes in areas threatened by wild land fires
Project Status	Anticipated completion date: 2027
Project Title/Action	1D2: Enforce burning restrictions
Project Status	Complete
Project Title/Action	1D3: Encourage citizens to purchase and use smoke detectors
Project Status	On-Schedule
Responsible Agency	City of Dayton

OBJECTIVE: 1E: Severe Weather/Tornado Response	
Project Title/Action	1E1: Replace the storm shelter with a safe room at the Dayton Park Properties
Project Status	Complete
Project Title/Action	1E2: Encourage residents with slab on grade homes to install a safe room during construction
Project Status	Anticipated completion date: 2028
Project Title/Action	1E3: Update Dayton's warning siren system
Project Status	Anticipated completion date: 2028
Project Title/Action	1E4: Upgrade EOC and Equipment for Severe Weather/Tornado Response
Project Status	Anticipated completion date: 2028
Project Title/Action	1E5: Purchase generators or install generators at Critical Infrastructure points in the city
Project Status	Anticipated completion date: 2025
Responsible Agency	City of Dayton, Public Works
OBJECTIVE: 3A: Shoreline/Bank Stabilization	
Project Title/Action	3A1: Work with a wide range of stakeholders to improve shoreline stabilization on the Mississippi River and repair riverbank erosion
Project Status	Delayed
Project Title/Action	3A2: Work with a wide range of stakeholders to improve shoreline stabilization on the Crow River and repair riverbank erosion
Project Status	Delayed
Project Title/Action	3A3: Work with a wide range of stakeholders to improve bank stabilization along Oakview LN wetlands and repair culverts
Project Status	Complete
Responsible Agency	City of Dayton
OBJECTIVE: 6A: Outdoor Warning Siren	
Project Title/Action	6A1: Identify future sites for new sirens in the new developments
Project Status	Anticipated completion date: 2027
OBJECTIVE: 6B: Purchase/Install generators	
Project Title/Action	6B1: Review and install generators during construction process of development
Project Status	Canceled
Responsible Agency	City of Dayton
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	On-Schedule
Responsible Agency	City of Dayton

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3.3.9. CITY OF DEEPHAVEN

Hennepin County - Deephaven

Deephaven is located on the shores of Lake Minnetonka. It is 16 miles from Minneapolis and Minnetonka Boulevard serves as a main transportation route for the city. Deephaven is home to the Minnetonka Yacht Club and the historic Cottagewood General Store.

Website: City of Deephaven



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	3,852
H.S. Diploma or More - % of Adults 25+ (2022)	98.9%
Bachelor's Deg. or More - % of Adults 25+ (2022)	77.5%
Households (2022)	1,523
Total Housing Units (2022)	1,616
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.7%

Latitude/Longitude:	44.927662, -93.52581
Area:	2.42 sq. miles
Area - Land only:	2.37 sq. miles (98%)
Area - Water only:	0.06 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

5 Mitigation Priority 1 (5A2)
- Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises.

2 Mitigation Priority 2 (2B1)
- Participate as a member in local or regional hazard mitigation planning group.

2 Mitigation Priority 3 (2A2)
- Provide information to the public on the city website and through public education opportunities.

Vulnerability
- Historic Cottagewood General store
- Function needs 48
- Monticello NPP: 29 miles

Capability
- Law Enforcement
- Police Chaplains Group
- Fire (shared with Excelsior)
- FCC Registered Amateur Radio Licenses: 7

Corporate/Employer
- Minnetonka Yacht Club

School District
- 276 Minnetonka

Language



https://apps.mla.org/map_data

2024 Deephaven Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A							
Action	Action	Action	Action	Action	Action	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions.	LE, City Staff	5K	Medium	Complete		
2A2	Provide information to the public on the city website and through public education opportunities	LE, City Staff	5K	Medium	In Progress	3	1
Objective 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions.							
2B1	Participate as a member in local or regional hazard mitigation planning group	LE, City Staff	5K	Medium	In Progress	2	1
2B2	Support or provide the public sector events, workshop, symposium, and continued education opportunities.	LE, City Staff	5K	Medium	In Progress	7	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							

Objective 5A: Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operation plan that can be utilized on a larger regional platform.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue affording the opportunity for City Staff to attend or join emergency management associations like Lakes Area Emergency Management Planning Group, MEMA (Metropolitan Emergency Managers Association) and AMEM (Association of Minnesota Emergency Managers).	LE, HCEM, State and Local Affiliates.	20K	Long	In Progress	6	1
5A2	Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises.	LE, HCEM, State and Local Affiliates.	20K	Long	In Progress	1	1
5A3	Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves.	LE, HCEM, State and Local Affiliates.	20K	Long	In Progress	5	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Siren							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury power lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines which could be buried to reduce power failures.	LE, City Staff, City Council, Zoning, Xcel Energy	500K	Long	In Progress	4	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Deephaven 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	Anticipated completion date: 12/2026
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	On-Schedule
Responsible Agency	LE, City Staff
OBJECTIVE: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning group
Project Status	On-Schedule
Project Title/Action	2B2: Support or provide the public sector events, workshop, symposium, and continued education opportunities
Project Status	Delayed
Responsible Agency	LE, City Staff
OBJECTIVE: 5A: Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operation plan that can be utilized on a larger regional platform	
Project Title/Action	5A1: Continue affording the opportunity for City Staff to attend or join emergency management associations like Lakes Area Emergency Management Planning Group, MEMA and AMEM.
Project Status	On-Schedule
Project Title/Action	5A2: Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises
Project Status	On-Schedule
Project Title/Action	5A3: Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves
Project Status	On-Schedule
Responsible Agency	LE, HCEM, State and Local Affiliates
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines which could be buried to reduce power failures
Project Status	On-Schedule
Responsible Agency	LE, City Staff, City Council, Zoning, Xcel Energy

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3.3.10. CITY OF EDEN PRAIRIE

Hennepin County - Eden Prairie

Eden Prairie is a suburb 12 miles southwest of downtown Minneapolis. The city lies on the north bank of the Minnesota River, upstream from the confluence with the Mississippi River. Eden Prairie is the seventh largest suburb and is composed of large lakes and ponds and has more than 170 miles of multi-use trails, 2,250 acres of parks, and 1,300 acres of open space. The city is home to more than 2,200 businesses and headquarters of Supervalu, ADC Telecommunications, MTS Systems Corporation and the Minnesota Vikings. Regionally known for Eden Prairie Center, it is also the hub for Southwest Transit, serving public transportation to three adjacent suburbs..

Population density: 1,950 people per square mile (low).

Tornado activity: Eden Prairie-area historical tornado activity is slightly above Minnesota state average. It is 32% greater than the overall U.S. average.

Earthquake activity: Eden Prairie-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	63,623
H.S. Diploma or More - % of Adults 25+ (2022)	96.6%
Bachelor's Deg. or More - % of Adults 25+ (2022)	64.5%
Households (2022)	25,070
Total Housing Units (2022)	25,978
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.5%

Latitude/Longitude:	44.8454845, -93.459376
Area:	35.24 sq. miles
Area - Land only:	32.51 sq. miles (92%)
Area - Water only:	2.73 sq. miles (8%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Incorporate mitigation strategies in EOP

10 Mitigation Priority 2 (10B3)
- Welters way west of Abbott court. Lining of failed critical storm pipe.

9 Mitigation Priority 3 (9A1)
- Reduce use of fossil fuel resources and migrate to EV Alternates

Vulnerability
- Hennepin Technical College
- Functional Needs 208
- Bridges 68
- Monticello NPP: 35 miles

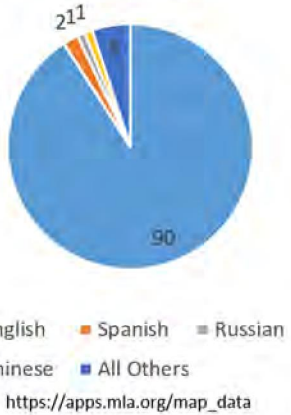
Capability
- CodeRED
- Law Enforcement
- Fire Department
- Public Works
- Park and Recreation
- FCC Registered Amateur Radio Licenses: 202

Corporate/Employees

1 Optum	4,000
2 C. H. Robinson Worldwide	1,517
3 Eden Prairie Schools	1,500
4 Starkey Hearing Technologies	1,440
5 Cigna	950
6 Eaton	850
7 SUPERVALU	850
8 Kroll Inc.	808
9 MTS Systems Corporation	808
10 Dell Compellent	750

School District
- 272 Eden Prairie

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Eden-Prairie-Minnesota.html

2024 Eden Prairie Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Identify potential hazards with other city state and Federal groups							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Incorporate mitigation strategies in EOP	EPFD	0	Ongoing	Ongoing	1	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Develop new programs, collaterals and talking points to use at specific public events							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Use the following areas to increase our touch points: Open House, Web Page, National Night Out, School Program	EPFD	500	Sept 2024	In Progress	Medium	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Work with other city resources for identification							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Incorporate in Emergency Operations Plan	EPFD	$5,000	Sep 2024	In Progress	Medium	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Gather information on potential impacted areas							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Incorporate in Emergency Operations Plan	EPFD	0	Ongoing	Ongoing	Medium	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordination with other agencies							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Joint Operations exercises	EPFD	$1,000	Jan 2024	In Progress	Medium	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: CERT and CSU Team Growth and Capabilities							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Recruitment of new members	EPFD	$2,500	Ongoing	In Progress	Medium	1, 2
7A2	Monthly Training in house/with other CERT groups	EPFD	$2,500	Ongoing	In Progress	Medium	1, 2
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A Work with Community Development to identify specific target areas							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Leverage Race Equity Action Team (REAT) to reach specific community groups.	EPFD	500	Sept 2024	In Progress	Medium	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A Explore alternative fuel options for Daily operational needs							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Reduce use of fossil fuel resources and migrate to EV Alternates	EPFD	75,000	Ongoing	In Progress	3	1
9A2	Incorporate battery equipment into Emergency Responses (Lights, saw, other light equipment	EPFD	20,000	Ongoing	In Progress	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A Identify Community resources in this area							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Review capabilities and enhance resiliency of resources	EPFD	$500	Sept 2024	In Progress	Medium	1
Objective 10B Identify public works projects to reduce impact from natural hazards							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

10B1	Dell Road from Crestwood Terrace to CSAH 61. Replace a gravel rural road with a bituminous section road, includes a stormwater management system and a new concrete culvert crossing of Riley Creek.	EP Public Works	$7.9M	2026-27	Planning	Medium	1, 4, 5
10B2	Purgatory Creek at Rainbow Drive Replace old failed corrugated metal pipe that carries Purgatory Creek under Rainbow Drive.	EP Public Works	$250,000	2024	Scheduled	Medium	1, 4, 5
10B3	Welters way west of Abbott court. Lining of failed critical storm pipe.	EP Public Works	$175,000	2024	Scheduled	2	1, 4, 5
10B4	EP Center Mall Installation of stormwater storage facility to reduce flood risk in flood prone area.	EP Public Works	$1,000,000	2024-2025	Planning	Medium	1, 5
10B5	Lake Smetana Modify outlet structure from lake to reduce downstream flood risk.	EP Public Works	$200,000	2024	Scheduled	Medium	1, 5
10B6	Valley View Road NW of Round Lake Reduce flood risk of Valley View Rd. by making stormwater storage and piping improvements.	EP Public Works	$250,000	2025	Planning	Medium	1, 4, 5
10B7	Mitchell Rd. / Blakeney Rd. reduce flood risk with stormwater piping improvements.	EP Public Works	$350,000	2025	Planning	Medium	1, 4, 5
10B7	Richard T Anderson conservation area. Retaining wall installation and slope stabilization to reduce steep slope failure.	EP Public Works	$350,000	2024	Scheduled	Medium	1, 5

Eden Prairie 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Identify potential hazards with other city, state, and federal groups	
Project Title/Action	1A1: Incorporate mitigation strategies in EOP
Project Status	Anticipated completion date: Sept 2023
Responsible Agency	EPFD
OBJECTIVE: 2A: Develop new programs, collaterals, and talking points to use at specific public events	
Project Title/Action	2A1: Use the following areas to increase our touch points: Open House, Web Page, National Night Out, School Program
Project Status	On-Schedule
Responsible Agency	EPFD
OBJECTIVE: 3A: Work with other city resources for identification	
Project Title/Action	3A1: Incorporate in Emergency Operations Plan
Project Status	Anticipated completion date: Sept 2024
Responsible Agency	EPFD
OBJECTIVE: 4A: Gather information on potential impacted areas	
Project Title/Action	4A1: Incorporate in Emergency Operations Plan
Project Status	Complete
Responsible Agency	EPFD
OBJECTIVE: 5A: Coordination with other agencies	
Project Title/Action	5A1: Joint Operations exercises
Project Status	Anticipated completion date: Sept 2024
Responsible Agency	EPFD
OBJECTIVE: 7A: CERT and CSU Team Growth and Capabilities	
Project Title/Action	7A1: Recruitment of new members
Project Status	Anticipated completion date: Sept 2024
Project Title/Action	7A2: Monthly Training in house/with other CERT groups
Project Status	On-Schedule
Responsible Agency	EPFD

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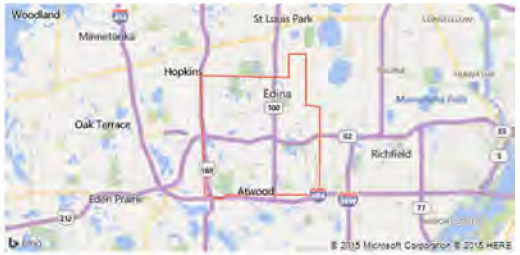
3.3.11. CITY OF EDINA

Hennepin County - Edina

Website: https://www.edinamn.gov





Edina is a first-ring suburb situated immediately southwest of Minneapolis. Edina began as a small farming and milling community in the 1860's and is today 95 percent developed metropolitan community. Edina began as part of Richfield Township 1850's. In 1888, the residents of the township held a meeting to consider founding a new village, thus separating themselves from Richfield Township. The idea was favorably accepted by those within the community and a committee was established to oversee the transition. Many major highways run through or are close to Edina, making it accessible to all within the metropolitan area. Minnesota State Highways 62 and 100 divide the city into four sections. U.S. Route 169 and Minnesota State Highway 100 extend north and south. Interstate 494 and Minnesota State Highway 62 east and west.

Population density: 3,386 people per square mile (average).

Tornado activity: Edina-area historical tornado activity is slightly above Minnesota state average. It is 31% greater than the overall U.S. average.

Earthquake activity: Edina-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	53,037
H.S. Diploma or More - % of Adults 25+ (2022)	98.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	71.1%
Households (2022)	22,609
Total Housing Units (2022)	23,998
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.0%

Latitude/Longitude:	44.895282, -93.360126
Area:	15.97 sq. miles
Area - Land only:	15.45 sq. miles (97%)
Area - Water only:	0.52 sq. miles (3%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Twice a year review EOP to ensure all positions are updated with correct personnel and contact numbers.

2 Mitigation Priority 2 (2B1)
- Provide another option for staff to obtain the necessary FEMA/DHS minimum training through classroom session.

8 Mitigation Priority 3 (8A2)
- Create alternative response unit to provide access to critical emergency and non-emergency needs to connect residents with service connecting public safety through public health

Vulnerability
- Functional Needs 370
- Bridges 76
- Monticello NPP: 36 miles

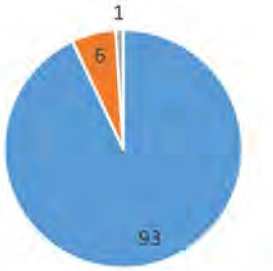
Capability
- Law Enforcement
- Fire
- ALS Ambulance
- Parks and Recreation
- Public Works
- Fairview Southdale Hospital with Heliport
- FCC Registered Amateur Radio Licenses: 149

Corporate/Employer
- Jerry's Foods HQ
- Lund Foods HQ
- Filmtech
- Fairview Southdale Hospital
- Macy's

School District
- 273 Edina
- Richfield
- Hopkins

Social Media:
Twitter
Facebook
Instagram
YouTube
NextDoor
Linked IN

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Edina-Minnesota.html

2024 Edina Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Review/update local emergency operations plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Twice a year review EOP to ensure all positions are updated with correct personnel and contact numbers.	Fire	0	Biannual	Ongoing	1	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Prepare position aids (job descriptions) for key EOC personnel							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Develop laminated JD for each of the key positions in the CFLOP organizational structure. These will be available for EOC personnel to reference during training or actual events.	Fire	200	2017	Complete		
Objective 2B: Conduct in-house IS 100 and 200 training for EOC personnel							
2B1	Provide another option for staff to obtain the necessary FEMA/DHS minimum training through classroom session.	Fire	100	2025	Ongoing	2	1
Objective 2C: Provide IS 300 training for key EOC personnel							
2C1	Identify key personnel to advance to IS 300 training. Bring in a training organization to provide training	TBD	2500	2024	In Progress	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Review/update FEMA and local watershed flood maps							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Work with Engineering Department to ensure updated maps are readily available. Have printed copies in EOC storage room. Review electronic access to records and history	Engineer	1000	2024	In progress	Low	1

Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Prepare and have on hand in the EOC key City maps and essential ICS wall charts and forms							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Work with local All Hazards Incident Management Team to develop similar wall posters for our EOC.	Fire	300	2024	In progress	Medium	1
Objective 5B: Set up a pager group within our city CAD system for all primary and alternate EOC personnel and conduct test pages quarterly.							
5B1	Work with our Communications Center to put together a text message pager group for EOC personnel and conduct quarterly test pages.	Dispatch	0	2025	In Progress	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Incorporate Heritage Resources Disaster Management Planning report from Preservation Planning Consultant as reference to the City EOP							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Obtain report from Heritage Preservation Consultant to have as a reference to the EOP. The report outlines the important disaster management practices recommended by the consultant.	Planning	0	2024	In progress	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Develop city damage assessment plan (DAP)							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Prepare written DAP that outlines key personnel and their responsibilities. Send draft document out to all entities listed in the plan to gain their feedback before final plan. Provide training to all key personnel and evaluate and adjust plan accordingly.	Fire	500	2025	In progress	Low	1
Objective 7B: Conduct one Technology EOC activation and one Full EOC activation annually.							

7B1	Technology activation brings in our IT Department to setup all the computers and phones and update any necessary software. The Full EOC activation will bring primary and alternate EOC personnel together.	IT/Fire	0	Annual	Ongoing	4	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Identify communication methods that best serve populations in regard to EM events that impact residents	Fire/ Communications	500	2024	In Progress	5	1
8A2	Create alternative response unit to provide access to critical emergency and non-emergency needs to connect residents with service connecting public safety through public health	Fire/ Public Health	400,000	2024	In Progress	3	1
8A3	Review and implement strategies from the Bike and Pedestrian plan to better improve safety and travel for non-vehicle traffic. Improving access for all populations across roadways and other difficult to access areas of the community.	Engineering	1,000,000	2027	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Conversion to renewable energy fleet EV alternatives	Sustainability	75000	Ongoing	In Progress	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

10A1	Review current critical infrastructure needs to ensure reliability in natural hazards.	Fire	1000	2025	In Progress	6	1

Edina 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Review/Update local emergency operations plan	
Project Title/Action	1A1: Twice a year review EOP to ensure all positions are updated with correct personnel and contact numbers
Project Status	On-Schedule
Responsible Agency	Fire
OBJECTIVE: 2A: Prepare position aids (job descriptions) for key EOC personnel	
Project Title/Action	2A1: Develop laminated JD for each of the key positions in the CFLOP organizational structure. These will be available for EOC personnel to reference during training or actual events
Project Status	Complete
Responsible Agency	Fire
OBJECTIVE: 2B: Conduct in-house IS 100 and 200 training for EOC personnel	
Project Title/Action	2B1: Provide another option for staff to obtain the necessary FEMA/DHS minimum training through classroom session
Project Status	Anticipated completion date: Q2 2025
Responsible Agency	Fire
OBJECTIVE: 2C: Provide IS 300 training for key EOC personnel	
Project Title/Action	2C1: Identify key personnel to advance to IS 300 training. Bring in a training organization to provide training
Project Status	On-Schedule
Responsible Agency	Edina
OBJECTIVE: 4A: Review/Update FEMA and local watershed flood maps	
Project Title/Action	4A1: Work with engineering department to ensure updated maps are readily available. Have printed copies in EOC storage room
Project Status	Anticipated completion date: Q4 2024
Responsible Agency	Engineer
OBJECTIVE: 5A: Prepare and have on hand in the EOC key City maps and essential ICS wall charts and forms	
Project Title/Action	5A1: Work with local All Hazards Incident Management Team to develop similar wall posters for our EOC
Project Status	On-Schedule
Responsible Agency	Fire
OBJECTIVE: 5B: Set up a pager group within our city CAD system for all primary and alternate EOC personnel and conduct test pages quarterly	
Project Title/Action	5B1: Work without Communications Center to put together a text message pager group for EOC personnel and conduct quarterly test pages
Project Status	On-Schedule
Responsible Agency	Dispatch
OBJECTIVE: 6A: Incorporate Heritage Resources Disaster Management Planning report from Preservation Planning Consultant as reference to the city EOP	
Project Title/Action	6A1: Obtain report from Heritage Preservation Consultant to have as a reference to the EOP. The report outlines the important disaster management practices recommended by the consultant
Project Status	Delayed
Responsible Agency	Planning

OBJECTIVE: 7A: Develop city damage assessment plan (DAP)	
Project Title/Action	7A1: Prepare written DAP that outlines key personnel and their responsibilities. Send draft document out to all entities listed in the plan to gain their feedback before final plan. Provide training to all key personnel and evaluate and adjust plan accordingly
Project Status	On-Schedule
Responsible Agency	Fire
OBJECTIVE: 7B: Conduct one Technology EOC activation and one Full EOC activation annually	
Project Title/Action	7B1: Technology activation brings in our IT Department to setup all the computers and phones and update any necessary software. The Full EOC activation will bring primary and alternate EOC personnel together
Project Status	On-Schedule
Responsible Agency	IT/Fire

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3.3.12. CITY OF EXCELSIOR

Hennepin County - Excelsior

Excelsior was founded in the 1850s as a destination for vacationers, primarily from the cities of Minneapolis and St. Paul. Throughout the years, Excelsior's Water Street has been the home to many businesses, including hotels, restaurants, and merchants. Minnesota State Highway 7 serves as a main transportation route.

City Website: https://www.ci.excelsior.mn.us





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	2,257
H.S. Diploma or More - % of Adults 25+ (2022)	99.7%
Bachelor's Deg. or More - % of Adults 25+ (2022)	48.2%
Households (2022)	1,059
Total Housing Units (2022)	1,331
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	10.1%

Latitude/Longitude:	44.902228, -93.5658285
Area:	0.69 sq. miles
Area - Land only:	0.63 sq. miles (91%)
Area - Water only:	0.06 sq. miles (9%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1
- Achieve certification in the National Weather Service Storm Ready Program.

2 Mitigation Priority 2
- Host annual severe weather awareness courses.

2 Mitigation Priority 3
- Host annual SkyWarn course for local citizens and first responders.

Vulnerability
- Bridges 4
- Functional Needs 103
- Monticello NPP: 30 miles

Corporate/Employer
- Retail
- Recreation

Capability
- Public Works
- Fire Department
- South Lake Police
- Police Chaplains Group
- Park and Recreation
- FCC Registered Amateur Radio Licenses: 31

School District
- 276 Minnetonka

Language



https://apps.mla.org/map_data

2024 Excelsior Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in the National Weather Service Storm Ready Program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Achieve certification in the National Weather Service Storm Ready Program	SLMPD	Staff Time	1-2yrs	Ongoing	1	1
Objective 2B: Improve citizens understanding of available communications for notification of severe weather warnings							
2B1	Host annual severe weather awareness courses.	SLMPD	Staff Time	3-5yrs	Ongoing	2	1
2B2	Host annual SkyWarn course for local citizens and first responders.	SLMPD	Staff Time	3-5yrs	Ongoing	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Reducing Phosphorus in Crystal Lake							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							

Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Design and implement checklists with timelines for all new building projects.	Planning	Staff Time	3-5yrs	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Excelsior 2018-2024 Mitigation Project Progress Report	
OBJECTIVE: 2A: Achieve certification in the National Weather Service Storm Ready Program	
Project Title/Action	2A1: Achieve certification in the National Weather Service Storm Ready Program
Project Status	Delayed
Responsible Agency	SLMPD
OBJECTIVE: 2B: Improve citizens understanding of available communications for notification of severe weather warnings	
Project Title/Action	2B1: Host annual severe weather awareness courses
Project Status	Delayed
Project Title/Action	2B2: Host annual SkyWarn course for local citizens and first responders
Project Status	Delayed
Responsible Agency	SLMPD
OBJECTIVE: 6A: Ensure building code compliance and inspections are conducted on new construction projects	
Project Title/Action	6A1: Design and implement checklists with timelines for all new building projects
Project Status	Delayed
Responsible Agency	Planning

3.3.13. FORT SNELLING

Hennepin County - Fort Snelling

Fort Snelling, originally known as Fort St. Anthony, is a former military fortification located at the confluence of the Minnesota and Mississippi Rivers in Hennepin County. Has a population of 442 people. Total area of 6.7 miles. Additionally, 4.65% of the total area of Fort Snelling is covered by water. Fort Snelling is an unincorporated area with several partner agencies covering the area. Hennepin County Emergency Management is the primary agency that supports the area during times of emergency preparation or declared disaster.





Corporate/Employer
- Air Force Reserve
- Army Reserve
- VA medical center
- MAC

Vulnerability
- Monticello NPP: 41 miles
- Military Installations
- Federal Buildings

School District
- None

Capability
- Multi Agency Coordination



Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 F-19 Construct Flood Control Measures (p. 29)

- Using small construction projects such as walls and berms in areas that cannot be mitigated through non-structural activities. Additionally using materials on existing riverbanks for flood protection.

3 Mitigation Priority 2 F-7 Improve Flood Risk Assessment (p. 25)

- Specifically incorporating technology and procedure to better track high water marks, using GIS in conjunction with developed plans to aid in historical flood impact and analysis of future impact. Future mitigation projects may include reimplementation of a river gauge local to the confluence of the Minnesota and Mississippi rivers.

4 Mitigation Priority 3 LS-1 Map and Assess Vulnerability to Landslides

- Based on data and recommendations from the 2020 Hennepin County Landslide Hazard Atlas, the Fort Snelling area along the Mississippi River gorge is vulnerable to sudden landslides that are difficult to predict (p. 21). Systems and tools to monitor land movement, as well as better systems to log and share information on landslide hazards are possible mitigation projects. Specific areas along the Mississippi River gorge are identified in the Landslide Hazard Atlas.
- LS-3 Preventing Impacts to Roadways identifies implementing monitoring tools and stabilization measures along roadways to mitigate risk to landslides. The vulnerable areas along the Mississippi River Gorge in Hennepin County are predominantly traveled by trail, and areas can use these same mitigation measures along traveled routes

2024 Fort Snelling Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Build up physical flood control measures							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Construct flood control walls and berms.	Fort Snelling	$1 Million	6 Months	Not Started	1	1, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Enhance awareness of flooding hazards.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Conduct flood vulnerability assessment.	Fort Snelling	Personnel Time	3 Months	Not Started	2	1, 6
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:Enhance awareness of landslide hazards.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Conduct landslide vulnerability assessment.	Fort Snelling	Personnel Time	3 Months	Not Started	3	1, 5
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Fort Snelling 2018-2024 Mitigation Project Progress Report
No Prior Projects.

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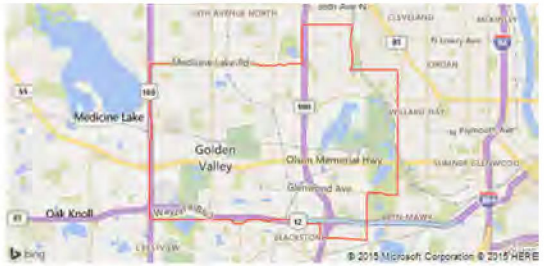
3.3.14. CITY OF GOLDEN VALLEY

Hennepin County - Golden Valley

City Website: https://goldenvalleymn.gov/



https://www.statsamerica.org/town/



Golden Valley is a western suburb of Minneapolis and is the main corporate headquarters of General Mills and Pentair. More than 30,000 people work in Golden Valley due to the presence of large employers such as General Mills, Honeywell, and Pentair. Interstate 394, U.S. Route 169, and Minnesota State Highways 55 and 100 are four of the main arterial routes in the city

Population density: 2,145 people per square mile (low).

Tornado activity: Golden Valley-area historical tornado activity is slightly above Minnesota state average. It is 29% greater than the overall U.S. average.

Earthquake activity: Golden Valley-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	22,142
H.S. Diploma or More - % of Adults 25+ (2022)	96.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	59.9%
Households (2022)	9,778
Total Housing Units (2022)	10,269
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.3%

Latitude/Longitude:	44.991724, -93.359641
Area:	10.57 sq. miles
Area - Land only:	10.23 sq. miles (97%)
Area - Water only:	0.35 sq. miles (3%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1
- Partner with local agencies to enhance resident understanding of local hazards.

4 Mitigation Priority 2
- Assess flood related hazards within the community.

5 Mitigation Priority 3
- Coordinate with regional water districts to assess flood vulnerability.

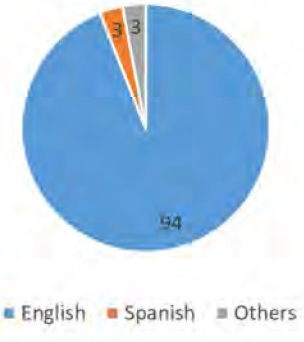
Vulnerability
- Functional needs 1223
- Bridges 112
- Monticello NPP: 30 miles

Capability
- Police
- Fire
- FCC Registered Amateur Radio Licenses: 88

Corporate/Employer
- General Mills 4,500
- Allianz Life 1,800
- Optum Health 1,700
- Honey well 1,700
- GH Tennant Co 729
- Mortenson Construction 600
- Courage Center 450

School District
- 270 Hopkins
- 281 Robbinsdale

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Golden-Valley-Minnesota.html

2024 Golden Valley Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Enhance resident awareness.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Partner with local agencies to enhance resident understanding of local hazards.	Emergency Management	Personnel Time	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Assess flood related hazards within the community.	Emergency Management	Personnel Time	Ongoing	Ongoing	2	1, 6
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordinate with water districts.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Coordinate with regional water districts to assess flood vulnerability.	Emergency Management	Personnel Time	Ongoing	Ongoing	3	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Golden Valley 2018 – 2024 Mitigation Strategies Progress Report
No Prior Projects.

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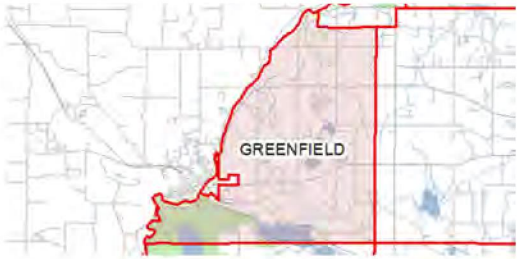
3.3.15. CITY OF GREENFIELD

Hennepin County - Greenfield

Greenfield is located along the Crow River, which flows through the Downtown River District and divides Hennepin County and Wright County. The Village of Greenfield, now known as the City of Greenfield, was set apart by the Hennepin County Commissioners on April 10, 1858. The original name, Greenwood, reflected the appearance of the terrain, which was commonly referred to by native Sioux, Chippewa and Ojibeway as "Big Woods". Minnesota State Highway 55 serves as the main road into and out of the city.

City Website: https://www.ci.greenfield.mn.us/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	2,909
H.S. Diploma or More - % of Adults 25+ (2022)	99.1%
Bachelor's Deg. or More - % of Adults 25+ (2022)	50.1%
Households (2022)	1,001
Total Housing Units (2022)	1,006
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.1078495, -93.705623
Area:	21.55 sq. miles
Area - Land only:	20.40 sq. miles (95%)
Area - Water only:	1.15 sq. miles (5%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A2)
- Implement capital improvement program projects intended to reduce flood potential.

3 Mitigation Priority 2 (3B1)
- Apply for grants from BWSR and Hennepin County to fund products that will reduce phosphorous levels coming from the Dance Hall Creek Sub-watershed for water quality.

3 Mitigation Priority 3 (3B2)
- Work with Pioneer Sarah Creek Watershed to identify and carry out projects to reduce TMDL levels.

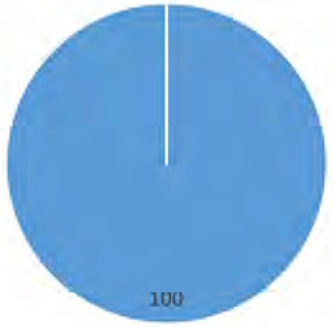
Vulnerability
- Monticello NPP: 15 Miles

Capability
- Public Works
- Hanover/Loretto/Rockford Fire
- FCC Registered Amateur Radio Licenses: 2

Corporate/Employer

School District
- 877 Buffalo-Hanover-Montrose
- 883 Rockford

Language



https://apps.mla.org/map_data

2024 Greenfield Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural and man-made hazards							
Objective 1A: Drainage/Culvert Improvements: Develop a repair/replacement plan for ditching and culvert replacement							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Implement storm water management plan	City of Greenfield	15K/Year	Complete	Complete		
1A2	Implement capital improvement program projects intended to reduce flood potential	City of Greenfield	15K/Year	Ongoing	Ongoing	1	1
Goal 2: Increase education, outreach, and awareness							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation action							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Provide information to the public on the city website and other opportunities.	City of Greenfield	Staff Time	Complete	Complete		
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Promote storm water management							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Adopt and implement storm water utility plan for future water quality.	City of Greenfield	Staff Time	Complete	Complete		
Objective 3B: Reduce phosphorous levels of Lake Sarah							
3B1	Apply for grants from BWSR and Hennepin County to fund products that will reduce phosphorous levels coming from the Dance Hall Creek Sub-watershed for water quality	City of Greenfield, financial partners, Watershed	5K Grants	Ongoing	Ongoing	2	1
3B2	Work with Pioneer-Sarah Creek Watershed to identify and carry out projects to reduce TMDL levels	Greenfield/ Watershed	Staff Time	Ongoing	Ongoing	3	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Assess areas that are predisposed to natural disasters or manmade hazards that could be responsible for financial and/or personal impact.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

4A1	Review areas of impact with staff – secure portable generator for Water Plant	City of Greenfield	50K	Complete	Complete		
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet State and Federal regulations with the plan	City of Greenfield	Staff Time	Complete	Complete		
Goal 6: Promote disaster-resistant future development							
Objective 6A: Complete City coverage with outdoor warning sirens							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Install the remaining four sirens at the sites that have been identified	City of Greenfield	90K	Cancelled	Cancelled	Cancelled	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Greenfield 2018-2024 Mitigation Project Progress Report	
OBJECTIVE: 1A: Flooding – Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Implement storm water management plan
Project Status	On-Schedule
Responsible Agency	Greenfield Public Works
Project Title/Action	1A2: Implement capital improvement program projects intended to reduce flood potential
Project Status	On-Schedule
Responsible Agency	Greenfield Public Works
OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation action	
Project Title/Action	2A1: Provide information to the public on the city website and other opportunities
Project Status	On-Schedule
Responsible Agency	City of Greenfield
OBJECTIVE: 3A: Promote storm water management	
Project Title/Action	3A1: Adopt and implement storm water utility plan for future water quality
Project Status	Complete
Responsible Agency	City of Greenfield
OBJECTIVE: 3B: Reduce phosphorous levels of Lake Sarah	
Project Title/Action	3B1: Apply for grants from BWSR and Hennepin County to fund products that will reduce phosphorous levels coming from the Dance Hall Creek Sub-watershed for water quality
Project Status	On-Schedule
Responsible Agency	City of Greenfield
Project Title/Action	3B2: Work with Pioneer-Sarah Creek Watershed to identify and carry out projects to reduce TMDL levels
Project Status	On-Schedule
Responsible Agency	City of Greenfield
OBJECTIVE: 4A: Assess areas that are predisposed to natural disasters or manmade hazards that could be responsible for financial and/or personal impact	
Project Title/Action	4A1: Review areas of impact with staff – secure portable generator for Water Plant
Project Status	Complete
Responsible Agency	City of Greenfield
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet State and Federal regulations with the plan
Project Status	On-Schedule
Responsible Agency	City of Greenfield
OBJECTIVE: 6A: Complete City coverage with outdoor warning sirens	
Project Title/Action	6A1: Install the remaining four sirens at the sites that have been identified
Project Status	On-Schedule
Responsible Agency	City of Greenfield

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3.3.16. CITY OF GREENWOOD

Hennepin County - Greenwood

City Website: https://www.greenwoodmn.com/

Founded in 1956, Greenwood is located 20 minutes west of Minneapolis on Highway 7. Greenwood is a statutory city with an elected mayor and four city council members. Approximately 700 residents live in the city, and half the properties are located on beautiful Lake Minnetonka.





EMERGENCY PREPAREDNESS

The city of Greenwood is part of the Lake Minnetonka Regional Emergency Preparedness Plan. The South Lake Minnetonka Police Department (SLMPD) has primary responsibility for coordinating and implementing this plan for Greenwood as well as the cities of Excelsior, Shorewood, and Tonka Bay. This is done in partnership with the Excelsior Fire District (EFD), which serves these same four communities along with the city of Deephaven. The Emergency Operation Center for these communities is located at the South Lake Minnetonka Public Safety Facility in Shorewood.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	742
H.S. Diploma or More - % of Adults 25+ (2022)	100.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	79.6%
Households (2022)	276
Total Housing Units (2022)	335
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	13.7%

Latitude/Longitude:	44.910854, -93.5519775
Area:	0.61 sq. miles
Area - Land only:	0.36 sq. miles (59%)
Area - Water only:	0.25 sq. miles (41%)

Hazard Mitigation Project Goal Priority Ranking Aid

6 Mitigation P1- (6A1)
- Identify storm water problem areas and incorporate improvements into capital plan.

6 Mitigation P2- (6B1)
- Include language in building code recommending buried power lines.

2 Mitigation P3- (2A1), (2A2)

Host annual Skywarn awareness course

Host annual SkyWarn course for local citizens and first responders

Vulnerability
- Flooding location
- Monticello NPP: 29 miles

Capability
- Police- Southlake
- Police Chaplains Group
- Fire-Excelsior
- Public Works- Deephaven
- FCC Registered Amateur Radio Licenses: 1

Corporate/Employer
- Bridgewater Bank
- Old Log Theater

School District
- 276 Minnetonka

Language



https://apps.mla.org/map_data

2024 Greenwood Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Improve citizens understanding of available communications for notification of severe weather warnings.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Host annual severe weather awareness courses.	SLMPD	Staff Time	Ongoing	Ongoing	3	1
2A2	Host annual SkyWarn course for local citizens and first responders.	SLMPD	Staff Time	Ongoing	Ongoing	4	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Upgrade storm water infrastructure							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

6A1	Identify storm water problem areas and incorporate improvements into capital plan.	Public Works	$30,000	5 Years	Ongoing	1	1
Objective 6B: Encourage new or existing power lines to be buried for the reduction of future power outages							
6B1	Include language in building code recommending buried power lines.	Zoning	Staff Time	2016	Ongoing	2	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Greenwood 2018 – 2024 Mitigation Strategies Progress Report	
Under Revision by the Jurisdiction	
OBJECTIVE: 2A: Improve citizens understanding of available communications for notification of severe weather warnings.	
Project Title/Action	Host annual severe weather awareness courses.
Project Status	Ongoing
Responsible Agency	City of Greenwood
Project Title/Action	Host annual SkyWarn course for local citizens and first responders.
Project Status	Ongoing
Responsible Agency	City of Greenwood
OBJECTIVE: 6A: Complete City coverage with outdoor warning sirens	
Project Title/Action	Identify storm water problem areas and incorporate improvements into capital plan.
Project Status	Ongoing
Responsible Agency	City of Greenwood
Project Title/Action	Include language in building code recommending buried power lines.
Project Status	Ongoing
Responsible Agency	City of Greenwood

3.3.17. CITY OF HANOVER

Hennepin County - Hanover

Hanover is in both Wright and Hennepin Counties, just a few miles southwest of St. Michael/Albertville. Hanover is mainly located within Wright County; only a small part of the city extends into Hennepin County. The North Crow River flows right through the downtown district and serves as the dividing line between Hennepin and Wright county. County Road 19 serves as a main route of transportation for Hanover. Even though Hanover is partly in the metropolitan county of Hennepin, it does not fall under the jurisdiction of the Twin Cities Metropolitan Council.

City Website: https://www.hanovermn.org/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	3,454
H.S. Diploma or More - % of Adults 25+ (2022)	98.6%
Bachelor's Deg. or More - % of Adults 25+ (2022)	48.4%
Households (2022)	1,141
Total Housing Units (2022)	1,156
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.1558775, -93.668205
Area:	5.60 sq. miles
Area - Land only:	5.46 sq. miles (97%)
Area - Water only:	0.14 sq. miles (3%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1
- Partner with local agencies to enhance resident understanding of local hazards.

4 Mitigation Priority 2
- Assess flood related hazards within the community.

5 Mitigation Priority 3
- Coordinate with regional water districts to assess flood vulnerability.

Vulnerability
- Crow River Flooding
- 1895 Historic Bridge
- Monticello NPP: 12 Miles

Capability
- Shares law enforcement coverage between Wright and Hennepin County Sheriffs office
- Fire Department

Corporate/Employer

School District
- 877 Buffalo-Hanover-Montrose

Language



https://apps.mla.org/map_data

2024 Hanover Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Enhance resident awareness.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Partner with local agencies to enhance resident understanding of local hazards.	Emergency Management	Personnel Time	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Assess flood related hazards within the community.	Emergency Management	Personnel Time	Ongoing	Ongoing	2	1, 6
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordinate with water districts.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Coordinate with regional water districts to assess flood vulnerability.	Emergency Management	Personnel Time	Ongoing	Ongoing	3	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Hanover 2018 – 2024 Mitigation Strategies Progress Report
No Prior Projects.

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3.3.18. CITY OF HOPKINS

Hennepin County - Hopkins

City Website: www.hopkinsmn.com

Hopkins is approximately four-square miles in size and is surrounded by the larger, western suburban communities of Minnetonka, St. Louis Park, and Edina. Hopkins is about 98% developed with little remaining vacant land. U.S. Route 169 and Minnesota State Highway 7 are two of the main arterial rotes in the city. The city's main street was added to the National Register of Historic Places in 2022. The Hopkins Raspberry Festival is an annual event in Hopkins. The festival now takes place the third weekend in July every year.





Population density: 4,556 people per square mile (average).

Tornado activity: Hopkins-area historical tornado activity is slightly above Minnesota state average. It is 31% greater than the overall U.S. average.

Earthquake activity: Hopkins-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	19,752
H.S. Diploma or More - % of Adults 25+ (2022)	95.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	45.7%
Households (2022)	9,153
Total Housing Units (2022)	9,713
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.2%

Latitude/Longitude:	44.927667, -93.400172
Area:	4.11 sq. miles
Area - Land only:	4.08 sq. miles (99%)
Area - Water only:	0.03 sq. miles (1%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A6)
- Update flooding response actions in Regional Emergency Operations Plan

3 Mitigation Priority 2 (3A1)
- Work with Ed and Cultural groups to preserve resources

8 Mitigation Priority 3 (8A1)
- Work with underserved community members in how to prepare for emergencies and disasters and provide them with Resources and information in their langue.

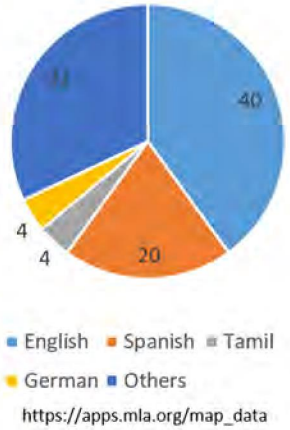
Vulnerability
- Functional Needs: 443
- Bridges: 16
- Monticello NPP: 32 miles

Capability
- Law Enforcement
- Fire
- Public Works
- Citizens Academy
- Hopkins Activity Center
- FCC Registered Amateur Radio Licenses: 62

Corporate/Employer
- Hopkins Center for the Arts
- Hopkins Pavilion
- Hopkins Activity Center

School District
- 270 Hopkins

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Hopkins-Minnesota.html

2024 Hopkins Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding- Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Update inundation map every 10 years	PW/GIS/EM	10K	3-5yrs	Ongoing	Low	1
1A2	Review and compare existing flood control standards, zoning, and building requirements	EM/City Planner	600	1-2yrs	Complete		
1A3	Review and update policies that discourage growth in flood-prone areas	City/Watershed	450	2-3yrs	Complete		
1A4	Review and update city wide evacuation plan	LE/Fire/EM	450	2-3yrs	Complete		
1A5	Periodically exercise flood response actions	EM Exercise team	5K	3-5yrs	Ongoing	Low	1
1A6	Update flooding response actions in Regional Emergency Operations Plan	EM/Plans Team	300	3-5yrs	Ongoing	1	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions.	EM/PD/FD	1.2K	1-2yrs	Complete		
2A2	Provide information to the public on the city website and through public education opportunities.	EM	2.5k	1-4yrs	Ongoing	Low	1
Objective 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions.							
2B1	Participate as a member in local or regional hazard mitigation planning group	Fire/EM	0	2-3yrs	Ongoing	2	1
2B2	Support or provide the public sector events, workshop, symposium, and continued education opportunities.	EM	0	2-3yrs	Ongoing	Low	1
Objective 2C: Work with Civic groups, businesses, and other local agencies to promote hazard mitigation in local community.							
2C1	Increase awareness and knowledge of hazard mitigation principles and practices	EM	2.5K	1-4yrs	Ongoing	Low	1

2C2	Encourage businesses to develop and implement hazard mitigation actions	EM	2.5K	1-4yrs	Ongoing	Low	1
2C3	Support or provide the private sector events, workshop, symposium, and continued education opportunities.	EM	2.5K	1-4yrs	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Prevent from building and encroaching on natural resources without effecting other cultural							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with Ed and Cultural groups to preserve resources	EM/PW/Ed	450	3-5yrs	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Assess areas of the city for the impacts of natural disaster.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Partnering with PW, assess areas of city that may be vulnerable to disasters.	EM	500	2-3yrs	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Work with state, county, and local officials to enhance mitigation strategies.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Meet with officials to see how we can mitigate potential mitigation issues	EM/Ed	500	3-5yrs	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Work with City Departments to make sure that future development is disaster resistance.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Promote disaster resistance Buildings	EM	500	3-5yrs	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Work to make city less vulnerable to disasters							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

7A1	Work with new contractors and developers to build strong and less vulnerable.	EM/ED/PW	100	Annually	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
	Work with underserved community members in how to prepare for emergencies and disasters; provide them with Resources and information in their langue.	EM/PR	1000	2-4Yrs	Ongoing	3	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
	Work with city, county and state governments on climate change issues and provide resources to residents and businesses in the City of Hopkins.	All City Departments	Undetermined	1-5Yrs	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
	Continue to work with Public works to assure that all of the city infrastructures will protect and hold up in natural or manmade hazards	EM/ PW	Undetermined	1- 5yrs	Ongoing	Low	1

Hopkins 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding – Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Update the inundation map every 10 years
Project Status	Ongoing
Responsible Agency	PW/GIS/EM
Project Title/Action	1A2: Review and compare existing flood control standards, zoning, and building requirements
Project Status	Ongoing
Responsible Agency	EM/City Planner
Project Title/Action	1A3: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Responsible Agency	City/Watershed
Project Title/Action	1A4: Review and update city wide evacuation plan
Project Status	Anticipated completion date: 1-2024
Responsible Agency	LE/Fire/EM
Project Title/Action	1A5: Periodically exercise flood response actions
Project Status	Anticipated completion date: 1-2024
Responsible Agency	EM Exercise team
Project Title/Action	1A6: Update flooding response actions in Regional Emergency Operations Plan
Project Status	Ongoing
Responsible Agency	EM/Plans Team
OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	Ongoing
Responsible Agency	EM/PD/FD
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	Ongoing
Responsible Agency	EM
OBJECTIVE: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning group
Project Status	Ongoing
Responsible Agency	Fire/EM
Project Title/Action	2B2: Support or provide the public sector events, workshop, symposium, and continued education opportunities
Project Status	Ongoing
Responsible Agency	EM

OBJECTIVE: 2C: Work with Civic groups, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Responsible Agency	EM
Project Title/Action	2C2: Encourage businesses to develop and implement hazard mitigation actions
Project Status	Ongoing
Responsible Agency	EM
Project Title/Action	2C3: Support or provide the private sector events, workshop, symposium, and continued education opportunities
Project Status	Ongoing
Responsible Agency	EM
OBJECTIVE: 3A: Prevent from building and encroaching on natural resources with affecting other cultural	
Project Title/Action	3A1: Work with Ed and Cultural groups to preserve resources
Project Status	Anticipated completion date: 6-2024
Responsible Agency	EM/PW/Ed
OBJECTIVE: 4A: Assess areas of the city for the impacts of natural disaster	
Project Title/Action	4A1: Partnering with PW, assess areas of city that may be vulnerable to disasters
Project Status	Ongoing
Responsible Agency	EM
OBJECTIVE: 5A: Work with state, county, and local officials to enhance mitigation strategies	
Project Title/Action	5A1: Meet with officials to see how we can mitigate potential mitigation issues
Project Status	Anticipated completion date: 8-2024
Responsible Agency	EM/Ed
OBJECTIVE: 6A: Work with City Departments to make sure that future development is disaster resistant	
Project Title/Action	6A1: Promote disaster resistant buildings
Project Status	Ongoing
Responsible Agency	EM
OBJECTIVE: 7A: Work to make city less vulnerable to disasters	
Project Title/Action	7A1: Work with new contractors and developers to build strong and less vulnerable.
Project Status	Ongoing
Responsible Agency	EM, ED, PW

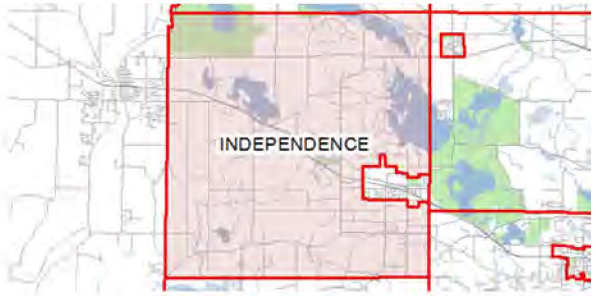
3.3.19. CITY OF INDEPENDENCE

Hennepin County - Independence

Independence is a rural city in Hennepin County. Most of the city is agricultural land with dense woods and numerous lakes. It is named after Lake Independence, a large lake on the community's eastern boundary. Independence is located on the western edge of Hennepin. Two major Three River parks; Rebecca and Baker, can be accessed directly from Independence and the popular Luce Line recreation trail crosses the south side of the city. U.S. Route 12 serves as a main arterial route to the community

City Website: www.ci.independence.mn.us





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	3,718
H.S. Diploma or More - % of Adults 25+ (2022)	96.0%
Bachelor's Deg or More - % of Adults 25+ (2022)	56.9%
Households (2022)	1,196
Total Housing Units (2022)	1,244
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.2%

Latitude/Longitude:	45.021528, -93.706355
Area:	34.56 sq. miles
Area - Land only:	32.37 sq. miles (94%)
Area - Water only:	2.19 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements.

1 Mitigation Priority 2 (1A2)
- Review and update policies that discourage growth in flood-prone areas.

3 Mitigation Priority 3 (3A1)
- Work with our local watershed districts to make improvements to protect our lakes and streams for water quality.

Vulnerability
- Functional Needs: 24
- Bridges: 3
- Monticello NPP: 20 Miles

Capability
- Law Enforcement West Hennepin
- Police Chaplains Group
- Fire: West Suburban and Maple Plain
- Park and Recreation
- FCC Registered Amateur Radio Licenses: 4

Corporate/Employer
- Vinland Treatment Facility
- Camp Iduhapi

School District
- 278 Orono
- 879 Delano
- 277 Westonka

Social Media:
Facebook: https://www.facebook.com/independenceminnesota

Language



https://apps.mla.org/map_data

2024 Independence Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements	Public Works, Engineers, and water shed districts.	$10,000	5 years	Ongoing	1	1
1A2	Review and update policies that discourage growth in flood-prone areas	Public Works, Engineers, and water shed districts.	$10,000	5 years	Ongoing	2	1
Objective 1B: Gas Line Protection: Develop a comprehensive approach with gas line companies to reduce the possibility of damage to gas line in City of Independence.							
1B1	Develop emergency management plans with gas companies to protect the underground and above ground gas lines/values.	Public Works, Engineers, and water shed districts.	$10,000	5 years	Ongoing	Low	1
Objective 1C: Main transmission electrical lines through Independence.							
1C1	Identify the different main transmission lines through Independence between Xcel Energy, Great River Energy and Wright Hennepin	Public Works, Engineers, and water shed districts.	$10,000	5 years	Complete		
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Invest in a comprehensive emergency notification system to immediately notify all citizens of an emergency, the action plan, and response to the emergency.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Work with Independence to purchase Code Red or Ever bridge notification system for our residents.	City Staff	$5,000	1 Year	Complete		
Objective 2B: Educate the public to increase awareness of hazards and opportunities for mitigation actions.							
2B1	Provide information to the public on the city website and through public education opportunities	City Staff. West	Staff Time	1 Year	Ongoing	Low	1

		Hennepin Police					
Objective 2C: Work with citizens, businesses, and other local agencies to promote hazard mitigation in local community.							
2C1	Encourage businesses to develop and implement hazard mitigation actions.	City Staff. West Hennepin Police	Staff Time	1 Year	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Reduction of waste and runoff into our lakes, streams, and watersheds.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with our local watershed districts to make improvements to protect our lakes and streams for water quality.	City engineers, watershed districts, Public Works	$10,000 annually	3-5 years	Ongoing	3	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Overhead power lines within the city.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Work with Excel Energy to remove and install underground power on future development projects.	City Engineer, Staff, Xcel Energy.	>$1,000,000	10-20 years	Ongoing	Low	1
Objective 4B: West Hennepin Police Department							
4B1	Security Protection, building upgrades, backup generator installed	City and West Hennepin Police, Wright Hennepin.	$10,000	2 years	Complete		
Objective 4C: Highway 12 Corridor Improvements							
4C1	Complete redesign of Highway 12 through Independence	City and West Hennepin Police,	>$1,000,000	5-20 years	In-Progress	Low	1

		Wright Hennepin.					
Objective 4D: Burlington Northern Santa Fe Railroad							
4D1	Identify and train staff on emergency response to a railroad disaster on the railroad. Develop an emergency response evacuation plan, educate citizens and train on it.	City and West Hennepin Police, Wright Hennepin.	$10,000	Ongoing	Ongoing	Low	1
Objective 4E: Lake Sarah and Lake Independence, local parks, and Lake Rebecca.							
4E1	Installation of outdoor warning sirens to cover the Lake Sarah, Lake Independence, Rebecca Park, and all local parks within Independence.	City and West Hennepin Police, Wright Hennepin.	TBD	3 years	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the state and Federal regulations with the protection plan.	City Staff, Public Works	Staff time	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Sirens							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Identify future sites for new sirens if new development and future group occurs.	City Staff and Public Works, West Hennepin Police	Staff time siren install $40,000	Ongoing	Ongoing	Low	1
Objective 6B: In ground electrical lines.							
6B1	Work with city engineers to promote and require all new development to includes in ground power lines vs. overhead power lines	City Staff and Public Works, West	Staff Time, developer costs.	Ongoing	Ongoing	Low	1

		Hennepin Police					
Objective 6C: Backup generators for sewer lift stations.							
6C1	All future and current sewer lift stations must require a backup generator to operate the system.	City Staff and Public Works, West Hennepin Police.	Staff Time, developer costs.	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury all power lines.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community and Excel to identify power lines that could be buried to reduce power failures in Independence.	City planner, engineer, city staff.	Staff time >$1,000,000	Ongoing	Ongoing	Low	1, 4, 5
Objective 7B: Trim back all trees/brush around Xcel Energy power lines to require road right of way setbacks							
7B1	City and County Public Works and Excel energy remove trees causing hazard to our power lines.	Public Works, Xcel Energy and other power companies	$50,000 Staff time	3-5 years	Complete		
Objective 7C: Backup generator installed for West Hennepin Public Safety Department.							
7C1	Install backup generator to operate West Hennepin Police Department.	City	$40,000	1 Year	Completed		
Objective 7D: Backup generators for sewer lift stations.							
7D1	All future and current sewer lift stations must require a backup generator to operate the system.	City	400,000	5-10 years	Ongoing	Low	1, 4
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A: Ensure vulnerable populations are adequately protected from the impacts of extreme temperatures							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Create a database to track those individuals at high risk of death, such as elderly, homeless, etc.	City/West Hennepin EM	Staff time	Ongoing	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							

Objective 9A Reduce impacts of localized street flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Evaluate opportunities for County Road 92 -Crow River flooding impacts and Townline Road	City Public Works	5.0 million	Ongoing	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Working with Lakes area Emergency Management Groups on tabletops fall of 2024, towards a drill and then functional exercise in 2024 and a full-scale exercise in 2025	West Hennepin EM	7,000	2026	Ongoing	Low	1

Independence 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements.
Project Status	Ongoing
Project Title/Action	1A2: Review and update policies that discourage growth in flood-prone areas.
Project Status	Ongoing
Responsible Agency	Public Works, Engineers, and water shed districts.
OBJECTIVE: 1B: Gas Line Protection: Develop a comprehensive approach with gas line companies to reduce the possibility of damage to gas line in City of Independence	
Project Title/Action	1B1: Develop emergency management plans with gas companies to protect the underground and above ground gas lines/values.
Project Status	Ongoing
Responsible Agency	West Hennepin EM, Public Works, Engineers, and water shed districts.
OBJECTIVE: 1C: Main transmission electrical lines through Independence	
Project Title/Action	1C1: Identify the different main transmission lines through independence between Xcel Energy, Great River Energy and Wright Hennepin.
Project Status	Complete
Responsible Agency	Public Works, Engineers, and water shed districts.
OBJECTIVE: 2A: Invest in a comprehensive emergency notification system to immediately notify all citizens of an emergency, the action plan, and response to the emergency	
Project Title/Action	2A1: Work with Independence to purchase Code Red of Everbridge notification system for our residents.
Project Status	Complete
Responsible Agency	City Staff
OBJECTIVE: 2B: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2B1: Provide information to the public on the city website and through public education opportunities.
Project Status	Ongoing
Responsible Agency	City Staff. West Hennepin Police
OBJECTIVE: 2C: Work with citizens, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Encourage businesses to develop and implement hazard mitigation actions
Project Status	Ongoing
Responsible Agency	City Staff. West Hennepin Police
OBJECTIVE: 3A: Reduction of waste and runoff into our lakes, streams, and watersheds	
Project Title/Action	3A1: Work with our local watershed districts to make improvements to protect our lakes and streams for water quality
Project Status	Ongoing
Responsible Agency	City engineers, watershed districts, Public Works

OBJECTIVE: 4A: Overhead power lines within the city	
Project Title/Action	4A1: Work with Xcel Energy to remove and install underground power on future development projects
Project Status	Ongoing
Responsible Agency	City Engineer, Staff, Xcel Energy
OBJECTIVE: 4B: West Hennepin Police Department	
Project Title/Action	4B1: Security Protection, building upgrades, backup generator installed
Project Status	Complete
Responsible Agency	City and West Hennepin Police, Wright Hennepin.
OBJECTIVE: 4C: Highway 12 Corridor Improvements	
Project Title/Action	4C1: Complete redesign of Highway 12 through Independence
Project Status	Ongoing
Responsible Agency	City and West Hennepin Police, Wright Hennepin.
OBJECTIVE: 4D: Burlington Northern Santa Fe Railroad	
Project Title/Action	4D1: Identify and train staff on emergency response to a railroad disaster on the railroad. Develop an emergency response evacuation plan, educate citizens and train on it.
Project Status	Ongoing
Responsible Agency	City and West Hennepin Police, Wright Hennepin.
OBJECTIVE: 4E: Lake Sarah and Lake Independence, local parks, and Lake Rebecca	
Project Title/Action	4E1: Installation of outdoor warning sirens to cover the Lake Sarah, Lake Independence, Rebecca Park, and all local parks within Independence
Project Status	Delayed
Responsible Agency	City and West Hennepin Police, Wright Hennepin.
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the state and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City Staff, Public Works
OBJECTIVE: 6A: Outdoor Warning Sirens	
Project Title/Action	6A1: Identify future sites for new sirens if new development and future group occurs
Project Status	Ongoing
Responsible Agency	City Staff and Public Works, West Hennepin Police.
OBJECTIVE: 6B: In-Ground Electrical Lines	
Project Title/Action	6B1: Work with city engineers to promote and require all new development to includes in ground power lines vs. overhead power lines
Project Status	Ongoing
Responsible Agency	City Staff and Public Works, West Hennepin Police.
OBJECTIVE: 6C: Backup generators for sewer lift stations	
Project Title/Action	6C1: All future and current sewer lift stations must require a backup generator to operate the system
Project Status	Ongoing
Responsible Agency	City Staff and Public Works, West Hennepin Police.

OBJECTIVE: 7A: Bury all power lines	
Project Title/Action	7A1: Work with the community and Xcel to identify power lines that could be buried to reduce power failures in Independence
Project Status	Ongoing
Responsible Agency	City planner, engineer, city staff.
OBJECTIVE: 7B: Trim back all trees/brush around Xcel Energy power lines to require road right of way setbacks	
Project Title/Action	7B1: City and County Public Works and Xcel Energy remove trees causing hazard to our power lines
Project Status	Ongoing
Responsible Agency	Public Works, Xcel Energy, and other power companies
OBJECTIVE: 7C: Backup generator installed for West Hennepin Public Safety Department	
Project Title/Action	7C1: Install backup generator to operate West Hennepin Police Department
Project Status	Complete
Responsible Agency	City
OBJECTIVE: 7D: Backup generators for sewer lift stations	
Project Title/Action	7D1: All future and current sewer lift stations must require a backup generator to operate the system
Project Status	Ongoing
Responsible Agency	Public Works

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3.3.20. CITY OF LONG LAKE

Hennepin County - Long Lake

Long Lake is a small city in Hennepin County, named after the lake the eastern end of town lies on. Long Lake was established in 1855 and was called Cumberland Town. U.S. Highway 12 serves as a main route of transportation for the city.

City Website: https://www.longlakemn.gov/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	1,712
H.S. Diploma or More - % of Adults 25+ (2022)	92.9%
Bachelor's Deg. or More - % of Adults 25+ (2022)	48.0%
Households (2022)	684
Total Housing Units (2022)	707
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude: 44.9836635, -93.5670485
Area: 0.93 sq. miles
Area - Land only: 0.83 sq. miles (89%)
Area - Water only: 0.10 sq. miles (11%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2A1)
- Achieve certification in National Weather Service Storm Ready program

1 Mitigation Priority 2 (1A3)
- Improve Community Notification Capabilities

2 Mitigation Priority 3 (2A2)
- Prepare Community Presentation on severe weather awareness.

Vulnerability
- Functional Needs: 70
- Bridges: 6
- Monticello NPP: 25 miles

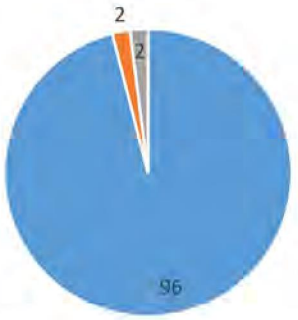
Capability
- Fire Department
- Law Enforcement- Wayzata
- Police Chaplains Group
- Public Works
- FCC Registered Amateur Radio Licenses: 19

Corporate/Employer
- Town Center Shopping Center
- UPS
- AmericInn

School District
- 278 Orono

Social Media:
Facebook: https://www.facebook.com/profile.php?id=100069157091295

Language



https://apps.mla.org/map_data

2024 Long Lake Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve Community Notification Capabilities							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review available products and vendors offering notification systems	EM Director	unknown	2 years	On Schedule	Low	1
1A2	Implement "Next Door" program for neighborhood specific notifications	EM Director	Staff Time	2 years	Cancelled		
1A3	Prepare Community Presentation on emergency response/notification.	EM Director	Staff Time	2 years	Priority	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in National Weather Service StormReady program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Meet requirements of the program	EM Director	Training Time	2 years	Delayed	1	1
2A2	Prepare Community Presentation on severe weather awareness.	EM Director	1K	2 years	Delayed	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Ensure water runoff choke points have adequate infrastructure to withstand flood.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Inventory critical choke points and inspect and/or improve infrastructure.	EM Director EM Coord	unknown	2 years	On Schedule	4	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	EM Director EM Coord	Staff Time	Ongoing	On Schedule	5	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Long Lake 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Improve Community Notification Capabilities	
Project Title/Action	1A1: Review available products and vendors offering notification systems
Project Status	Anticipated completion date: 2026
Project Title/Action	1A2: Implement “Next Door” program for neighborhood specific notifications
Project Status	Complete
Project Title/Action	1A3: Prepare Community Presentation on emergency response/notification
Project Status	Anticipated completion date: 2025
Responsible Agency	Wayzata Police Department
OBJECTIVE: 2A: Achieve certification in National Weather Service StormReady program	
Project Title/Action	2A1: Meet requirements of the program
Project Status	Anticipated completion date: 2025
Project Title/Action	2A2: Prepare Community Presentation on severe weather awareness
Project Status	Anticipated completion date: 2025
Responsible Agency	EM Director
OBJECTIVE: 4A: Ensure water runoff choke points have adequate infrastructure to withstand flood	
Project Title/Action	4A1: Inventory critical choke points and inspect and/or improve infrastructure
Project Status	Anticipated completion date: 2026
Responsible Agency	EM Director EM Coord
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	EM Director EM Coord

3.3.21. CITY OF LORETTO

Hennepin County - Loretto

Loretto, originally a Soo Line railway village, was founded in 1886 and settled by German and Dutch immigrants. Loretto was named for a Roman Catholic mission for refugees of the Huron Indians near Quebec, Canada, called Lorette, and for the village of Loretto, Kentucky, where a society of Catholic "Sisters of Loretto at the Foot of the Cross" was founded in 1812. The original source of the name is Loreto, a small town in Italy, which has a noted shire of pilgrimage. The city of Loretto was incorporated in 1940, County Roads 11 and 19 are the two major routes of transportation for the city

City Website: www.ci.loretto.mn.us





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	751
H.S. Diploma or More - % of Adults 25+ (2022)	96.2%
Bachelor's Deg. or More - % of Adults 25+ (2022)	49.7%
Households (2022)	289
Total Housing Units (2022)	289
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.0547105, -93.63492
Area:	0.29 sq. miles
Area - Land only:	0.29 sq. miles (100%)
Area - Water only:	0.00 sq. miles (0%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Build a Storm shelter in the City park for sever weather incidents.

5 Mitigation Priority 2 (5A1)
- Wellhead Protection Plan: Work with the State and County to meet their requirements

6 Mitigation Priority 3 (6B1)
- Work with the County to improve the intersection over the Canadian Pacific Railroad crossing for a future quiet zone

Vulnerability
- CP Railway
- Hillcrest Senior Apartments 25 units
- Monticello NPP: 19 miles

Capability
- Law Enforcement
- Police Chaplains Group
- Fire Department
- Public Works
- FCC Registered Amateur Radio Licenses: 2

Corporate/Employer
- City Hall
- 21st Century Bank
- Gary's diesel
- Yocum Oil
- Rasco Industries

School District
- 879 Delano

Social Media:
Facebook
Next-door

Language



https://apps.mla.org/map_data

2024 Loretto Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local water sheds to continue to protect our lakes and streams for future water quality	City of Loretto	7.5K	5 years	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Sewer Pond Connection to Sewer Line							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Connect old sewer ponds to the metro sewer system	City of Loretto	850K	5 Years	Complete		
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Wellhead Protection Plan: Work with the State and County to meet their requirements	City of Loretto	Staff Time	Ongoing	Ongoing	2	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Siren							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

6A1	Replace aging siren	City of Loretto	29K	5 years	Ongoing	Low	1
Objective 6B: Improve Intersection at Railroad crossing for quiet zone							
6B1	Work with the County to improve the intersection over the Canadian Pacific Railroad crossing for a future quiet zone	City of Loretto	240K	Ongoing	2024	3	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Storm Shelter- South of Railroad Crossing							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Build a Storm shelter in the city park for severe weather incidents	City of Loretto	600K	5 years	Delayed	1	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Loretto 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local water sheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Loretto
OBJECTIVE: 4A: Sewer Pond Connection to Sewer Line	
Project Title/Action	4A1: Connect old sewer ponds to the metro sewer system
Project Status	Delayed
Responsible Agency	City of Loretto
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Work with the State and County to meet their requirements
Project Status	Ongoing
Responsible Agency	City of Loretto
OBJECTIVE: 6A: Outdoor Warning Siren	
Project Title/Action	6A1: Replace aging siren
Project Status	Delayed
Responsible Agency	City of Loretto
OBJECTIVE: 6B: Improve Intersection at Railroad crossing for quiet zone	
Project Title/Action	6B1: Work with the County to improve the intersection over the Canadian Pacific Railroad crossing for a future quiet zone
Project Status	Delayed
Responsible Agency	City of Loretto
OBJECTIVE: 7A: Storm Shelter – South of Railroad Crossing	
Project Title/Action	7A1: Build a Storm shelter in the city Park for severe weather incidents
Project Status	Delayed
Responsible Agency	City of Loretto

3.3.22. CITY OF MAPLE GROVE

Hennepin County - Maple Grove

Winnebago Indians were the only inhabitants in the area of Maple Grove until 1851 when Louis Gervais arrived and settled. Four years later, in 1855, city growth included a church, town hall and many homes. The city was known for its large stands of maple trees and was, therefore, a significant source for maple syrup. With the completion and major upgrades to Interstates 94/694, 494, and U.S. Route 169, Maple Grove has grown at a rapid pace since the 1970's.

Population density: 2,152 people per square mile (low).

Tornado activity: Maple Grove-area historical tornado activity is slightly above Minnesota state average. It is 25% greater than the overall U.S. average.

Earthquake activity: Maple Grove-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2C1), (2C2)
- Increase awareness and knowledge of hazard mitigation principles and practices.
- Encourage businesses to develop and implement hazard mitigation actions.

5 Mitigation Priority 2 (5A1), (5A2)
- Improve radio coverage in Boston Scientific Buildings.
- Review buildings in city with poor radio coverage and meet with building owners regarding installing BDA system.

9 Mitigation Priority 3 (9B3)
- Engage in risk-assessment process to identify areas most at risk from likely natural disasters.

School District
- 279 Osseo
- 284 Wayzata

Vulnerability
- Functional Needs: 125
- Bridges: 51
- Monticello NPP: 23 Miles

City Website:
www.maplegrovemn.gov
https://www.maplegrovemn.gov/241/Emergency-management



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	70,110
H.S. Diploma or More - % of Adults 25+ (2022)	97.5%
Bachelor's Deg. or More - % of Adults 25+ (2022)	54.5%
Households (2022)	27,106
Total Housing Units (2022)	28,044
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.9%

Latitude/Longitude:	45.108528, -93.464404
Area:	35.01 sq. miles
Area - Land only:	32.63 sq. miles (93%)
Area - Water only:	2.38 sq. miles (7%)

Corporate/Employer
- Boston Scientific
- Grove Square Shopping Mall
- The Fountains at Arbor Lakes
- North Memorial Health
- Park Nicollet Specialty Center
- Upsher-Smith
- UPS

Capability
- Law Enforcement
- Citizens' Academy
- Fire Department
- Public Works
- Parks and Recreation
- City Website: EM
- North Memorial Hospital LVL 1
- Maple Grove Hospital Level III NICU
- FCC Registered Amateur Radio Licenses: 180

Social Media:
https://www.facebook.com/MapleGroveMN/
https://www.facebook.com/MGFDMinnesota
https://twitter.com/maplegrovemngov
https://twitter.com/grove_fire
https://www.linkedin.com/company/city-of-maple-grove-minnesota/
https://www.instagram.com/maplegrovemngov/

https://www.city-data.com/city/Maple-Grove-Minnesota.html

Language



https://apps.mla.org/map_data

2024 Maple Grove Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Hazardous Materials Preparedness							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Hazardous Material facility inspections for code compliance and planning to include protect in place/evacuation strategies.	Maple Grove Fire	0	Ongoing	Ongoing	Low	1
1A2	Hazardous Material data maintained for materials in fixed facilities	Maple Grove Fire	0	Ongoing	Ongoing	Low	1
1A3	Hazardous Material planning and training for transportation related hazardous materials emergencies	Maple Grove Fire	Man hours: 12	Annual	Ongoing	Low	1
Objective 1B: Wildland Fire							
1B1	Use GIS mapping of wildfire hazard areas to identify hazards and assess overall community vulnerability.	Maple Grove Fire	0	18 months	Delayed	Low	1
1B2	Review comprehensive plan to ensure wildfire mitigation has been addressed, including review of code of ordinances.	Maple Grove Fire	0	18 months	Delayed	Low	1
Objective 1C: Terrorism Awareness and Preparedness							
1C	Collaborate with LE, MNJAC, and Emergency service partners to maintain situation awareness of possible threats, including regional mass casualty response training.	MG Police and Fire	0	Ongoing	Ongoing	9	1
Objective 1B: Severe Weather							
1D1	Maintain outdoor warning/alert capability (Maple Grove has 22 outdoor warning sirens)	Maple Grove Fire	$25,000 per year	Ongoing	Ongoing	Low	1
1D2	Increase severe weather awareness and encourage severe weather planning in residential and commercial occupancies	Maple Grove Fire	0	Ongoing	Ongoing	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate Public to increase awareness of hazards and opportunities for mitigation actions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

2A	Provide information to the public on the city website and through public education opportunities	Maple Grove Fire	0	Ongoing	Ongoing	Low	1
Objective 2B: Promote partnerships between state, county, local jurisdictions and partner agencies to identify, prioritize, and implement mitigation actions							
2B1	Participate as a member in local or regional hazard mitigation planning groups (i.e. North Suburban Emergency Management Planning Group, etc)	Maple Grove Fire	Man hours: 15-20	Ongoing	Ongoing	8	1
2B2	Support or provide public sector events, workshops. Symposiums, and continued education opportunities	Maple Grove Fire and Police	Man hours: 20	Ongoing	Ongoing	Low	1
Objective 2C: Work with businesses and other local agencies to promote hazard mitigation in local community							
2C1	Increase awareness and knowledge of hazard mitigation principles and practices	Maple Grove Fire and CED	Man hours: 50	Ongoing	Ongoing	1	1
2C2	Encourage businesses to develop and implement hazard mitigation actions	Maple Grove Fire and CED	Man hours: 25	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Maintain parks and support Three Rivers Park District							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Monitor for drought impact and invasive species	Maple Grove Park and Recreation	0	Ongoing	Ongoing	Low	1
3A2	Wildfire suppression and assist with wildland management of fuels	MGFD and MGPR	$20,000	Ongoing	Ongoing	Low	1, 2
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Encourage construction of Safe Rooms							
4A1	Encourage the construction and use of safe rooms in homes and shelter areas of parks, shopping malls, or other vulnerable public structures	Maple Grove Fire, CED, and Park and Recreation	0	Ongoing	Ongoing	Low	1
Objective 4B: Conduct Tornado Awareness Activities							
4B1	Educate citizens through traditional and social media outlets	MGFD	0	Ongoing	Ongoing	Low	1
4B2	Conduct tornado drills in schools and public buildings	MGFD	0	Ongoing	Ongoing	Low	1
4B3	Support severe weather awareness week in Minnesota	MGFD	0	Annual	Ongoing	Low	1

Objective 4C: Develop a comprehensive approach to reducing the possibility of damage and losses due to a hazardous materials spill.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4C1	Continue to use Maple Grove and Hennepin County GIS to map and update locations of fixed facilities using hazardous materials and associated transportation routes in a timely manner.	Maple Grove Fire Department	0	Ongoing	Ongoing	6	1
4C2	Provide Railroad & Pipeline Safety Awareness Level training for First Responders	Maple Grove Fire Department	Man Hours 12	Annual Training	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Bi-directional Amplifiers (BDA) Equipment							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Improve radio coverage in Boston Scientific Buildings	Maple Grove Fire Department	$30,000	2 years	Ongoing	2	1
5A2	Review buildings in city with poor radio coverage and meet with building owners regarding installing BDA system	Maple Grove Fire and Police	Man hours: Unknown	Ongoing	Ongoing	2	1
Objective 5B: Distribute emergency messaging via mobile communication devices and broadcast radio							
5B1	Code RED mass notification	Maple Grove Fire and Police	$10,500 per year	Ongoing	Ongoing	Low	1
5B2	Encourage understanding and adoption of WEA and IPAWS messaging	Maple Grove Fire Department	0	Ongoing	Ongoing	Low	1
5B3	Promote use of NOAA Weather Radios and benefit of owning a battery powered portable radio	Maple Grove Fire	0	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Reduce risk factors of private business, family, and public structures in addition to at risk populations							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Maple Grove Community and Economic Development Department will continue to ensure that building permits and codes current and meet industry standards.	Maple Grove CED	0	Ongoing	Ongoing	7	1

6A2	Maple Grove Park and Recreation Department will work to avoid developing park areas near pre-identified high-risk hazard locations.	Maple Grove Park and Recreation	0	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Educate first responders to increase awareness of hazards and opportunities for mitigation actions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Ensure that all essential city departments (police, fire, public works) have the latest edition of the Emergency Response Guidebook	Maple Grove Fire Department	Man hours: 5	Ongoing	Ongoing	5	1, 2
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A Maple Grove Parks and Recreation Trail Barriers and Barrier Reductions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Identify restrictions to the trail system to increase access to recreational facilities and amenities as outlined in MG Comprehensive Plan	Maple Grove Park Board	$2-3M	Ongoing	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A Water conservation and water loss control							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Encourage the use of water conservation kits to reduce water consumption and preserve ground water resources	Maple Grove Public Works	0	Ongoing	Ongoing	Low	1
Objective 9B Environmental Resilience							
9B1	Restrict development in areas subject to natural disasters, such as flood plains and wetlands.	Community and Economic Development Department	0	Ongoing	Ongoing	10	1
9B2	Encourage Sustainable design elements in building construction, lighting HVAC systems, & stormwater management.	CED	0	Ongoing	Ongoing	Low	1
9B3	Engage in risk-assessment process to identify areas most at risk from likely natural disasters.	Maple Grove Fire, CED, and Public Works	Unknown	Ongoing	Ongoing	3	1

9B4	Review and upgrade stormwater facilities to meet current and future needs	Maple Grove Public Works	$3-5M	Ongoing	Ongoing	Low	1
9B5	Cost-effective sewer system that provides equitably financed new trunks, while operating and maintaining existing system	Maple Grove Public Works	$4-8M	Ongoing	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A Economic Resiliency							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Encourage self-sufficiency in energy production and resiliency to energy disruptions through micro-grids, co-generation, protection of supply lines and other measures	MG CED and Public Works Departments	Minimal	Ongoing	Ongoing	Low	1
10A2	Embrace energy efficiency to reduce associated costs	MG CED and Public Works	Minimal	Ongoing	Ongoing	Low	1
Objective 10B Community lifelines							
10B1	Proactively engage with civic organizations to help identify residents most vulnerable to emergency events and help prioritize responses	Maple Grove Fire and Police Departments	Unknown	Ongoing	Ongoing	4	1
10B2	Embrace complete street policies to allow alternative transportation options and plan opportunities for pedestrian and bicycle movement	CED	0	Ongoing	Ongoing	Low	1

Maple Grove 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 4A: Develop a comprehensive approach to reducing the possibility of damage and losses due to a hazardous materials spill	
Project Title/Action	4A1: Continue to use Maple Grove and Hennepin County GIS to map and update locations of fixed facilities using hazardous materials and associated transportation routes in a timely manner
Project Status	Ongoing
Project Title/Action	4A2: Provide Railroad & Pipeline Safety Awareness Level training for first responders
Project Status	Complete
Responsible Agency	Maple Grove Fire Department
OBJECTIVE: 7A: Educate first responders to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	7A1: Ensure that all essential city departments (police, fire, public works) have the latest edition of the Emergency Response Guidebook
Project Status	Ongoing
Responsible Agency	Maple Grove Fire Department
OBJECTIVE: 7B: Develop redundancy in communication infrastructure for routine and emergency notification	
Project Title/Action	7B1: Link City radio assets by fiber optics
Project Status	Ongoing
Project Title/Action	7B2: Implement/utilize VHF radio systems to provide backup paging and communication capability
Project Status	Cancelled
Project Title/Action	7B3: Institute SkyWarn warning base with multimode communication capability
Project Status	Cancelled
Responsible Agency	Maple Grove Fire Department

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3.3.23. CITY OF MAPLE PLAIN

Hennepin County - Maple Plain

Maple Plain is located 20 miles west of Minneapolis and is named for the many sugar maples in its surrounding forests. U.S. Route 12 and Hennepin County Roads 19, 29, and 83 are four of the community's main routes. The city is bordered by Independence to the west. Early settlement of the area started in 1854 and revolved around lake Independence to its north, and its outflow Pioneer Creek. In 1868 and 1869, the St. Paul, Pacific and Manitoba Railroad was built through Maple Plain. The city was incorporated as a village in 1912.

City Website: www.mapleplain.com





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	1,780
H.S. Diploma or More - % of Adults 25+ (2022)	96.2%
Bachelor's Deg. or More - % of Adults 25+ (2022)	35.5%
Households (2022)	756
Total Housing Units (2022)	793
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.010244, -93.660833
Area:	1.12 sq. miles
Area - Land only:	1.11 sq. miles (100%)
Area - Water only:	0.00 sq. miles (0%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements.

1 Mitigation Priority 2 (1A2)
- Review and update policies that discourage growth in flood-prone areas.

2 Mitigation Priority 3 (2C1)
- Encourage businesses to develop and implement hazard mitigation actions.

Vulnerability
- Functional needs: 127
- Bridges: 1
- BNSF Rail goes through city
- Monticello NPP: 22 miles

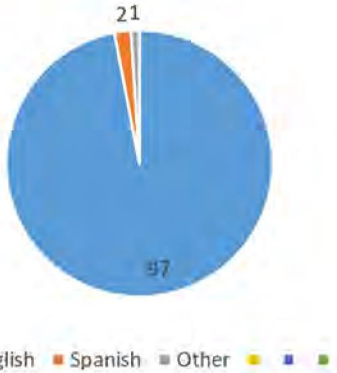
Capability
- Law Enforcement- West Hennepin Public Safety
- Fire Department
- Police Chaplains Group
- Public Works
- FCC Registered Amateur Radio Licenses: 19

Corporate/Employer
- Innovex Inc

School District
- 278 Orono

Social Media
Facebook: www.facebook.com/CityofMaplePlain/

Language



https://apps.mla.org/map_data

2024 Maple Plain Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements.	Public Works, Engineers, and water shed districts.	$10,000	5 years	Ongoing	1	1
1A2	Review and update policies that discourage growth in flood-prone areas	Public Works, Engineers, and water shed districts.	$10,000	5 years	Ongoing	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Invest in a comprehensive emergency notification system to immediately notify all citizens of an emergency, the action plan, and response to the emergency.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Work with Maple Plain to purchase Code Red or Ever bridge notification system for our residents.	City Staff	$5,000	1 year	Complete		
Objective 2B: Educate the public to increase awareness of hazards and opportunities for mitigation actions							
2B1	Provide information to the public on the city website and through public education opportunities	City Staff, West Hennepin Police	$5,000	1 year	Complete		
Objective 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community.							
2C1	Encourage businesses to develop and implement hazard mitigation actions.	EM	Undetermined	Ongoing	Ongoing	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Reduction of waste and runoff into our lakes, streams, and watersheds.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

3A1	Work with our local watershed districts to make improvements to protect our lakes and streams for water quality.	City engineers, watershed districts, Public Works	$10,000 Annually	3-5 years	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Overhead power lines within the city.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Work with Excel Energy to remove and install underground power on future development projects.	City Engineer, Staff, Xcel Energy	>$1,000,000	10-20 years	Ongoing	Low	1
Objective 4B: Maple Plain Water Treatment Facility.							
4B1	Security Protection, building upgrades, backup generator installed	City and West Hennepin Police, Wright Hennepin.	$10,000	2 years	Complete		
Objective 4C: Highway 12 Corridor Improvements							
4C1	Complete redesign of Highway 12 through Maple Plain	City and West Hennepin Police, Wright Hennepin.	>$1,000,000	5-20 years	Ongoing	Low	1, 4, 5
Objective 4D: Burlington Northern Santa Fe Railroad							
4D1	Identify and train staff on emergency response to a railroad disaster on the railroad. Develop an emergency response evacuation plan, educate citizens and train on it.	City and West Hennepin Police, Wright Hennepin.	$10,000	Ongoing	Ongoing	Low	1

Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the state and Federal regulations with the protection plan.	City Staff, Public Works	Staff Time	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Sirens							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Identify future sites for new sirens if new development and future group occurs	City Staff and Public Works, West Hennepin Police	Staff Time Siren Install	Ongoing	Ongoing	Low	1
Objective 6B: In ground electrical lines.							
6B1	Work with city engineers to promote and require all new development to includes in ground power lines vs. overhead power lines.	City Staff and Public Works, West Hennepin Police	$40,000	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury all power lines.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community and Excel to identify power lines that could be buried to reduce power failures in Maple Plain.	City planner, engineer, city staff	Staff Time >$1,000,000	Ongoing	Ongoing	Low	1
Objective 7B: Trim back all trees/brush around Xcel Energy power lines to require road right of way setbacks.							
7B1	City and County Public Works and Excel energy remove trees causing hazard to our power lines	Public Works, Xcel Energy, and other	$50,000 Staff Time	3-5 years	Ongoing	Low	1

		power companies					
Objective 7C: Backup generator installed for West Hennepin Public Safety Department.							
7C1	Install backup generator to operate West Hennepin Police Department.	City	$40,000	1 year	Complete		
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A Ensure vulnerable populations are adequately protected from the impacts of extreme temperatures							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Create a database to track those individuals at high risk of death, such as elderly, homeless, etc.	City/West Hennepin EM	Staff Time	Ongoing	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A Reduce impacts of localized street flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Evaluate opportunities for storm water drainage at Howard Ave and other city street	City	Staff Time	Ongoing	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Working with Lakes area Emergency Management Groups on tabletops fall of 2024, towards a drill and then functional exercise in 2024 and a full-scale exercise in 2026	West Hennepin EM	7,000	2026	Ongoing	Low	1

Maple Plain 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and compare existing flood control standards, zoning, and building requirements. Review and develop engineering plans with new street improvements, storm sewer runoff design, and INI improvements
Project Status	Ongoing
Project Title/Action	1A2: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Responsible Agency	Public Works, Engineers, and water shed districts.
OBJECTIVE: 2A: Invest in a comprehensive emergency notification system to immediately notify all citizens of an emergency, the action plan, and response to the emergency	
Project Title/Action	2A1: Work with Maple Plain to purchase Code Red or Everbridge notification system for our residents
Project Status	Complete
Responsible Agency	City Staff
OBJECTIVE: 2B: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2B1: Provide information to the public on the city website and through public education opportunities
Project Status	Complete
Responsible Agency	City Staff. West Hennepin Police
OBJECTIVE: 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Encourage businesses to develop and implement hazard mitigation actions
Project Status	Ongoing
Responsible Agency	City Staff- West Hennepin Chamber
OBJECTIVE: 3A: Reduction of waste and runoff into our lakes, streams, and watersheds	
Project Title/Action	3A1: Work with our local watershed districts to make improvements to protect our lakes and streams for water quality
Project Status	Ongoing
Responsible Agency	City engineers, watershed districts, Public Works
OBJECTIVE: 4A: Overhead power lines within the city	
Project Title/Action	4A1: Work with Xcel Energy to remove and install underground power on future development projects
Project Status	Ongoing
Responsible Agency	City Engineer, Staff, Xcel Energy.
OBJECTIVE: 4B: Maple Plain Water Treatment Facility	
Project Title/Action	4B1: Security Protection, building upgrades, backup generator installed
Project Status	Complete
Responsible Agency	City and West Hennepin Police, Wright Hennepin
OBJECTIVE: 4C: Highway 12 Corridor Improvements	
Project Title/Action	4C: Complete redesign of Highway 12 through Independence
Project Status	On-Schedule
Responsible Agency	City and West Hennepin Police, Wright Hennepin

OBJECTIVE: 4D: Burlington Northern Santa Fe Railroad	
Project Title/Action	4D1: Identify and train staff on emergency response to a railroad disaster on the railroad. Develop an emergency response evacuation plan, educate citizens and train on it
Project Status	Ongoing
Responsible Agency	City and West Hennepin Police, Wright Hennepin
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the state and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City Staff, Public Works
OBJECTIVE: 6A: Outdoor Warning Sirens	
Project Title/Action	6A1: Identify future sites for new sirens if new development and future group occurs
Project Status	Ongoing
Responsible Agency	City Staff and Public Works, West Hennepin Police.
OBJECTIVE: 6B: In-Ground electrical lines	
Project Title/Action	6B1: Work with city engineers to promote and require all new development to include in ground power lines vs. overhead power lines
Project Status	Ongoing
Responsible Agency	City Staff and Public Works, West Hennepin Police.
OBJECTIVE: 7A: Bury all power lines	
Project Title/Action	7A1: Work with the community and Xcel Energy to identify power lines that could be buried to reduce power failures in Maple Plain
Project Status	Ongoing
Responsible Agency	City planner, engineer, city staff
OBJECTIVE: 7B: Trim back all trees/brush around Xcel Energy power lines to require road right of way setbacks	
Project Title/Action	7B1: City and County Public Works and Xcel Energy remove trees causing hazard to our power lines
Project Status	Ongoing
Responsible Agency	Public Works, Xcel Energy, and other power companies
OBJECTIVE: 7C: Backup generator installed for West Hennepin Public Safety Department	
Project Title/Action	7C1: Install backup generator to operate West Hennepin Police Department
Project Status	Complete
Responsible Agency	City/West Hennepin

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3.3.24. CITY OF MEDICINE LAKE

Hennepin County - Medicine Lake

The City of Medicine Lake is nestled in the western suburbs on the large peninsula within Medicine Lake, the second largest lake in the Twin Cities. The city is surrounded by the city of Plymouth and forms a peninsula stretching into the lake that is its namesake.

Website: www.cityofmedicinelake.com





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	419
H.S. Diploma or More - % of Adults 25+ (2022)	99.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	69.6%
Households (2022)	188
Total Housing Units (2022)	196
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	44.9988085, -93.420831
Area:	0.32 sq. miles
Area - Land only:	0.18 sq. miles (54%)
Area - Water only:	0.15 sq. miles (46%)

Hazard Mitigation Project Goal Priority Ranking Aid

3 Mitigation Priority 1 (3A2)
- Explore formation of a Water and Wetland Commission to protect lake water quality, water level, and wetland preservation.

1 Mitigation Priority 2 (1A3)
- Develop, maintain and revise the City's Continuity of Operations and Emergency Operations Plan.

8 Mitigation Priority 3 (8A1)
- Develop, review, and revise City evacuation plans to assist citizens with limited mobility.

Vulnerability
- Monticello NPP: 28 Miles
- No city water; access through Plymouth
- Resident well systems
- Chicago Northwestern Railroad Track
- Above ground powerlines
- Water lift station electrical dependent

Capability
- Fire Department/MOA with other fire
- Law Enforcement: HCSO

School District
- 284 Wayzata

Corporate/Employer

Language



https://apps.mla.org/map_data

Social Media: The citizens of Medicine Lake communicate through a private Facebook Page; "City of Medicine Lake_MN".

2024 Medicine Lake Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Remove hazard trees that pose a risk to public right of ways or private or public property.	Public Works	$50,000	Ongoing	Ongoing	Low	1
1A2	Clear downed trees and remove underbrush on City owned property to reduce wildfire danger.	Public Works	$15,000	Ongoing	Ongoing	Low	1
1A3	Develop, maintain, and revise the City's Continuity of Operations and Emergency Operations Plan.	City Council, EM	N/A	May 2024	On Schedule	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Alert citizens during community events of existing severe weather and disaster preparedness educational opportunities.	EM, Fire	$1,000	December 2024	On Schedule	Low	1
2A2	Host annual severe weather and disaster preparedness community educational courses.	EM, Fire	$500	December 2024	On Schedule	Low	1
2A3	Inform citizens of current methods of communicating severe weather warnings through mailings.	EM, Fire	$500	December 2024	On Schedule	Low	1
2A4	Educate community on flood precautions for private water wells through mailings and at community gatherings.	EM, Fire	$500	December 2024	On Schedule	Low	1
2A5	Educate Public to the dangers to lake water quality by use of lawn additives and ice melt on driveways and sidewalks.	TBD	$500	December 2024	On Schedule	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Identify and remediate trees infested with destructive invasive pests.	Public Works	$50,000	Ongoing	Ongoing	Low	1
3A2	Explore formation of a Water and Wetland Commission to protect lake water quality, water level, and wetland preservation.	City Council	N/A	December 2024	On Schedule	1	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							

Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Explore formation of a Water and Wetland Commission to coordinate and work with the multiple state, federal, and municipal entities necessary to protect lake water level and quality and wetland preservation.	City Council	N/A	December 2024	On Schedule	Low	1
5A2	Obtain radio communications equipment for Emergency Management personnel and conduct training related thereto.	City Council, EM	$1,000	December 2024	On Schedule	5	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Enforce existing codes to ensure future developments meet standards set to promote resistance to disaster.	Zoning	N/A	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Bury power lines.	TBD	$2 million	2024-2027	On Schedule	Low	1, 4, 5
7A2	Convert City to municipal water system and prepare to connect homes to municipal water on emergency basis in the event of water well contamination.	City Council	$2.7 million	2024-2027	On Schedule	4	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

8A1	Develop, review, and revise City evacuation plans to assist citizens with limited mobility.	EM, Fire	N/A	August 2024	On Schedule	3	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Explore formation of a Water and Wetland Commission to coordinate and work with the multiple state, federal, and municipal entities necessary to review lake water level issues related to climate change related drought.	City Council	N/A	December 2024	On Schedule	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Medicine Lake 2018 – 2024 Mitigation Strategies Progress Report
No Prior Projects.

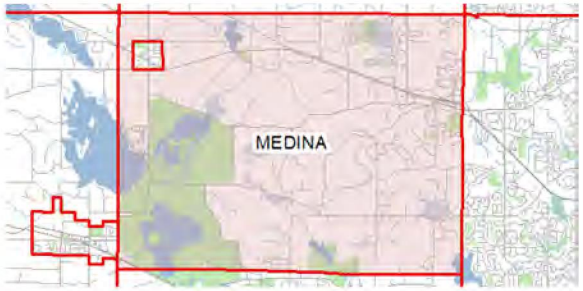
3.3.25. CITY OF MEDINA

Hennepin County - Medina

Medina is located 16 miles west of Minneapolis. Polaris Industries, a snowmobile and ATV manufacturing company, is based in the city of Medina. Minnesota State Highway 55 serves as the main route of transportation for the city

City Website: www.medinamn.us





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	6,746
H.S. Diploma or More - % of Adults 25+ (2022)	97.8%
Bachelor's Deg. or More - % of Adults 25+ (2022)	71.4%
Households (2022)	2,311
Total Housing Units (2022)	2,364
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.0326135, -93.584011
Area:	27.01 sq. miles
Area - Land only:	25.46 sq. miles (94%)
Area - Water only:	1.55 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

10 Mitigation Priority 1 (10A1)
- Working with Lakes area Emergency Management Groups on tabletops fall of 2024, towards a drill and then functional exercise in 2024 and a full-scale exercise in 2025.

9 Mitigation Priority 2 (9A1)
- Evaluate opportunities for Willow Drive and Tamarack Drive.

6 Mitigation Priority 3 (6A1)
- Identify future sites for new sirens in the new developments.

Vulnerability
- Monticello NPP: 21 Miles
- Functional Needs: 8
- Bridges: 2

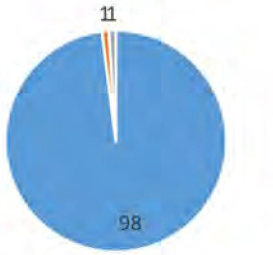
Capability
- Law Enforcement
- Police Chaplains Group
- FCC Registered Amateur Radio Licenses: 5

Corporate/Employer
- Polaris Industries

School District
- 278 Orono
- 284 Wayzata

Social Media:
Facebook: Medina Police Department – Mn

Language



https://apps.mla.org/map_data

2024 Medina Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Ensure all essential city first responders have the current revision of the Emergency Response Guidebook							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Distribute guidebooks when updated/received from Henn Co & assure responders are trained on their use	Medina EM	Staff Time	Ongoing	Ongoing	Low	1, 2
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Post link to severe weather articles on social media to increase residential awareness							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Utilize HSEM (dps.mn.gov) website for article content; post in April for 'Severe Weather Awareness Week' post in November for 'Winter Hazard Awareness Week'	Medina EM	Staff Time	Ongoing	Ongoing	5	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of Medina	20K	Ongoing	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Identify at-risk residents who may be exceptionally vulnerable in the event of a long-term power outage							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Organize outreach and promote transitioning to a climate-controlled location during the power outage	Medina EM	Undetermined	Ongoing	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of Medina	Staff Time	Ongoing	Ongoing	Low	1

Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Outdoor Warning Siren							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Identify future sites for new sirens in the new developments	Emergency Manager	90K	Ongoing	Ongoing	3	1
Objective 6B: Maintain Inter County Roads							
6B1	Work with the State and County to improve intersections with high accident rates	City of Medina	50K	Ongoing	Ongoing	Low	1, 4
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Medina	450K	Ongoing	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A: Ensure vulnerable populations are adequately protected from the impacts of extreme temperatures							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Create a database to track those individuals at high risk of death, such as elderly, homeless, etc.	Medina EM	Staff Time	Ongoing	Ongoing	4	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A: Reduce impacts of localized street flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Evaluate opportunities for Willow Drive and Tamarack Drive (x2)	Medina Public Works	$1 million	Ongoing	Ongoing	2	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

10A1	Working with Lakes area Emergency Management Groups on tabletops fall of 2024, towards a drill and then functional exercise in 2024 and a full-scale exercise in 2025	Medina EM	5,000	2026	Ongoing	1	1

Medina 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Medina
OBJECTIVE: 5A: Wellhead protection plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City of Medina
OBJECTIVE: 6A: Outdoor Warning Siren	
Project Title/Action	6A1: Identify future sites for new sirens in the new developments
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 6B: Maintain Inter-County Roads	
Project Title/Action	6B1: Work with the State and County to improve intersections with high accident rates
Project Status	Ongoing
Responsible Agency	City of Medina
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	City of Medina

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3.3.26. CITY OF MINNEAPOLIS

Hennepin County - Minneapolis

City Website: https://www.minneapolismn.gov

Minneapolis is the largest city in Minnesota and is the county seat for Hennepin County. Minneapolis has 83 neighborhoods and 70 neighborhood organizations. Xcel Energy supplies electricity, and CenterPoint Energy provides gas. The water supply is managed by four watershed districts that correspond with the Mississippi and three streams that are river tributaries. The city has 19 fire stations. The city lies on both banks of the Mississippi River, just north of the river's confluence with the Minnesota River, and adjoins Saint Paul, the state's capital. Minneapolis has numerous routes of transportation including Interstate 494 and 694, Interstate 35W, Minnesota State Highway 62 and 77, U.S Route 169 and Minnesota State Highway 100 to name a few.



https://www.statsamerica.org/town/



Population density: 7,749 people per square mile (high).

Tornado activity: Minneapolis-area historical tornado activity is slightly above Minnesota state average. It is 30% greater than the overall U.S. average.

Earthquake activity: Minneapolis-area historical earthquake activity is significantly above Minnesota state average. It is 56% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	426,877
H.S. Diploma or More - % of Adults 25+ (2022)	90.8%
Bachelor's Deg. or More - % of Adults 25+ (2022)	53.5%
Households (2022)	185,674
Total Housing Units (2022)	198,971
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.6%

Latitude/Longitude: 44.9705185, -93.2616155
Area: 57.49 sq. miles
Area - Land only: 54.01 sq. miles (94%)
Area - Water only: 3.48 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7B1)
- Protect Infrastructure and Critical Facilities

5 Mitigation Priority 2 (5B2)
- Map Community Risks

2 Mitigation Priority 3 (2H3)
- Improve Household Disaster Preparedness

Vulnerability
- Functional Needs 9326
- Target Center
- US. Bank Stadium
- University of Minnesota
- Bridges 871
- Rail
- Monticello NPP: 34 miles

Capability
- Hospitals 6
- International Airport
- Law Enforcement
- Fire Protection
- Streets and Highways
- Park and Recreation
- FCC Amateur Radio 1058

Corporate/Employer
- University of Minnesota 25,836
- Target Corporation
- US Bancorp
- Ameriprise Financial
- Xcel Energy

School District
- 1 Minneapolis



https://apps.mla.org/map_data

Social Media: Facebook and X

https://www.city-data.com/city/Minneapolis-Minnesota.html

2024 Minneapolis Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Spring thaw and water bodies rising							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Improve Storm-Water Management Planning	Undetermined	Personnel Time	N/A	Complete		
1A2	Adopt Policies to Reduce Storm-Water Runoff	Undetermined	Personnel Time	N/A	Complete		
Objective 1B: Short term flooding from torrential rain							
1B1	Improve Storm-Water Management Planning	Undetermined	Personnel Time	N/A	Complete		
1B2	Adopt Policies to Reduce Storm-Water Runoff	Undetermined	Personnel Time	N/A	Complete		
Objective 1C: Unusual snow event							
1C1	Adopt and enforce building codes	Undetermined	Personnel Time	N/A	Complete		
1C2	Protect buildings and infrastructure	Undetermined	Undetermined	N/A	Complete		
1C3	Protect power lines	Undetermined	Undetermined	Ongoing	In Progress	Low	1, 4, 5
1C4	Reduce impacts to roadways	Undetermined	Undetermined	Ongoing	In Progress	Low	1, 4, 5
Objective 1D: Wind/Tornados							
1D1	Encourage construction of safe rooms	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
1D2	Require wind-resistant building techniques	Undetermined	Personnel Time	1 Year	In Progress	Low	1
Objective 1E: Evacuation routes-downtown, rail/hazmat							
1E1	Assess community risk	Emergency Management	Personnel Time	N/A	Complete		
Objective 1F: Landslides/subsidence							
1F1	Map and assess vulnerability to landslides	Undetermined	Personnel Time	1 Year	In Progress	Low	1
1F2	Prevent impacts to roadways	Undetermined	Undetermined	Ongoing	In Progress	Low	1
1F3	Map and assess vulnerability to subsidence	Undetermined	Personnel Time	1 Year	In Progress	Low	1
1F4	Manage development in high-risk areas	Undetermined	Personnel Time	N/A	Complete		
1F5	Consider subsidence in building design	Undetermined	Personnel Time	N/A	Complete		
1F6	Monitor subsidence risk factors	Undetermined	Personnel Time	N/A	Complete		
1F7	Remove existing structures from subsidence hazard areas	Undetermined	Undetermined	N/A	Cancelled		
Objective 1G: Vulnerable populations, lack of resiliency							
1G1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1

1G2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
1G3	Assist vulnerable populations	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 1H: Warning notification -downtown							
1H1	Assess community risk	Emergency Management	Undetermined	Ongoing	In Progress	Low	1
1H2	Assist vulnerable populations	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 1I: Severe cold; close schools, impact on infrastructure							
1I1	Reduce urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
1I2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
1I3	Educate property owners about freezing pipes	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
Objective 1J: Severe hot weather							
1J1	Reduce urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
1J2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
Objective 1K: Lightning strikes							
1K1	Protect critical facilities and equipment	Undetermined	Undetermined	Undetermined	In Progress	Low	1, 4, 5
Objective 1L: Fire with high winds, structure, and conflagration							
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Public outreach-rail corridor							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2A2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2A3	Integrate mitigation into local planning	Emergency Management	Personnel Time	N/A	Complete		
Objective 2B: Evacuation routes-downtown, rail/hazmat							
2B1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1

2B2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2B3	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
Objective 2C: Wind/Tornados							
2C1	Conduct tornado awareness activities	Emergency Management	Personnel Time	N/A	Complete		
2C2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2C3	Improve household disaster preparedness	Emergency Management	Personnel Time	N/A	Complete		
Objective 2D: Power grid down/interruption: Address heat and cold conditions							
2D1	Protect infrastructure and critical facilities	Undetermined	Undetermined	N/A	Complete		
2D2	Reduce urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
2D3	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
2D4	Protect power lines	Undetermined	Undetermined	Ongoing	In Progress	Low	1
2D5	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2D6	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
Objective 2E: Vulnerable populations, lack of resiliency							
2E1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2E2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2E3	Assist vulnerable populations	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 2F: Warning notification -downtown							
2F1	Assess community risk	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2F2	Assist vulnerable populations	Undetermined	Undetermined	Ongoing	In Progress	Low	1
2F3	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1

Objective 2G: Severe cold; close schools, impact on infrastructure							
2G1	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
2G2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
Objective 2H: Severe hot weather							
2H1	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
2H2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2H3	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	3	1
Objective 2I: Lightning strikes							
2I1	Conduct lightning awareness programs	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2I2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In progress	Low	1
2I3	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
Objective 2J: Unusual snow event							
2J1	Conduct winter weather risk awareness activities	Emergency Management	Personnel Time	N/A	Complete		
2J2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	N/A	Complete		
2J3	Increase hazard education and risk awareness	Emergency Management	Personnel Time	N/A	Complete		
2J4	Improve household disaster preparedness	Emergency Management	Personnel Time	N/A	Complete		
Objective 2K: Landslides/subsidence							
2K1	Educate residents about subsidence	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
2K2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							

Objective 3A: Tree canopy decline							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Reduce urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 3B: Landslides/subsidence							
3B1	Map and assess vulnerability to landslides	Undetermined	Personnel Time	N/A	Cancelled		
3B2	Prevent impacts to roadways	Undetermined	Undetermined	N/A	Cancelled		
3B3	Map and assess vulnerability to subsidence	Undetermined	Personnel Time	N/A	Cancelled		
3B4	Manage development in high-risk areas	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
3B5	Consider subsidence in building design	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
3B6	Monitor subsidence risk factors	Undetermined	Personnel Time	N/A	Cancelled		
3B7	Remove existing structures from subsidence hazard areas	Undetermined	Undetermined	N/A	Cancelled		
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Security of water plant							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 4B: Power grid down interruption: Address heat and cold conditions							
4B1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
4B2	Reduce urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 4C: Landslides/subsidence							
4C1	Map and assess vulnerability to landslides	Undetermined	Personnel Time	N/A	Cancelled		
4C2	Map and assess vulnerability to subsidence	Undetermined	Personnel Time	N/A	Cancelled		
4C3	Monitor subsidence risk factors	Undetermined	Personnel Time	N/A	Cancelled		
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Evacuation routes-downtown, rail/hazmat							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Assess community risk	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
5A2	Map community risk	Undetermined	Personnel Time	Ongoing	In Progress	Low	1

5A3	Adopt development regulations in hazard areas	Undetermined	Personnel Time	N/A	Complete		
5A4	Limit density in hazard areas	Undetermined	Personnel Time	N/A	Complete		
5A5	Protect structures	Undetermined	Undetermined	Ongoing	In Progress	Low	1
5A6	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 5B: Major planned events and their impact on the community-scenario planning							
5B1	Assess community risk	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
5B2	Map community risk	Undetermined	Personnel Time	Ongoing	In Progress	2	1
5B3	Protect infrastructure and critical facilities	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
Objective 5C: Civil disturbance							
5C1	Assess community risk	Undetermined	Personnel Time	N/A	Cancelled		
5C2	Map community risk	Undetermined	Personnel Time	N/A	Cancelled		
5C3	Protect infrastructure and critical facilities	Undetermined	Personnel Time	Ongoing	In Progress	4	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Landslides/subsidence							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Map and assess vulnerability to landslides	Undetermined	Personnel Time	N/A	Cancelled		
6A2	Map and assess vulnerability to subsidence	Undetermined	Personnel Time	N/A	Cancelled		
6A3	Monitor subsidence risk factors	Undetermined	Personnel Time	N/A	Cancelled		
6A4	Prevent impacts to roadways	Undetermined	Undetermined	N/A	Cancelled		
6A5	Manage development in high-risk areas	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
6A6	Consider subsidence in building design	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
6A7	Remove existing structures from subsidence and landslide hazard areas	Undetermined	Undetermined	N/A	Cancelled		
Objective 6B: Short-term flooding from torrential rain							
6B1	Incorporate flood mitigation in local planning	Emergency Management	Personnel Time	Ongoing	In Progress	5	1
6B2	Limit or restrict development in floodplain areas	Undetermined	Personnel Time	N/A	Complete		
6B3	Adopt and enforce building codes and development standards	Undetermined	Personnel Time	N/A	Complete		
6B4	Adopt policies to reduce storm water runoff	Undetermined	Personnel Time	N/A	Complete		

6B5	Protect infrastructure	Undetermined	Undetermined	Ongoing	In Progress	Low	1
6B6	Protect critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 6C: Rail Corridor							
6C1	Protect sensitive uses from rail corridors potentially carrying hazardous materials	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 6D: Extreme Heat							
6D1	Reduce the urban heat island effect	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 6E: Wind/Tornado							
6E1	Promote or require site and building design standards to minimize wind damage	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
6E2	Protect power lines and infrastructure	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Infrastructure failure-water main e.g.,							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 7B: Drought; drinking water, source/intake							
7B1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	1	1
Objective 7C: Wind/Tornado							
7C1	Conduct tornado awareness activities	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
7C2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
7C3	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
Objective 7D: River contamination; drinking water, contamination							
7D1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Objective 7E: Evacuation routes-downtown, rail/hazmat							
7E1	Protect infrastructure and critical facilities	Undetermined	Undetermined	Ongoing	In Progress	Low	1
7E2	Increase hazard education and risk awareness	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
7E3	Improve household disaster preparedness	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
Objective 7F: Landslide/subsidence							
7F1	Map and assess vulnerability to landslides	Undetermined	Personnel Time	N/A	Cancelled		

7F2	Map and assess vulnerability to subsidence	Undetermined	Personnel Time	N/A	Cancelled		
7F3	Monitor subsidence risk factors	Undetermined	Personnel Time	N/A	Cancelled		
7F4	Prevent impacts to roadways	Undetermined	Undetermined	N/A	Cancelled		
7F5	Manage development in high-risk areas	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
7F6	Consider subsidence in building design	Undetermined	Personnel Time	Ongoing	In Progress	Low	1
7F7	Remove existing structures from subsidence hazard areas	Undetermined	Undetermined	N/A	Cancelled		
Objective 7G: Vulnerable populations, lack of resiliency							
7G1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	In progress	Low	1
7G2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	In Progress	Low	1
7G3	Assist vulnerable populations	Undetermined	Undetermined	Ongoing	In Progress	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Minneapolis 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Spring thaw and water bodies rising	
Project Title/Action	1A1: Improve Storm-water Management Planning
Project Status	Complete
Project Title/Action	1A2: Adopt Policies to Reduce Storm-water Runoff
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1B: Short term flooding from torrential rain	
Project Title/Action	1B1: Improve Storm-water Management Planning
Project Status	Complete
Project Title/Action	1B2: Adopt Policies to Reduce Storm-water Runoff
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1C: Unusual Snow Event	
Project Title/Action	1C1: Adopt and Enforce Building Codes
Project Status	Complete
Project Title/Action	1C2: Protect Buildings and Infrastructure
Project Status	Complete
Project Title/Action	1C3: Protect Power Lines
Project Status	On-Schedule
Project Title/Action	1C4: Reduce Impacts to Roadways
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 1D: Wind/Tornados	
Project Title/Action	1D1: Encourage Construction of Safe Rooms
Project Status	Canceled
Project Title/Action	1D2: Require Wind-Resistant Building Techniques
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1E: Evacuation routes-downtown rail/hazmat	
Project Title/Action	1E1: Assess Community Risk
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 1F: Landslides/subsidence	
Project Title/Action	1F1: Map and Assess Vulnerability to Landslides
Project Status	Canceled
Project Title/Action	1F2: Prevent Impacts to Railways
Project Status	On-Schedule
Project Title/Action	1F3: Map and Assess Vulnerability to Subsidence
Project Status	Canceled
Project Title/Action	1F4: Manage Development in High-Risk Areas
Project Status	Complete
Project Title/Action	1F5: Consider Subsidence in Building Design
Project Status	Complete
Project Title/Action	1F6: Monitor Subsidence Risk Factors
Project Status	Canceled

Project Title/Action	1F7: Remove Existing Structures from Subsidence Hazard Areas
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 1G: Vulnerable populations, lack of resiliency	
Project Title/Action	1G1: Improve household Disaster Preparations
Project Status	On-Schedule
Project Title/Action	1G2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	1G3: Assist Vulnerable Populations
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 1H: Warning notification - downtown	
Project Title/Action	1H1: Assess Community Risk
Project Status	On-Schedule
Project Title/Action	1H2: Assist Vulnerable Populations
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 1I: Severe cold; close schools, impact on infrastructure	
Project Title/Action	1I1: Reduce Urban Head Island Effect
Project Status	Complete
Project Title/Action	1I2: Increase Awareness of Extreme Temperature Risk and Safety
Project Status	On-Schedule
Project Title/Action	1I3: Educate Property Owners About Freezing Pipes
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 1J: Severe hot weather	
Project Title/Action	1J1: Reduce Urban Island Heat Island Effect
Project Status	On-Schedule
Project Title/Action	1J2: Increase Awareness of Extreme Temperature Risk and Safety
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1K: Lightning Strikes	
Project Title/Action	1K1: Protect Critical Facilities and Equipment
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2A: Public outreach-rail corridor	
Project Title/Action	2A1: Improve Household Disaster Preparedness
Project Status	Delayed
Project Title/Action	2A2: Increase Hazard Education and Risk Awareness
Project Status	Complete
Project Title/Action	2A3: Integrate Mitigation into Local Planning
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 2B: Evacuation routes-downtown, rail/hazmat	
Project Title/Action	2B1: Protect Infrastructure and Critical Facilities
Project Status	Canceled

Project Title/Action	2B2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	2B3: Improve Household Disaster Preparedness
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 2C: Wind/tornadoes	
Project Title/Action	2C1: Conduct Tornado Awareness Activities
Project Status	Complete
Project Title/Action	2C2: Increase Hazard Education and Risk Awareness
Project Status	Complete
Project Title/Action	2C3: Improve Household Disaster Preparedness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2D: Power grid down interruption: Address heat and cold conditions	
Project Title/Action	2D1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Project Title/Action	2D2: Reduce Urban Heat Island Effect
Project Status	On-Schedule
Project Title/Action	2D3: Increase Awareness of extreme Temperature Risk and Safety
Project Status	Complete
Project Title/Action	2D4: Protect Power Lines
Project Status	On-Schedule
Project Title/Action	2D5: Increase Hazard Education and Risk Awareness
Project Status	Complete
Project Title/Action	2D6: Improve Household Disaster Preparedness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2E: Vulnerable populations, lack of resiliency	
Project Title/Action	2E1: Improve Household Disaster Preparedness
Project Status	On-Schedule
Project Title/Action	2E2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	2E3: Assist Vulnerable Populations
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2F: Warning notification - downtown	
Project Title/Action	2F1: Assist Community Risk
Project Status	On-Schedule
Project Title/Action	2F2: Assist Vulnerable Populations
Project Status	On-Schedule
Project Title/Action	2F3: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2G: Severe cold; close schools, impact on infrastructure	
Project Title/Action	2G1: Increase Awareness of Extreme Temperature Risk and Safety
Project Status	Complete

Project Title/Action	2G2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 2H: Severe hot weather	
Project Title/Action	2H1: Increase Awareness of Extreme Temperature Risk and Safety
Project Status	Complete
Project Title/Action	2H2: Increase Hazard Education and Awareness
Project Status	Complete
Project Title/Action	2H3: Improve Household Disaster Preparedness
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 2I: Lightning Strikes	
Project Title/Action	2I1: Conduct Lightning Awareness Programs
Project Status	Complete
Project Title/Action	2I2: Increase Hazard Education and Risk Awareness
Project Status	Complete
Project Title/Action	2I3: Improve Household Disaster Preparedness
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 2J: Unusual snow event	
Project Title/Action	2J1: Conduct Winter Weather Risk Awareness Activities
Project Status	Complete
Project Title/Action	2J2: Increase Awareness of Extreme Temperature Risk and Safety
Project Status	Complete
Project Title/Action	2J3: Increase Hazard Education and Risk Awareness
Project Status	Canceled
Project Title/Action	2J4: Improve Household Disaster Preparedness
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 2K: Landslide/subsidence	
Project Title/Action	2K1: Educate Residents about Subsidence
Project Status	Canceled
Project Title/Action	2K2: Increase Hazard Education and Risk Awareness
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 3A: Tree canopy decline	
Project Title/Action	3A1: Reduce Urban Heat Island Effect
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 3B: Landslides/subsidence	
Project Title/Action	3B1: Map and Assess Vulnerability to Landslides
Project Status	Canceled
Project Title/Action	3B2: Prevent Impacts to Roadways
Project Status	Canceled
Project Title/Action	3B3: Map and Assess Vulnerability to Subsidence
Project Status	Canceled

Project Title/Action	3B4: Manage Development in High-Risk Areas
Project Status	Complete
Project Title/Action	3B5: Consider Subsidence in Building Design
Project Status	Canceled
Project Title/Action	3B6: Monitor Subsidence Risk Factors
Project Status	Canceled
Project Title/Action	3B7: Remove Existing Structures from Subsidence Hazard Areas
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 4A: Security of water plant	
Project Title/Action	4A1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Summary of Project	Protect drinking water supply by completing an all-hazards vulnerability assessment for drinking water system from source to tap.
Responsible Agency	Emergency Management
OBJECTIVE: 4B: Power grid down interruption: Address heat and cold conditions	
Project Title/Action	4B1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Project Title/Action	4B2: Reduce Urban Heat Island Effect
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 4C: Landslides/subsidence	
Project Title/Action	4C1: Map and Assess Vulnerability to Landslides
Project Status	Canceled
Project Title/Action	4C2: Map and Assess Vulnerability to Subsidence
Project Status	Canceled
Project Title/Action	4C3: Monitor Subsidence Risk Factors
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 5A: Evacuation routes-downtown, rail/hazmat	
Project Title/Action	5A1: Assess Community Risk
Project Status	Complete
Project Title/Action	5A2: Map Community Risk
Project Status	On-Schedule
Project Title/Action	5A3: Adopt Development Regulations in Hazard Areas
Project Status	Complete
Project Title/Action	5A4: Limit Density in Hazard Areas
Project Status	Complete
Project Title/Action	5A5: Protect Structures
Project Status	On-Schedule
Project Title/Action	5A6: Protect Infrastructure and Critical Facilities
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 5B: Major planned events and their impact on the community-scenario planning	
Project Title/Action	5B1: Assess Community Risk
Project Status	On-Schedule

Project Title/Action	5B2: Map Community Risk
Project Status	On-Schedule
Project Title/Action	5B3: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 5C: Civil Disturbance	
Project Title/Action	5C1: Assess Community Risk
Project Status	Canceled
Project Title/Action	5C2: Map Community Risk
Project Status	Canceled
Project Title/Action	5C3: Protect Infrastructure and Critical Facilities
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 6A: Landslides/subsidence	
Project Title/Action	6A1: Map and Assess Vulnerability to Landslides
Project Status	Canceled
Project Title/Action	6A2: Map and Assess Vulnerability to Subsidence
Project Status	Canceled
Project Title/Action	6A3: Monitor Subsidence Risk Factors
Project Status	Canceled
Project Title/Action	6A4: Prevent Impacts to Roadways
Project Status	Canceled
Project Title/Action	6A5: Manage Development in High-Risk Areas
Project Status	Canceled
Project Title/Action	6A6: Consider Subsidence in Building Design
Project Status	Complete
Project Title/Action	6A7: Remove Existing Structures from Subsidence and Landslide Hazard Areas
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 6B: Short-term flooding from torrential rain	
Project Title/Action	6B1: Incorporate Flood Mitigation in Local Planning
Project Status	Complete
Project Title/Action	6B2: Limit or Restrict Development in Floodplain Areas
Project Status	Complete
Project Title/Action	6B3: Adopt and Enforce Building Codes and Development Standards
Project Status	Delayed
Project Title/Action	6B4: Adopt Policies to Reduce Storm water Runoff
Project Status	Complete
Project Title/Action	6B5: Protect Infrastructure
Project Status	Complete
Project Title/Action	6B6: Protect Critical Facilities
Project Status	Complete
Responsible Agency	Emergency Management

OBJECTIVE: 6C: Rail Corridor	
Project Title/Action	6C1: Protect Sensitive Uses from Rail Corridors Potentially Carrying Hazardous Materials
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 6D: Extreme Heat	
Project Title/Action	6D1: Reduce Urban Heat Island Effect
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 6E: Wind/Tornado	
Project Title/Action	6E1: Promote or Require Site and Building Design Standards to Minimize Wind Damage
Project Status	On-Schedule
Project Title/Action	6E2: Promote Power Lines and Infrastructure
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7A: Infrastructure failure-water main e.g.,	
Project Title/Action	7A1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7B: Drought; drinking water, source/intake	
Project Title/Action	7B1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7C: Wind/Tornados	
Project Title/Action	7C1: Conduct Tornado Awareness Activities
Project Status	On-Schedule
Project Title/Action	7C2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	7C3: Improve Household Disaster Preparedness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7D: River contamination; drinking water, contamination	
Project Title/Action	7D1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7E: Evacuation routes-downtown, rail/hazmat	
Project Title/Action	7E1: Protect Infrastructure and Critical Facilities
Project Status	On-Schedule
Project Title/Action	7E2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	7E3: Improve Household Disaster Preparedness
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 7F: Landslides/subsidence	
Project Title/Action	7F1: Map and Assess Vulnerability to Landslides

Project Status	Canceled
Project Title/Action	7F2: Map and Assess Vulnerability to Subsidence
Project Status	Canceled
Project Title/Action	7F3: Monitor Subsidence Risk Factors
Project Status	Canceled
Project Title/Action	7F4: Prevent Impacts to Roadways
Project Status	Canceled
Project Title/Action	7F5: Manage Development in High-Risk Areas
Project Status	Complete
Project Title/Action	7F6: Consider Subsidence in Building Design
Project Status	Complete
Project Title/Action	7F7: Remove Existing Structures from Subsidence Hazard Areas
Project Status	Canceled
Responsible Agency	Emergency Management
OBJECTIVE: 7G: Vulnerable populations, lack of resiliency	
Project Title/Action	7G1: Improve Household Disaster Preparedness
Project Status	On-Schedule
Project Title/Action	7G2: Increase Hazard Education and Risk Awareness
Project Status	On-Schedule
Project Title/Action	7G3: Assist Vulnerable Populations
Project Status	On-Schedule
Responsible Agency	Emergency Management

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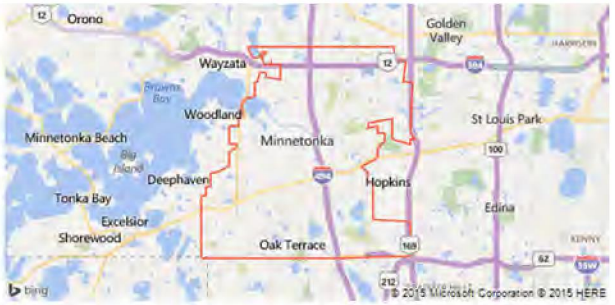
3.3.27. CITY OF MINNETONKA

Hennepin County - Minnetonka

City Website: https://www.minnetonkamn.gov/

Minnetonka is a fully developed suburban community of more than 53,000 residents located eight miles west of Minneapolis. The city's natural surroundings - including trees, wetlands, prairies and diverse bodies of water - give it a distinct character. The city strives for safe and healthy community by developing programs, policies and procedures that enhance the community's well-being and partner with the community to provide engagement opportunities and build trust. Sustain focus on prevention programs, education, hazard mitigation and rapid emergency response.





https://www.statsamerica.org/town/

Population density: 1,962 people per square mile (low).

Tornado activity: Minnetonka-area historical tornado activity is slightly above Minnesota state average. It is 30% greater than the overall U.S. average.

Earthquake activity: Minnetonka-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	53,529
H.S. Diploma or More - % of Adults 25+ (2022)	97.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	62.9%
Households (2022)	23,402
Total Housing Units (2022)	24,647
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.3%

Latitude/Longitude:	44.935059, -93.4612015
Area:	28.19 sq. miles
Area - Land only:	26.90 sq. miles (95%)
Area - Water only:	1.29 sq. miles (5%)

Hazard Mitigation Project Goal Priority Ranking Aid

9 Mitigation Priority 1 (9A1)
- Implement community-wide Climate Action and Adaptation Plan.

10 Mitigation Priority 2 (10A1)
- Research, identify and secure grant funding for backup generators for the Willison Fitness Center and the Marsh facilities that serve as community lifeline/shelter and critical infrastructure for possible natural hazards.

6 Mitigation Priority 3 (6A2)
- Examine how zoning ordinances may create barriers to response and recovery efforts pre-, during, and post-event, including equity considerations..

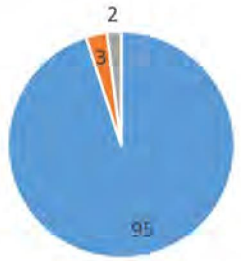
Vulnerability
- Monticello NPP: 31 Miles
- Functional Needs: 1015
- Bridges: 90

Capability
- Law Enforcement
- Fire Department
- Parks and recreation
- FCC Registered Amateur Radio Licenses: 204

Corporate/Employer
- United Health Group 4400
- Minnetonka Public schools 1883
- Starkey Laboratories 1700
- Rosemount Engineering 1600
- St. Jude Medical 1300
- Cargill
- Abbott Labs
- Medica Health Plans

School District
- 276 Minnetonka

Language



https://apps.mla.org/map_data

Social Media: Facebook.com/city of Minnetonka@mtkafd

https://www.city-data.com/city/Minnetonka-Minnesota.html

2024 Minnetonka Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve Community Notification Capabilities							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Distribute guidebooks when updated ones are received from Hennepin County, and assure responders are trained on their use	Minnetonka Fire and EM	Staff Time	Ongoing	Ongoing	10	1, 2
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in National Weather Service StormReady program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Continue to promote Storm Ready ideals of awareness, outreach, and preparation.	Minnetonka Fire and EM	Staff Time	Ongoing	Ongoing	12	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Continue to participate in the National Flood Insurance Program.	Minnetonka Community Development and Engineering	Staff Time	Ongoing	Ongoing	11	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Ensure water runoff choke points have adequate infrastructure to withstand flood							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Update GIS data based on changing city development and criteria evolution.	Minnetonka Engineering	Staff Time	Ongoing	Ongoing	7	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Promote the use of WebEOC for communication with Hennepin County, for relaying to state and federal agencies.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

5A1	Conduct WebEOC training sessions for key staff once the major software updates are installed.	Minnetonka Fire and EM	Staff Time	Ongoing	Ongoing	9	1
Objective 5B: Tabletop Exercise							
5B1	Conduct a tabletop exercise in the city's emergency operations center for city staff.	Minnetonka Fire and EM	Staff Time	Ongoing	Ongoing	4	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Continue to enforce permitting, building, floodplain, and fire code compliance on all development.	Minnetonka Community Development	Staff Time	Ongoing	Ongoing	Low	1
6A2	Examine how zoning ordinances may create barriers to response and recovery efforts pre-, during, and post-event, including equity considerations.	Minnetonka Community Development; EM; and Diversity, Equity Inclusion Coordinator;	Staff Time	Ongoing	Ongoing	3	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury power lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Continue to encourage the use of buried power lines and floodplain mitigation in all development	Minnetonka Community Development, engineering, Fire, and Xcel Energy	Staff Time	Ongoing	Ongoing	8	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

8A1	Identify barriers that prevent underserved communities, vulnerable populations and those with access and functional needs from participating in public meetings.	Minnetonka Community Development; and Diversity, Equity and Inclusion Coordinator	Staff Time	Ongoing	Ongoing	5	1
8A2	Review opportunities to expand translation services for public education	Minnetonka Community Development; and Diversity, Equity and Inclusion Coordinator	Staff Time	Ongoing	Ongoing	6	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Implement community-wide Climate Action and Adaptation Plan.	Minnetonka Community Development; and Diversity, Equity and Inclusion Coordinator	Staff time	Ongoing	Ongoing	1	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Research, identify and secure grant funding for backup generators for the Willison Fitness Center and the Marsh facilities that serve as community lifeline/shelter and critical infrastructure for possible natural hazards.	Minnetonka Recreation; Minnetonka Public Works;	Staff Time	6 Months	Delayed	2	1, 4, 5

		and Minnetonka Fire and EM					

Minnetonka 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Ensure that all essential city first responders have the current version of the Emergency Response Guidebook	
Project Title/Action	1A1: Distribute guidebooks when updated ones are received from Hennepin County, and assure responders are trained on their use
Project Status	Ongoing
Summary of Project	Update
Responsible Agency	Minnetonka Fire and E/M
OBJECTIVE: 2A: Maintain the city's National Weather Service StormReady certification	
Project Title/Action	2A1: Continue to promote StormReady ideals of awareness, outreach, and preparation
Project Status	Ongoing
Responsible Agency	Minnetonka Fire and E/M
OBJECTIVE: 3A: Assure continued compliance and participation in the National Flood Insurance Program	
Project Title/Action	3A1: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	Minnetonka Community Development and Engineering
OBJECTIVE: 4A: Utilize GIS data for identification of areas	
Project Title/Action	4A1: Update GIS data based on changing city development and criteria evolution
Project Status	Ongoing
Responsible Agency	Minnetonka Engineering
OBJECTIVE: 5A: Promote the use of WebEOC for communication with Hennepin County, for relaying to state and federal agencies	
Project Title/Action	5A1: Conduct WebEOC training sessions for key staff once the major software updated are installed
Project Status	Ongoing
Responsible Agency	Minnetonka Fire and E/M
OBJECTIVE: 5B: Tabletop exercise	
Project Title/Action	5B1: Conduct a tabletop exercise in the city's emergency operations center for city staff
Project Status	Ongoing
Responsible Agency	Minnetonka Fire and E/M
OBJECTIVE: 6A: Provide for compliant development	
Project Title/Action	6A1: Continue to enforce permitting, building, floodplain, and fire code compliance on all development
Project Status	Ongoing
Responsible Agency	Minnetonka Community Development
OBJECTIVE: 7A: Advocate for the use of buried power utilities and sound floodplain management	
Project Title/Action	7A1: Continue to encourage the use of buried power lines and floodplain mitigation in all development
Project Status	Ongoing
Responsible Agency	Minnetonka Community Development Engineering, Fire, and Xcel Energy

3.3.28. CITY OF MINNETONKA BEACH

Hennepin County - Minnetonka Beach

City Website: https://www.ci.minnetonka-beach.mn.us/

The City of the Village of Minnetonka Beach is a boot shaped peninsula located on Lake Minnetonka. There are 230 homes and 540 residents. The City is primarily residential except for the Lafayette Club and St. Martin's Church. Careful planning has allowed the City to maintain open space and park lands, and to retain the "village" atmosphere.





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	463
H.S. Diploma or More - % of Adults 25+ (2022)	98.0%
Bachelor's Deg or More - % of Adults 25+ (2022)	77.7%
Households (2022)	170
Total Housing Units (2022)	194
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	7.7%

Latitude/Longitude:	44.938181, -93.5899
Area:	0.47 sq. miles
Area - Land only:	0.47 sq. miles (98%)
Area - Water only:	0.01 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas

5 Mitigation Priority 2 (5A1)
- Continue to meet the State and Federal regulations with the protection plan

1 Mitigation Priority 3 (1A2)
- Continue to participate in the National Flood Insurance Program

Vulnerability
- Monticello NPP: 27 Miles

Capability
- Law Enforcement covered by Orono
- Fire Department covered by Mound
- Police Chaplains Group

Corporate/Employer
- Lafayette Club

School District
- 278 Orono

Language



https://apps.mla.org/map_data

2024 Minnetonka Beach Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and update policies that discourage growth in flood-prone areas	City of Minnetonka Beach	Staff Time	2024-2028	Ongoing	4	1
1A2	Continue to participate in the National Flood Insurance Program	City of Minnetonka Beach	Staff Time	2024-2028	Ongoing	3	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Increase awareness and knowledge of hazard mitigation principles and practices	City of Minnetonka Beach	Staff Time	2024-2028	Ongoing	6	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of Minnetonka Beach	Cost for construction of holding ponds Design Construction	2024-2028	Ongoing	5	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of Minnetonka Beach	Staff Time	2024-2028	Ongoing	2	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Build and support local capacity and commitment to become less vulnerable to hazards							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Minnetonka Beach	Plans Construction	2024-2028	Ongoing	1	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Minnetonka Beach 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Project Title/Action	1A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	City of Minnetonka Beach
OBJECTIVE: 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2A1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Responsible Agency	City of Orono
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Minnetonka Beach
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City of Minnetonka Beach
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	City of Minnetonka Beach

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3.3.29. CITY OF MINNETRISTA

Hennepin County - Minnetrista

City website: https://www.cityofminnetrista.com/

Minnetrista is a rural community located on the western bays of Lake Minnetonka and in southwestern Hennepin County. With an area of 32 square miles, the city consists of emerging suburban development, diversified rural, and agricultural land uses. Over the last ten years, the city's population has increased by nearly 10% and is now nearly 8,500. Continued and controlled residential growth is projected, however, preserving the rural character is important to the community.

Annual events include National Night Out, Trista Days, State of the City Address, City Bus Tour, and a Holiday Tree Lighting event. County Roads 15, 44, and 110 are the three main transportation routes for the city.



https://www.statsamerica.org/town/



Population density: 328 people per square mile (very low).

Tornado activity: Minnetrista-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Minnetrista-area historical earthquake activity is significantly above Minnesota state average. It is 52% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	8,347
H.S. Diploma or More - % of Adults 25+ (2022)	100.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	70.7%
Households (2022)	2,753
Total Housing Units (2022)	3,037
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	3.2%

Latitude/Longitude:	44.9346535, -93.706418
Area:	30.76 sq. miles
Area - Land only:	25.82 sq. miles (84%)
Area - Water only:	4.94 sq. miles (16%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas

3 Mitigation Priority 2 (3A1)
- Work with the local watersheds to continue to protect our lakes and streams for future water quality

2 Mitigation Priority 3 (2A1)
- Increase awareness and knowledge of hazard mitigation principles and practices

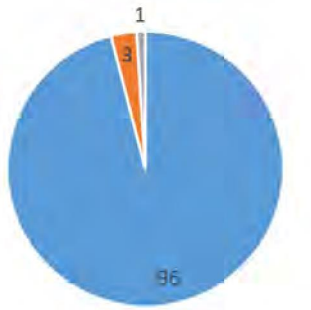
Vulnerability
- Monticello NPP: 26 Miles
- Minnehaha Creek Watershed
- Pioneer-Sarah Creek Watershed
- 6-mile creek
- Bridges: 6

Capability
- Law Enforcement
- Fire Department
- Police Chaplains Group
- Public Works
- Emergency Management on city website
- FCC Registered Amateur Radio Licenses: 5

Corporate/Employer
- Crown College
- Agriculture and Farming

School District
- 879 Delano
- 110 Waconia
- 111 Watertown-Mayer
- 277 Westonka

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Minnetrista-Minnesota.html

2024 Minnetrista Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and update policies that discourage growth in flood-prone areas	City of Minnetrista	Staff Time	Ongoing	Ongoing	Low	1
1A2	Continue to participate in the National Flood Insurance Program	City of Minnetrista	Staff Time	Ongoing	Ongoing	Low	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Work with local agencies to promote hazard mitigation in local community.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Increase awareness and knowledge of hazard mitigation principles and practices	City of Minnetrista	Staff Time	Ongoing	Ongoing	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of Minnetrista	Cost for construction of holding ponds Design Construction	Ongoing	Ongoing	2	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of Minnetrista	Staff Time	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Minnetrista	Plans Construction	Ongoing	Too cost prohibitive	1	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

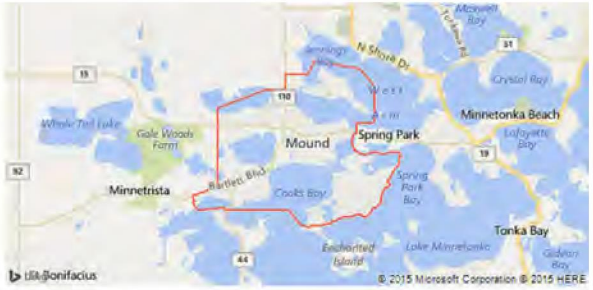
Minnetrista 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and update policies that discourage growth in flood-prone areas
Project Status	In-Progress
Responsible Agency	Planning Department
Project Title/Action	1A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Summary of Project	Planning Department
Responsible Agency	City of Minnetrista
OBJECTIVE: 2A: Work with local agencies to promote hazard mitigation in local community	
Project Title/Action	2A1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Summary of Project	Administration, Police Department
Responsible Agency	City of Minnetrista
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Minnetrista
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City of Minnetrista
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	City of Minnetrista

3.3.30. CITY OF MOUND

Hennepin County - Mound

City Website: www.cityofmound.com





Mound derived its name from the Indian mounds once found within the present-day limits. They were not built by the Dakota Indians, but made by prehistoric Indians. Mound is also the birthplace of the Tonka truck, which is named after Lake Minnetonka. The "Tonka Toys" headquarters was originally located in Mound, until business picked up and they needed a more suitable location for supplies to be delivered to. Considering Mound is half water, it was very hard to navigate

Population density: 3,120 people per square mile (average).

Tornado activity: Mound-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Mound-area historical earthquake activity is significantly above Minnesota state average. It is 52% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	9,272
H.S. Diploma or More - % of Adults 25+ (2022)	98.8%
Bachelor's Deg. or More - % of Adults 25+ (2022)	44.4%
Households (2022)	4,414
Total Housing Units (2022)	4,660
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	3.6%

Latitude/Longitude:	44.9345775, -93.660618
Area:	4.95 sq. miles
Area - Land only:	2.86 sq. miles (58%)
Area - Water only:	2.10 sq. miles (42%)

Hazard Mitigation Project Goal Priority Ranking Aid

6 Mitigation Priority 1 (6A2)
- Enforce all zoning, floodplain, permitting, building, and fire code requirements to ensure compliance on development.

4 Mitigation Priority 2 (4A2)
- Promote the use of the Calculated Priority Risk Index formula to prioritize identified threats and hazards within the community.

2 Mitigation Priority 3 (2B1)
- Continue to promote enrollment in the city of Mound mass-notification system.

Vulnerability
- Monticello NPP: 26 Miles
- Bridges: 4

Capability
- Fire Department
- Law Enforcement- Orono
- Police Chaplains Group
- Public Works
- FCC Registered Amateur Radio Licenses: 43

Corporate/Employer
- RPC Commerce Place
- Stonegate Plaza
- Balboa Business Center
- Mound Marketplace

School District
- 277 Westonka

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Mound-Minnesota.html

2024 Mound Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Develop and Implement a basic "Hazard Assessment- Risk Reduction Plan" to circumvent loss of life, injuries, or disasters.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Require proper utility locates have been completed per city ordinance and state laws	City of Mound	N/A	Ongoing	In progress	1	1
1A2	Designate and/or create safe haven storm shelters in the community, and communicate locations to the public	City of Mound	N/A	Dec-2025	In progress	5	1, 5
Objective 1B: Maintain or replace warning sirens on a regular basis or as necessary to insure siren functionality and effectiveness							
1B1	Replace one (1) outdoor warning siren that was installed in 2009: due to age, system failures, and normal system life expectancy.	City of Mound	$34,000	2029	On hold	7	1
1B2	Ensure all outdoor warning sirens have a back-up power source (i.e.: battery or solar power back-up system).	City of Mound	$600.00 Annually	6 Months	Complete		
1B3	Continue to monitor outdoor warning siren test results to identify any required maintenance needs.	City of Mound	$3,100.00 Annually	Ongoing	In progress	2	1
Objective 1C: Ensure that all of the essential city first responders have the current version of the Emergency Response Guidebooks (ERG)							
1C1	Distribute ERG guidebooks when the updated version is received from Hennepin County. Ensure responders are well trained on use of ERG.	Mound FD Orono PD	N/A	Every 4 years	Complete		
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Maintain the city of Mound Weather Ready Nation Ambassador program and increase public knowledge and awareness with regard to Severe Weather Risks.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Continue to promote important Weather Ready ideals of awareness, outreach, and preparation.	City of Mound EM	N/A	July 2024	In progress	4	1
2A2	Promote the use of NOAA Weather Radios in government-owned facilities, childcare centers, and facilities with vulnerable populations.	City of Mound EM	N/A	N/A	Canceled	Low	1
2A3	Continue to take steps toward achieving the Storm Ready Community Certification	City of Mound EM	N/A	July 2024	Delayed	5	1
Objective 2B: Maintain the city of Mound Operation of a Mass-notification System							
2B1	Continue to promote enrollment in the city of Mound mass-notification system.	City of Mound EM	N/A	Ongoing	In progress	1	1

2B2	Continue to utilize newsletters, social media, and other outreach program methods to inform the public about life safety risks and pre-emptive actions related to weather emergencies	City of Mound EM	$3,100.00 Annually	Ongoing	In progress	2	1
2B3	Expand the use of the existing city mass notification system to include all-hazards and Weather Ready information.	City of Mound EM	N/A	Ongoing	In progress	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Assure continued compliance with the city's policy on preservation of indigenous burial mounds							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Continue to require all projects occurring on known indigenous sites to have approval from the state archeologist prior to work beginning.	City of Mound	N/A	Ongoing	In progress	1	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Assess community for potential hazards and identification of greatest risk							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Promote community wide (citizen) participation in threat and hazard identification and the risk assessment process.	City of Mound EM	N/A	Ongoing	Delayed	4	1
4A2	Promote the use of the Calculated Priority Risk Index formula to prioritize identified threats and hazards within the community.	City of Mound EM	N/A	July 2024	In progress	1	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Promote the use of the WebEOC as a communication tool within Hennepin County, for relay of information to local, state, and federal agencies							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Conduct WebEOC training sessions for key EM, Fire, and PW staff.	City of Mound	N/A	Ongoing	In progress	2	1
5A2	Continue to review and update our city-wide equipment capabilities in the WebEOC database, as required.	City of Mound	N/A	December 2024	In progress	3	1
Objective 5B: Ensure all first responders radio equipment is ARMER compatible.							
5B1	Continue to replace obsolete or non-supported handheld, mobile, and base radios for all first responders as required.	Mound FD & Orono PD	$36,842.00 Annually	N/A	Complete		
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							

Objective 6A: Provide for compliant development to ensure that new or remodeled commercial and residential structures are designed and built to the current state codes, I.e., building code, electrical code, and fire code.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Continue to adopt and enforce the applicable codes, I.e., Minnesota State Codes and International Property Maintenance Code.	Coty of Mound Mound FD	N/A	Ongoing	In progress	3	1
6A2	Enforce all zoning, floodplain, permitting, building, and fire code requirements to ensure compliance on development.	City of Mound Mound FD	N/A	Ongoing	In progress	1	1
6A3	Continue to utilize a building official in the issuance of various required permits and inspections.	City of Mound	$275,000 Annually	Ongoing	In progress	2	1
6A4	Review and update city building, and zoning codes as required.	City of Mound	N/A	Ongoing	In progress	3	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Advocate for the jurisdictional infrastructure improvements that eliminates or reduces life safety threats caused by severe weather or other natural disaster type hazards.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Bury power lines whenever possible and as practical to reduce the potential for life safety hazards.	Xcel Energy	-	Ongoing	Delayed	7	1, 4, 5
7A2	Improve roads, road elevation levels, and retaining walls to assure roadway access for emergency response vehicles and city services, plus others that are providing basic core services	City of Mound	TBD Varies by year	Ongoing	In progress	4	1
Objective 7B: Develop and maintain a Sanitary Sewer Lift Station Renewal Plan							
7B1	Renew and properly size pump and force main components to ensure effectiveness based upon system demand.	City of Mound	TBD Varies by year	Ongoing	In progress	6	1, 4
7B2	Install or maintain permanent on- site back-up power supply systems to prevent back flow and back-up of black water during high flow and storm events.	City of Mound	TBD Varies by year	Ongoing	In progress	4	1, 4
Objective 7C: Develop and Implement a storm, surface water, and flood response plan							
7C1	Develop critical infrastructure protection plans, asset prioritizing, and a response procedure to ensure early detection and effective	City of Mound	TBD Varies by year	July 2024	In progress	5	1

	response to storm, outage, and flood events to minimize inundation, risk, and property damage.						
Objective 7D: Continue to maintain a Debris Management Plan							
7D1	Develop City of Mound overlay plan to supplement the Lakes Area EOP and Resource Manuals.	City of Mound EM	N/A	Ongoing	In progress	2	1
Objective 7E: Preplan and Prepare for both man-made and natural disasters within the Community.							
7E1	Develop and maintain an incident Resource List of suppliers and contractors that can quickly respond to assist in time of need or crisis.	City of Mound EM	N/A	December 2024	Complete		
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A: Increase awareness of assistance programs offered by county and local non-profit organizations							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Focus on low-income housing complexes, and assisted living facilities to identify those in need, to provide information and connect people with available resources such as churches, food shelf and thrift shops	City of Mound EM	N/A	Ongoing	In progress	3	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A: Ensure continued compliance and participation in the National Flood Insurance Program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Community to adopt and enforce a floodplain management ordinance to reduce future flood risks.	City of Mound	N/A	Ongoing	In progress	1	1
9A2	Continue to participate in the National Flood Insurance Program.	City of Mound	N/A	Ongoing	In progress	2	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A: Partner with local communications providers to ensure continuity of operations during a natural disaster							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Reach out to our local communication providers to formulate a plan to maintain our continuity of operations during severe weather events and other natural disasters.	City of Mound EM	N/A	December 2024	In progress	3	1

Mound 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Develop and Implement a basic "Hazard Assessment – Risk Reduction Plan" to circumvent loss of life, injuries, or disasters	
Project Title/Action	1A1: Require Proper utility locates are completed per city ordinance and state laws
Project Status	Complete
Project Title/Action	1A2: Designate and/or create storm shelters within the community, and communicate to public
Project Status	Delayed
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 1B: Maintain or replace warning sirens on a regular basis or as necessary to insure siren functionality and effectiveness	
Project Title/Action	1B1: Replace two (2) outdoor warning sirens that were installed in 1987: due to age, system failures, and normal life expectancy
Project Status	Complete
Project Title/Action	1B2: Ensure all outdoor warning sirens have a back-up power source (I.e.: battery or solar power back-up system)
Project Status	Complete
Project Title/Action	1B3: Continue to monitor outdoor warning siren test results to identify and required maintenance needs
Project Status	Complete
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 1C: Ensure that all the essential city first responders have the current version of the Emergency Response Guidebooks (ERG)	
Project Title/Action	1C1: Distribute ERG guidebooks when the updated version is received from Hennepin County and ensure responders are well trained on use of ERG
Project Status	Complete
Responsible Agency	Mound Fire Department
OBJECTIVE: 2A: Maintain the city of Mound Weather Ready Nation Ambassador program and increase public knowledge and awareness regarding Severe Weather Risks	
Project Title/Action	2A1: Continue to promote Weather Ready ideals of awareness, outreach, and preparation
Project Status	Delayed
Project Title/Action	2A2: Continue to promote the use of NOAA Weather Radios in all government-owned facilities, childcare centers, and in facilities with vulnerable populations
Project Status	Canceled
Project Title/Action	2A3: Continue to take steps toward achieving Storm Ready Community Certification
Project Status	Delayed
Responsible Agency	City of Mound Emergency Management

OBJECTIVE: 2B: Maintain the city of Mound operation of a mass-notification system	
Project Title/Action	2B1: Continue to promote enrollment in the city of Mound mass-notification system
Project Status	Ongoing
Project Title/Action	2B2: Continue to utilize newsletters, social media, and other outreach program methods to inform the public about life safety risks and pre-emptive actions related to weather emergencies
Project Status	Ongoing
Project Title/Action	2B3: Expand the use of the existing city mass notification system to include all-hazards and Weather Ready information
Project Status	Ongoing
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 3A: Assure continued compliance with the city's policy on preservation of indigenous burial mounds.	
Project Title/Action	3A1: Continue to require all projects occurring on known indigenous sites to have approval from the state archeologist prior to work beginning.
Project Status	Ongoing
Responsible Agency	City of Mound Community Development Department
OBJECTIVE: 4A: Assess community for potential hazards and identification of greatest risk	
Project Title/Action	4A1: Promote community wide (citizen) participation in threat and hazard identification and risk assessment process
Project Status	Delayed
Project Title/Action	4A2: Promote the use of the Calculated Priority Risk Index formula to prioritize identified threats and hazards
Project Status	Anticipated completion date: July 2024
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 5A: Promote the use of the WebEOC for communication tool within Hennepin County, for relay of information to local, state, and federal agencies	
Project Title/Action	5A1: Conduct WebEOC training sessions for key staff
Project Status	Ongoing
Project Title/Action	5A2: Continue to review and update our equipment capabilities in the WebEOC database, as required
Project Status	Ongoing
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 5B: Ensure all first responders radio equipment is ARMER compatible	
Project Title/Action	5B1: Continue to replace obsolete or non-supported handheld and console radios for all first responders as required
Project Status	Complete
Responsible Agency	Mound Fire Department

OBJECTIVE: 6A: Provide for compliant development to ensure that new or remodeled commercial and residential structures are designed and built to the current state codes, i.e., building code, electrical code, and fire code	
Project Title/Action	6A1: Continue to adopt and enforce the applicable codes, i.e., Minnesota State Codes and International Property Maintenance Code
Project Status	Ongoing
Project Title/Action	6A2: Enforce zoning, floodplain, permitting, building, and fire code compliance on development
Project Status	Ongoing
Project Title/Action	6A3: Continue to utilize building official in the issuance of required permits and inspections
Project Status	Ongoing
Project Title/Action	6A4: Review and update city building, and zoning codes as required
Project Status	Ongoing
Responsible Agency	City of Mound Community Development Department
OBJECTIVE: 7A: Advocate for the jurisdictional infrastructure improvements that eliminate or reduces life safety threats caused by severe weather or other natural disaster type hazards	
Project Title/Action	7A1: Bury power lines whenever possible and as practical to reduce the potential for life safety hazards
Project Status	Delayed
Project Title/Action	7A2: Improve roads, road elevation levels, and retaining walls to assure roadway access for emergency response vehicles and others that are providing basic core services
Project Statuso	Ongoing
Responsible Agency	City of Mound Public Works Department
OBJECTIVE: 7B: Develop and maintain a Sanitary Sewer Lift Station Renewal Plan	
Project Title/Action	7B1: Renew and properly size pump and force main components to ensure better coordination of system demand
Project Status	Ongoing
Project Title/Action	7B2: Install or maintain permanent on-site back-up power system to prevent back flow and back-up of black water during high flow and storm events
Project Status	Ongoing
Responsible Agency	City of Mound Public Works Department
OBJECTIVE: 7C: Develop and Implement a storm, surface water, and flood response plan	
Project Title/Action	7C1: Develop critical infrastructure protection plans, asset prioritizing, and a response procedure to ensure early detection and effective response to storm, outage, and flood events to minimize inundation, risk, and property damage
Project Status	Anticipated completion date: July 2024
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 7D: Continue to maintain a Debris Management Plan	
Project Title/Action	7D1: Develop City of Mound overlay plan to supplement the Lakes Area EOP and Resource Manuals
Project Status	Ongoing
Responsible Agency	City of Mound Emergency Management

OBJECTIVE: 7E: Preplan and Prepare for both man-made and natural disasters within the Community	
Project Title/Action	7E1: Develop and Maintain a prearranged incident Resource List of suppliers and contractors that can quickly respond to assist in time of need or crisis
Project Status	Complete
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 8A: Increase awareness of assistance programs offered by county and local non-profit organizations	
Project Title/Action	8A1: Focus on low-income housing complexes, and assisted living facilities to identify those in need, to provide information and connect people with available resources such as churches, food shelf and thrift shops
Project Status	Ongoing
Responsible Agency	City of Mound Emergency Management
OBJECTIVE: 9A: Ensure continued compliance and participation in the National Flood Insurance Program	
Project Title/Action	9A1: Community to adopt and enforce a floodplain management ordinance to reduce future flood risks
Project Status	Ongoing
Project Title/Action	9A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	City of Mound Community Development Department
OBJECTIVE: 10A: Partner with local communications providers to ensure continuity of operations during a natural disaster	
Project Title/Action	10A: Reach out to our local communication providers to formulate a plan to maintain our continuity of operations during severe weather events and other natural disasters.
Project Status	Anticipated completion date: December 2024
Responsible Agency	City of Mound Emergency Management

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3.3.31. MINNEAPOLIS / ST. PAUL INTERNATIONAL AIRPORT

Hennepin County-
MSP International Airport

MSP is not part of any city but is nestled among several. The airport is surrounded by Minneapolis, St. Paul and the suburban cities of Bloomington, Eagan, Mendota Heights and Richfield. MSP has one airfield with four runways and two terminal buildings - Terminal 1 (104 gates) and Terminal 2 (14 gates) - each with adjoining parking ramp facilities. Travelers who need to transfer from one terminal to the other use the light rail transit service. There is no pedestrian access between the buildings. The airport is managed and run by the Metropolitan Airports Commission (MAC); a public corporation established in 1943 by the Minnesota State legislature to provide for coordinated aviation services throughout the Twin Cities metropolitan area. MSP is the 19th busiest U.S. airport for passengers (2022- 31 million) and 21st for aircraft operations (2022-310K)

The METRO light rail Blue Line has stops at both the Hub Building Terminal 1 (Lindbergh Station) and Terminal 2 Humphrey Terminal (Humphrey Station). It connects the airport with downtown Minneapolis as well as with the Mall of America in nearby Bloomington and operates as a shuttle service between the two airport terminals.



Capability
- Two Trams
- Emergency Manager
- Police
- Fire

Vulnerability
- Monticello NPP: 40 Miles

Hazard Mitigation Project Goal Priority Ranking Aid

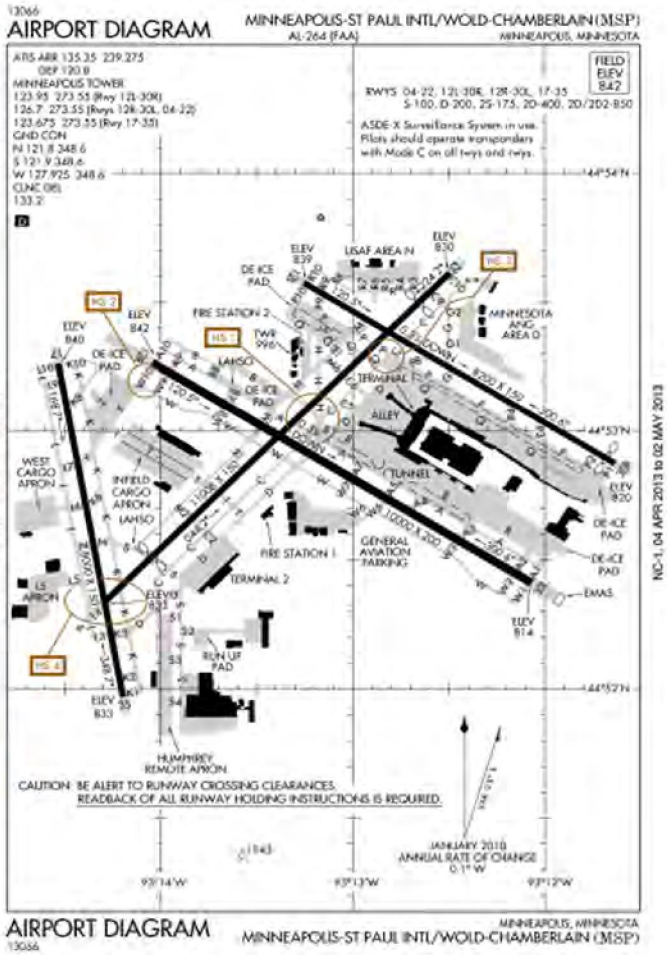
0	Mitigation Priority 1 None
0	Mitigation Priority 2 None
0	Mitigation Priority 3 None

Airport Website: https://www.mspairport.com/

Social Media:
https://www.facebook.com/mspairport
MSP Airport (@mspairport) / X (twitter.com)

Statistics (2014)	
Passengers	35,152,460
Traffic Movements	412,695
Based Aircraft	187

Runways			
Direction	Length		Surface
	ft.	m	
4/22	11,006	3,355	Concrete
12R/30L	10,000	3,048	Concrete
12L/30R	8,200	2,499	Concrete
17/35	8,000	2,438	Concrete



2024 MSP Airport Mitigation Goals, Objectives, and Actions Update
MSP Airport does not independently qualify for mitigation funding and coordinates with the jurisdictions it falls within to pursue mitigation projects as a sub applicant.

MSP Airport 2018 – 2024 Mitigation Strategies Progress Report
MSP Airport does not independently qualify for mitigation funding and coordinates with the jurisdictions it falls within to pursue mitigation projects as a sub applicant.

3.3.32. CITY OF NEW HOPE

Hennepin County - New Hope

New Hope was originally a farming community in Crystal Lake Township. In 1936 the city of Crystal, Minnesota was incorporated, taking up all of former Crystal Lake Township. The farmers in the western part of the city broke off and formed New Hope Township. In 1953 with suburbia moving in and farmers moving out, New Hope was re-incorporated as a borough.

Population density: 4,193 people per square mile (average)

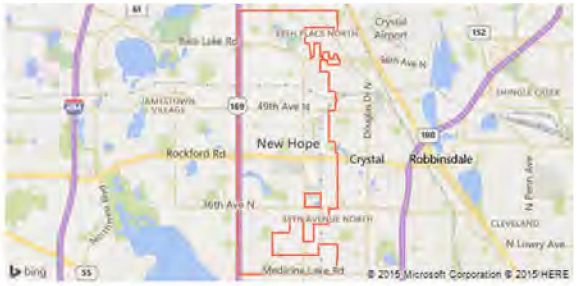
Tornado activity: New Hope-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: New Hope-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.

City Website: https://www.newhopemn.gov/



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	21,620
H.S. Diploma or More - % of Adults 25+ (2022)	93.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	34.8%
Households (2022)	9,120
Total Housing Units (2022)	9,385
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.0365255, -93.384971
Area:	5.12 sq. miles
Area - Land only:	5.06 sq. miles (99%)
Area - Water only:	0.06 sq. miles (1%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2F1)
- Develop and implement a multi-hazard public awareness program

9 Mitigation Priority 2 (9A1)
- Leverage existing and future infrastructure plans to identify opportunities for mitigation efforts

4 Mitigation Priority 3 (4C1)
- Increase the capacity of storm drainage system.

Vulnerability
- Monticello NPP: 27 Miles
- Functional Needs: 1899
- Nursing Homes: 3
- Bridges: 2

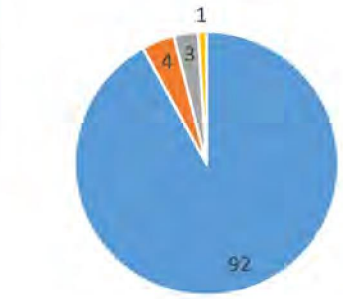
Capability
- Law Enforcement
- Fire Department: West Metro Fire
- Public Works
- Helical Anchors, Inc- Soil Stabilization
- FCC Registered Amateur Radio Licenses: 71

Corporate/Employer
- City Center
- Winnetka Commons
- Midland Center

School District
- 281 Robbinsdale

Social Media: City of New Hope Facebook page:
https://www.facebook.com/newhopeminnesota/

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/New-Hope-Minnesota.html

2024 New Hope Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Increase Hail Risk Awareness							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Mail brochures with water bills.	City Admin	$590	Annually	Canceled	Low	1
1A2	Post warnings at parks and public buildings.	Parks Dept.	$193	Ongoing	Canceled	Low	1
1A3	Social Media	IT Dept.	$240/year	Annually	Ongoing	Low	1
Objective 1B: Lightning: Protect Critical Facilities and Equipment from Lightning.							
1B1	Install lightning protection devices.	Public Works	20K	Ongoing	Ongoing	Low	1, 4, 5
1B2	Install surge protection	EM	Undetermined	6 Months	Ongoing	Low	1
Objective 1C: Protect Power Lines and Infrastructure from Severe Winds.							
1C1	Establish standards for all utilities regarding tree pruning around lines.	Utilities Dept.	0	Annually	Ongoing	Low	1
1C2	Continue to trim Boulevard trees	Utilities Dept.	3K	Annually	Ongoing	Low	1
Objective 1D: Protect Public Buildings and Infrastructure from Extreme Winter Weather.							
1D1	Add insulation to walls and attics	Public Works	40K	Ongoing	Ongoing	Low	1
1D2	Retrofit buildings to withstand snow loads and prevent roof collapse	City Engineering	EST	Ongoing	Ongoing	Low	1
Objective 1E: Extreme Winter Weather: Assist Vulnerable Populations.							
1E1	Identify specific at-risk populations	PD/FD	0	Ongoing	Ongoing	Low	1
1E2	Organize outreach programs.	PD/FD	0	Ongoing	Ongoing	Low	1
Objective 1F: Protect Power Lines from Extreme Winter Weather.							
1F1	Bury existing power lines when possible.	Utilities Dept.	Unknown	Ongoing	Ongoing	Low	1, 4
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Extreme Cold: Educate property owners about freezing pipes.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of the building insulation or keeping them out of attics, crawl spaces and outside walls.	Community Development	$500	Annually	Ongoing	Low	1

2A2	Educate homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipe and avoid bursting.	Community Development	0	Annually	Ongoing	Low	1
Objective 2B: Conduct Lightning Awareness Programs							
2B1	Post warning signs at parks and public buildings.	Parks and Rec	2K	Ongoing	Canceled	Low	1
Objective 2C: Increase Severe Wind Risk Awareness							
2C1	Inform residents of shelter locations.	Parks and Rec	$200	Ongoing	Canceled	Low	1
2C2	Ensure school district is aware of the best area of refuge in their buildings.	PD/FD	0	Annual	Delayed	Low	1
Objective 2D: Conduct Winter Weather Risk Awareness Activities							
2D1	Inform the public about severe winter weather impacts.	Utilities	$200	Ongoing	Ongoing	Low	1
Objective 2E: Conduct Tornado Awareness Activities							
2E1	Educate citizens through media outlets.	Billing	0	Ongoing	Ongoing	Low	1
2E2	Conduct tornado drills at schools and public buildings.	Parks and Rec	0	Ongoing	Ongoing	Low	1
Objective 2F: Increase Hazard Education and Risk Awareness.							
2F1	Develop and implement a multi-hazard public awareness program.	West Metro Fire/HSEM	1K	6 Months	Delayed	1	1
Objective 2G: Perform Home Safety Inspections							
2G1	Maintain an in-home inspection program promoting fire safety.	FD	8K	Ongoing	Ongoing	Low	1
2G2	Install smoke detectors and CO detectors in homes.	FD	$500	Ongoing	Ongoing	Low	1
Objective 2H: Create a severe weather awareness campaign for citizens that covers sirens information, NOAA Weather Radios, How the National Weather Service issues warnings and the hazards that affect Hennepin County.							
2H1	Distribute info via variety media sources	IT	0	Ongoing	Ongoing	Low	1
Objective 2I: Educate the community on recreational fires and prohibit open burning.							
2I1	Make recreational fire regulations readily available to community.	FD	0	Ongoing	Ongoing	Low	1
2I2	Use local media to increase awareness.	FD	0	Ongoing	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							

Objective 3A: Continue to use Surface Water Management Plan approved by both the Bassett Creek and Shingle Creek Water Management Commissions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Submit development plans for review	Community Development	0	6 Months	Ongoing	Low	1
Objective 3B: Monitor Water Supply							
3B1	Regularly check for leaks to minimize water supply losses.	Public Works	10K	Ongoing	Ongoing	Low	1
3B2	Improve water supply monitoring.	Utilities Dept.	3K	Ongoing	Ongoing	Low	1
3B3	Replace/ Upgrade water pipes in conjunction with street projects	City Management	City Planning	Ongoing	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Improve Storm Water Management Planning							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Complete storm water drainage study for known problem areas.	Public Works	20K	6 Months	Complete		
4A2	Prepare and adopt a storm water drainage plan and ordinance.	Commercial Dev	0	6 Months	Complete		
4A3	Replace/ Upgrade sewer and storm system in conjunction with street projects	Public Works	Varies	6 Months	Complete		
Objective 4B: Join or Improve Compliance with National Flood Insurance Program (NFIP)							
4B1	Participating in NFIP	Community Development	0	6 Months	Delayed	Low	1
4B2	Adopt ordinances that meet minimum Federal and State requirements to comply with NFIP.	Community Development	0	6 Months	Delayed	Low	1
Objective 4C: Improve Storm Water Drainage System Capacity							
4C1	Increase the capacity of storm drainage system.	Utilities	Varies	Ongoing	Ongoing	3	1
4C2	Install rain gardens to slow runoff and improve water quality	Engineering	Varies	Ongoing	Ongoing	Low	1, 5
4C3	Continue with the established sewer maintenance program of jetting pipes.	Public Works	10K	Ongoing	Ongoing	Low	1
Objective 4D: Reduce Extreme Winter Weather impact to Roadways							

4D1	Plan for and maintain adequate road and debris clearing capabilities.	Public Works	0	6 Months	Delayed	Low	1
Objective 4E: Assess Overall Community Risk, Identify Target Hazards in Community							
4E1	Obtain local data, list all properties that have the potential greatest impact on community safety. Include public buildings, private business, places of gathering, and other locations, maintain the database	FD	0	Delayed	Delayed	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Update local emergency plans as needed and work with neighboring cities on their plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Meet with neighboring cities about emergency plans (each department)	City Managers	0	6 Months	Complete		
5A2	Establish Joint EOC	West metro, Both Cities	100K	6 Months	Complete		
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Incorporate Flood Mitigation in Local Planning							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Mitigating hazards during infrastructure planning.	Commercial Dev	0	Ongoing	Ongoing	Low	1
6A2	Obtaining easements for planned and regulated public use of privately-owned land for temporary water retention and drainage	Commercial Dev	0	5 Years	In progress	Low	1
Objective 6B: Adopt and Enforce Building Codes to protect against extreme winter weather							
6B1	Adopt International Building Code and International Residential Code.	Inspections	0	Ongoing	Complete		
Objective 6C: Map and Assess Vulnerability to Subsidence							
6C1	Use GIS to map areas that are susceptible to subsidence.	LOGIS/County	$500	4 Months	Delayed	Low	1
Objective 6D: Ensure building compliance inspections are conducted on new construction projects.							
6D1	Review sites On Scheduled basis	Inspections	Staff Hours	Ongoing	Ongoing	Low	1

6D2	Update and enforce zoning ordinances	Inspections	Staff Hours	Annual	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Create evacuation plan for a railroad emergency							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Determine a 1/2mile path on either side of the rail line.	County-GIS	1K	1 Month	Complete		
7A2	Educate the community on the evacuation plan.	Billing	1K	Months	Complete		
Objective 7B: Identify businesses in the community that have hazardous processes and/or materials.							
7B1	Pre plan businesses with inspections.	FD	0	Ongoing	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Identify underserved communities, vulnerable populations, and those with access and functional needs	HCEM/City	Staff time	Ongoing	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Leverage existing and future infrastructure plans to identify opportunities for mitigation efforts	Public Works	Undetermined	Ongoing	Ongoing	2	1
9A2	Leverage grant opportunities to expand mitigation components on existing programmed projects	Public Works	Undetermined	Ongoing	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Continue routine maintenance of critical infrastructure	Public Works	Undetermined	Continuous	Ongoing	Low	1

New Hope 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Increase Hail Risk Awareness	
Project Title/Action	1A1: Mail brochures with water bills
Project Status	Canceled
Responsible Agency	City Admin
Project Title/Action	1A2: Post warnings at parks and public buildings
Project Status	Canceled
Responsible Agency	Parks Dept
Project Title/Action	1A3: social media
Project Status	Ongoing
Responsible Agency	IT Dept
OBJECTIVE: 1B Lightning: Protect Critical Facilities and Equipment from Lightning	
Project Title/Action	1B1: Install lightning protection devices
Project Status	Delayed
Responsible Agency	Public Works
Project Title/Action	1B2: Install surge protection
Project Status	Ongoing
Responsible Agency	Public Works
OBJECTIVE: 1C: Protect Power Lines and Infrastructure from Severe Winds	
Project Title/Action	1C1: establish standards for all utilities regarding tree pruning around lines
Project Status	Ongoing
Responsible Agency	Utilities Dept
Project Title/Action	1C2: Continue to trim Boulevard trees
Project Status	Ongoing
Responsible Agency	Utilities Dept
OBJECTIVE: 1D: Protect Public Buildings and Infrastructure from Extreme Winter Weather	
Project Title/Action	1D1: Add insulation to walls and attics
Project Status	Ongoing
Responsible Agency	Public Works
Project Title/Action	1D2: Retrofit buildings to withstand snow loads and prevent roof collapse
Project Status	Ongoing
Responsible Agency	City Eng.
OBJECTIVE: 1E: Extreme Winter Weather Assist Vulnerable Populations	
Project Title/Action	1E1: Identify specific at-risk populations
Project Status	Ongoing
Responsible Agency	PD/FD
Project Title/Action	1E2: Organize outreach programs
Project Status	Ongoing
Responsible Agency	PD/FD
OBJECTIVE: 1F: Protect Power Lines from Extreme Winter Weather	
Project Title/Action	1F1: Bury existing power lines when possible
Project Status	Ongoing
Responsible Agency	Utilities Dept

OBJECTIVE: 2A: Extreme Cold: Educate property owners about freezing pipes	
Project Title/Action	2A1: Educate homeowners and builders on how to protect their pipes, including locating water pipes on the inside of the building insulation or keeping them out of attics, crawl spaces and outside walls
Project Status	Ongoing
Responsible Agency	Community Development
Project Title/Action	2A2: Educate homeowners that letting a faucet drip during extreme cold weather can prevent the buildup of excessive pressure in the pipe and avoid bursting
Project Status	Ongoing
Responsible Agency	Community Development
OBJECTIVE: 2B: Conduct Lightning Awareness Programs	
Project Title/Action	2B1: Post warning signs at parks and public buildings
Project Status	Ongoing
Responsible Agency	Park and Rec
OBJECTIVE: 2C: Increase Severe Wind Risk Awareness	
Project Title/Action	2C1: Inform residents of shelter locations
Project Status	Canceled
Responsible Agency	Parks and Recreation
Project Title/Action	2C2: Ensure school district is aware of the best area of refuge in their building
Project Status	Delayed
Responsible Agency	PD/FD
OBJECTIVE: 2D: Conduct Winter Weather Risk Awareness Actives	
Project Title/Action	2D1: Inform the public about severe winter weather impacts
Project Status	Ongoing
Responsible Agency	Utilities
OBJECTIVE: 2E: Conduct Tornado Awareness Activities	
Project Title/Action	2E1: Educate citizens through media outlets
Project Status	Ongoing
Responsible Agency	Billing
Project Title/Action	2E2: Conduct tornado drills at schools and public buildings
Project Status	Ongoing
Responsible Agency	Parks and Rec
OBJECTIVE: 2F: Increase Hazard Education and Risk Awareness	
Project Title/Action	2F1: Develop and implement a multi-hazard public awareness program
Project Status	Delayed
Responsible Agency	West Metro Fire/HSEM
OBJECTIVE: 2G: Perform Home Safety Inspections	
Project Title/Action	2G1: Maintain an in-home inspection program promoting fire safety
Project Status	Ongoing
Responsible Agency	FD
Project Title/Action	2G2: Install smoke detectors and CO detectors in homes
Project Status	Ongoing
Responsible Agency	FD

OBJECTIVE: 2H: Create a severe weather awareness campaign for citizens that covers sirens information, NOAA Weather Radios, How the National Weather Service issues warnings and the hazards that affect Hennepin County	
Project Title/Action	2H1: Distribute info via variety media sources
Project Status	Ongoing
Responsible Agency	IT
OBJECTIVE: 2I: Educate the community on recreational fires and prohibit open burning	
Project Title/Action	2I1: Make recreational fire regulations readily available to community
Project Status	Ongoing
Responsible Agency	FD
Project Title/Action	2I2: Use local media to increase awareness
Project Status	Ongoing
Responsible Agency	FD
OBJECTIVE: 3A: Continue to use Surface Water Management Plan approved by both the Bassett Creek and Shingle Creek Water Management Commissions	
Project Title/Action	3A1: Submit development plans for review
Project Status	Ongoing
Responsible Agency	Community Development
OBJECTIVE: 3B: Monitor Water Supply	
Project Title/Action	3B1: Regularly check for leaks to minimize water supply losses
Project Status	Ongoing
Responsible Agency	Public Works
Project Title/Action	3B2: Improve water supply monitoring
Project Status	Ongoing
Responsible Agency	Utilities Dept
Project Title/Action	3B3: Replace/Upgrade water pipes in conjunction with street projects
Project Status	Ongoing
Responsible Agency	City Management
OBJECTIVE: 4A: Improve Storm Water Management Planning	
Project Title/Action	4A1: Complete storm water drainage study for known problem areas
Project Status	Complete
Responsible Agency	Public Works
Project Title/Action	4A2: Prepare and adopt a storm water drainage plan and ordinance
Project Status	Complete
Responsible Agency	Commercial Dev
Project Title/Action	4A3: Replace/Upgrade sewer and storm system in conjunction with street projects
Project Status	Complete
Responsible Agency	Public Works

OBJECTIVE: 4B: Join or Improve Compliance with National Flood Insurance Program (NFIP)	
Project Title/Action	4B1: participating in NFIP
Project Status	Ongoing
Responsible Agency	Community Development
Project Title/Action	4B2: Adopt ordinances that meet minimum Federal and State requirements to comply with NFIP
Project Status	Ongoing
Responsible Agency	Community Development
OBJECTIVE: 4C: Improve Storm Water Drainage System Capacity	
Project Title/Action	4C1: Increase the capacity of storm drainage system
Project Status	Ongoing
Responsible Agency	Utilities
Project Title/Action	4C2: Install rain gardens to slow runoff and improve water quality
Project Status	Ongoing
Responsible Agency	Engineering
Project Title/Action	4C3: Continue with the established sewer maintenance program of jetting pipes
Project Status	Ongoing
Responsible Agency	Public Works
OBJECTIVE: 4D: Reduce Extreme Winter Weather impact to Roadways	
Project Title/Action	4D1: Plan for and maintain adequate road and debris clearing capabilities
Project Status	Ongoing
Responsible Agency	Public Works
OBJECTIVE: 4E: Assess Overall Community Risk, Identify Target Hazards in Community	
Project Title/Action	4E1: Obtain local data, list all properties that have the potential greatest impact on community safety. Include public buildings, private business, places of gathering, and other locations, maintain the database
Project Status	Ongoing
Responsible Agency	FD
OBJECTIVE: 5A: Update local emergency plans as needed and work with neighboring cities on their plan	
Project Title/Action	5A1: Meet with neighboring cities about emergency plans (each department)
Project Status	Complete
Responsible Agency	City Managers
Project Title/Action	5A2: Establish Joint EOC
Project Status	Complete
Responsible Agency	West Metro, Both Cities
OBJECTIVE: 6A: Incorporate Flood Mitigation in Local Planning	
Project Title/Action	6A1: Mitigating hazards during infrastructure planning
Project Status	Complete
Responsible Agency	Commercial Dev
Project Title/Action	6A2: Obtaining easements for planned and regulated public use of privately-owned land for temporary water retention and drainage
Project Status	Ongoing
Responsible Agency	Commercial Dev

OBJECTIVE: 6B: Adopt and Enforce Building Codes to protect against extreme winter weather	
Project Title/Action	6B1: Adopt International Building Code and International Residential Code
Project Status	Ongoing
Responsible Agency	Inspections
OBJECTIVE: 6C: Map and Assess Vulnerability to Subsidence	
Project Title/Action	6C1: Use GIS to map areas that are susceptible to subsidence
Project Status	Delayed
Responsible Agency	LOGIS/County
OBJECTIVE: 6D: Ensure building compliance inspections are conducted on new construction projects	
Project Title/Action	6D1: Review sites on scheduled basis
Project Status	Ongoing
Responsible Agency	Inspections
Project Title/Action	6D2: Update and enforce zoning ordinances
Project Status	Ongoing
Responsible Agency	Inspections
OBJECTIVE: 7A: Create evacuation plan for a railroad emergency	
Project Title/Action	7A1: Determine a ½ mile path on either side of the rail line
Project Status	Complete
Responsible Agency	County-GIS
Project Title/Action	7A2: Educate the community on the evacuation plan
Project Status	Complete
Responsible Agency	Billing
OBJECTIVE: 7B: Identify businesses in the community that have hazardous processes and/or materials	
Project Title/Action	7B1: Pre plan businesses with inspections
Project Status	Ongoing
Responsible Agency	FD

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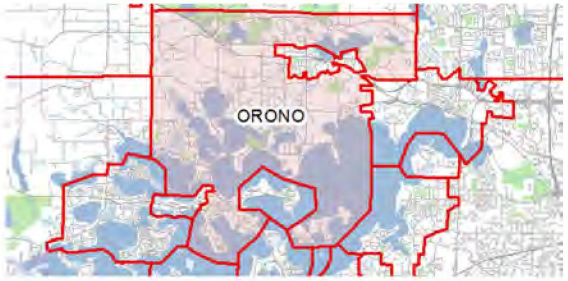
3.3.33. CITY OF ORONO

Hennepin County - Orono

City Website: https://oronomn.gov/

Orono Township was created in 1889 and incorporated in 1955. Located approximately 15 miles west of downtown Minneapolis on the north shore of Lake Minnetonka. Orono is one of the Twin City metro area most upscale and wealthiest communities and known for its sparse suburban character and abundant wildlife.





Population density: 511 people per square mile (low).

Tornado activity: Orono-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Orono-area historical earthquake activity is significantly above Minnesota state average. It is 53% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	8,223
H.S. Diploma or More - % of Adults 25+ (2022)	99.5%
Bachelor's Deg. or More - % of Adults 25+ (2022)	69.3%
Households (2022)	3,048
Total Housing Units (2022)	3,406
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	8.6%

Latitude/Longitude:	44.9598775, -93.583897
Area:	25.15 sq. miles
Area - Land only:	15.99 sq. miles (64%)
Area - Water only:	9.16 sq. miles (36%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation P1 (7A1)
Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas

5 Mitigation P2 (5A1)
Continue to meet the State and Federal regulations with the protection plan

3 Mitigation P3 (3A1)
Work with the local watersheds to continue to protect our lakes and streams for future water quality

Vulnerability
- Monticello NPP: 25 Miles
- Functional Needs: 16
- Bridges: 26

Capability
- Law Enforcement
- Police Chaplains Group
- Public Works
- FCC Registered Amateur Radio Licenses: 4

Corporate/Employer

School District
- 278 Orono

Language



https://apps.mla.org/map_data

https://www.city-data.com/city/Orono-Minnesota.html

2024 Orono Mitigation Goals/Objectives/Actions/Strategy/Priority Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and update policies that discourage growth in flood-prone areas	City of Orono	Staff Time	2024-2028	Ongoing	5	1
1A2	Continue to participate in the National Flood Insurance Program	City of Orono	Staff Time	2024-2028	Ongoing	4	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Increase awareness and knowledge of hazard mitigation principles and practices	City of Orono	Staff Time	2024-2028	Ongoing	6	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of Orono	20K	2024-2028	Ongoing	3	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of Orono	Staff Time	2024-2028	Ongoing	2	1

Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Build and support local capacity and commitment to become less vulnerable to hazards							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Orono	100K	2024-2028	Ongoing	1	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Orono 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Project Title/Action	1A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	City of Orono
OBJECTIVE: 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2A1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Responsible Agency	City of Orono
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Orono Public Works
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City of Orono Public Works
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	City of Orono Public Works

3.3.34. CITY OF OSSEO

Hennepin County - Osseo

The City of Osseo is located in the northeastern part of Hennepin County. Originally, Osseo was under the government of the townships of Brooklyn Park and Maple Grove. In the spring of 1875, by an act of the state legislature, Osseo became incorporated. It is said that Osseo is a Native American name, "Waseia" meaning 'there is light'. According to the 2000 census, Osseo has a population of 2,434 people and the city has a total area of 0.8 square miles of land. U.S. Route 169, County Road 81, and Central Avenue/Old Jefferson Highway are the three main arterial routes in the city. The Osseo Water Tower, built in 1915, was listed on the National Register of Historic Places in 2017

City Website: https://www.discoverosseo.com/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	2,634
H.S. Diploma or More - % of Adults 25+ (2022)	97.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	22.8%
Households (2022)	1,184
Total Housing Units (2022)	1,285
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.9%

Latitude/Longitude:	45.1164835, -93.4013225
Area:	0.75 sq. miles
Area - Land only:	0.75 sq. miles (100%)
Area - Water only:	0.00 sq. miles (0%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2A1)
- Work in purchasing material that can be sent to residents and using both Police and Fire

0 Mitigation Priority 2
None

0 Mitigation Priority 3
None

Vulnerability
- Monticello NPP: 23 Miles
- Functional needs: 266

Capability
- Law Enforcement
- FCC Registered Amateur Radio Licenses: 8

Corporate/Employer

School District
- 279 Osseo

Social Media: https://www.facebook.com/DiscoverOsseo/
https://twitter.com/CityofOsseo



https://apps.mla.org/map_data

2024 Osseo Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Continue to educate the public using several safety programs							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Work in purchasing material that can be sent to residents and using both Police and Fire	City of Osseo	500	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Generator at City Hall/Police Department							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Osseo 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 2A: Continue to educate the public using several safety programs	
Project Title/Action	2A1: Work in purchasing material that can be sent to residents and using both Police and Fire
Project Status	Delayed
Responsible Agency	City of Osseo
OBJECTIVE: 6A: Generator at City Hall/Police Department	
Project Title/Action	6A1: Have generator installed at City Hall/Police Department to operate E.O.C
Project Status	Complete
Responsible Agency	City of Osseo

3.3.35. CITY OF PLYMOUTH

Hennepin County - Plymouth

Plymouth is the seventh largest city in Minnesota. Located 15 miles northwest of Minneapolis, the city is the third largest suburb of Minneapolis. Interstate 494, U.S. Route 169, and Minnesota State Highway 55 are the main transportation routes of the city. The city of Medicine Lake is within the borders of Plymouth and is seen on the map with the red kidney bean shape.

Population density: 2,425 people per square mile (low).

Tornado activity: Plymouth-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Plymouth-area historical earthquake activity is significantly above Minnesota state average. It is 54% smaller than the overall U.S. average.





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	79,918
H.S. Diploma or More - % of Adults 25+ (2022)	98.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	64.6%
Households (2022)	32,727
Total Housing Units (2022)	33,890
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.9%

Latitude/Longitude:	45.022325, -93.461539
Area:	35.28 sq. miles
Area - Land only:	32.64 sq. miles (93%)
Area - Water only:	2.64 sq. miles (7%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1A1)
- Update inundation map every 10 years (FEMW map panes)

1 Mitigation Priority 2 (1A2)
- Review and compare existing flood control standards, zoning, and building requirements

1 Mitigation Priority 3 (1A3)
- Review and update policies that discourage growth in flood prone areas

Vulnerability
- Bridges: 56
- Monticello NPP: 26 miles
- 12 HI Mobile Home Park: 300
- Functional Needs: 1007

Capability
- Law Enforcement
- Fire Department
- Parks and Recreation
- FCC Registered Amateur Radio Licenses: 258

Corporate/Employer

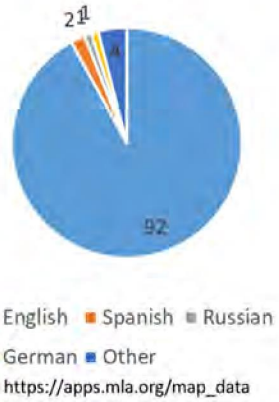
Prudential Financial	3,000
I.S.D. No. 284 (Wayzata)	2,025
Zayo Group	2,000
Medtronic	1,001
Aimia	1,000
TCF Bank	1,000

School District
- 284 Wayzata

Social Media: https://www.facebook.com/plymouthmn
https://twitter.com/PlymouthMN_gov
https://www.instagram.com/plymouthmn_gov/

https://www.city-data.com/city/Plymouth-Minnesota.html

Language



https://apps.mla.org/map_data

2024 Plymouth Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding/Dam Failure: develop a comprehensive approach to reducing the possibility of damage and losses due to flooding and dam failure.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Update inundation map every 10 years (FEMW map panes)	Engineering	Personnel Time	10 Years	Ongoing	1	1
1A2	Review and compare existing flood control standards, zoning, and building requirements	Engineering	Personnel Time	6 Months	Ongoing	2	1
1A3	Review and update policies that discourage growth in flood-prone areas	Engineering	Personnel Time	6 Months	Ongoing	3	1
1A4	Periodically exercise flood/dam failure response actions	Engineering	Personnel Time	8 Months	Ongoing	Low	1
1A5	Update flood prone area mitigation protocol	Engineering	Personnel Time	3 Months	Ongoing	Low	1
1A6	Implement capital improvement program projects intended to reduce/alienate flood potential	Engineering	Personnel Time	Ongoing	Ongoing	Low	1, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions	Communications	Personnel Time	Ongoing	On Schedule	Low	1
2A2	Provide information to the public on the city website and through public education opportunities	Communications	Personnel Time	Ongoing	On Schedule	Low	1
Objective: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize and implement mitigation actions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2B1	Participate as a member in local or regional hazard mitigation planning group	Emergency Management	Personnel Time	Ongoing	On Schedule	Low	1
2B2	Support or provide the public sector events, workshop, symposium, and continued education opportunities	Emergency Management	Personnel Time	Ongoing	Delayed	Low	1

Objective 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2C1	Increase awareness and knowledge of hazard mitigation principles and practices	Emergency Management	Personnel Time	Ongoing	On Schedule	Low	1
2C2	Encourage businesses to develop and implement hazard mitigation actions	Emergency Management	Personnel Time	Ongoing	On Schedule	Low	1
2C3	Support or provide the private sector events, workshop, symposium, and continued education opportunities	Emergency Management	Personnel Time	Ongoing	On Schedule	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Promote continued maintenance and management practices of water resources, green space							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Update and review City Park / Recreation and Community Development policies to ensure continued best practices	Engineering	Personnel Time	6 Months	On Schedule	Low	1
3A2	Maintain wetland and natural resource inventories	Water Resources	Personnel Time	Ongoing	On Schedule	Low	1
Objective: 3B: Promote maintenance and management of historic locations and buildings within the city							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3B1	Update and review any plans and budgetary resources to maintain and promote the identified historic locations of the city	Parks and Recreation	Personnel Time	Ongoing	On Schedule	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: To assess specific geographical areas within the City that are predisposed to natural disasters and or man-made hazardous situations, both of which could be responsible for financial and/or personal impact or loss of life							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Annually review and update the City Risk / Threat Assessment document and distribute the new version to the City Manager all City Division Directors	Emergency Management	Personnel Time	3 Months	On Schedule	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Ensure effective partnerships with other public safety agencies							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operation plan that can be utilized on a larger regional platform.	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A2	Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A3	Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Reduce the risk factor of private business, family, and public structures in addition to at risk populations							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Use risk assessment modeling tools and resources / statistical information to determine the highest risk areas in order to avoid overpopulation or injection of at-risk groups like children or the elderly in pre-identified high risk hazardous locations	Parks and Recreation	Personnel Time	1 Year	On Schedule	Low	1
6A2	The Plymouth Community Development Department will continue to ensure that building permits and codes are current or exceed industry standards	Parks and Recreation	Personnel Time	Ongoing	Ongoing	Low	1
6A3	The Plymouth Park and Recreation Department will give concentrated consideration of not developing park areas near pre-identified high risk hazardous locations	Parks and Recreation	Personnel Time	Ongoing	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Develop community stakeholders in mitigation strategies by use of local resources							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Encourage and continue development of CERT Teams and Neighborhood Watch groups to assist in citizens to be self-reliant and responsible for their own safety measures lessening	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1

	the burden on the local government so a more concentrated effort can be placed on the execution of COOP plans						
7A2	Continue to monitor and document the completion of mandatory NIMS training necessary for national compliance standards	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Plymouth 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding/Dam Failure: develop a comprehensive approach to reducing the possibility of damage and losses due to flooding and dam failure	
Project Title/Action	1A1: Update inundation map every 10 years (FEMW map panes)
Project Status	On Schedule
Project Title/Action	1A2: Review and compare existing flood control standards, zoning, and building requirements
Project Status	On Schedule
Project Title/Action	1A3: Review and update policies that discourage growth in flood-prone areas
Project Status	On Schedule
Project Title/Action	1A4: Periodically exercise flood/dam failure response actions
Project Status	On Schedule
Project Title/Action	1A5: Update flood prone area mitigation protocol
Project Status	Complete
Project Title/Action	1A6: Implement capital improvement program projects intended to reduce/alienate flood potential
Project Status	Ongoing
Responsible Agency	Eng./Water Resource
OBJECTIVE: 1B: Wild land fire: Develop a comprehensive approach reducing the possibility of damage and losses due to wildfire	
Project Title/Action	1B1: Develop and publicize evacuation plans and routes in areas threatened by wild land fires, as resources are available
Project Status	Cancelled
Project Title/Action	1B2: Ensure defensible fire-fighting space is afforded adjacent to wild land and open space areas in new developments, as resources are available
Project Status	Cancelled
Responsible Agency	Fire
OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	On Schedule
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	On Schedule
Responsible Agency	Communications
OBJECTIVE: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning group
Project Status	On Schedule
Summary of Project	Ongoing participation in Hennepin County- NSEMPG (North Suburban Emergency Management Planning Group)
Project Title/Action	2B2: Support or provide the public sector events, workshop, symposium, and continued education opportunities
Project Status	Delayed

Responsible Agency	Emergency Management
OBJECTIVE: 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	On Schedule
Project Title/Action	2C2: Encourage businesses to develop and implement hazard mitigation actions
Project Status	On Schedule
Project Title/Action	2C3: Support or provide the private sector events, workshop, symposium, and continued education opportunities
Project Status	On Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 3A: Promote continued maintenance and management practices of water resources, green space	
Project Title/Action	3A1: Update and review City Park / Recreation and Community Development policies to ensure continued best practices
Project Status	On Schedule
Project Title/Action	3A2: Maintain wetland and natural resource inventories
Project Status	On Schedule
Responsible Agency	Engineering and Water Resources
OBJECTIVE: 3B: Promote maintenance and management of historic locations and buildings within the city	
Project Title/Action	3B1: Update and review any plans and budgetary resources to maintain and promote the identified historic locations of the city
Project Status	On Schedule
Responsible Agency	Park and Recreation
OBJECTIVE: 4A: To assess specific geographical areas within the City that are predisposed to natural disasters and or man-made hazardous situations, both of which could be responsible for financial and/or personal impact or loss of life	
Project Title/Action	4A1: Annually review and update the City Risk / Threat Assessment document and distribute the new version to the City Manager all City Division Directors
Project Status	On Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 5A: Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operation plan that can be utilized on a larger regional platform.	
Project Title/Action	5A1: Continue affording the opportunity for Plymouth City Staff to attend or join emergency management associations like NSEMPG (North Suburban Emergency Management Planning Group), MEMA (Metropolitan Emergency Managers Association) and AMEM (Association of Minnesota Emergency Managers)
Project Status	Ongoing
Project Title/Action	5A2: Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises
Project Status	Ongoing

Project Title/Action	5A3: Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 6A: Reduce the risk factor of private business, family, and public structures in addition to at risk populations	
Project Title/Action	6A1: Use risk assessment modeling tools and resources / statistical information to determine the highest risk areas in order to avoid overpopulation or injection of at-risk groups like children or the elderly in pre-identified high risk hazardous locations
Project Status	On Schedule
Project Title/Action	6A2: The Plymouth Community Development Department will continue to ensure that building permits and codes are current or exceed industry standards
Project Status	Ongoing
Project Title/Action	6A3: The Plymouth Park and Recreation Department will give concentrated consideration of not developing park areas near pre-identified high risk hazardous locations
Project Status	Ongoing
Responsible Agency	Parks and Recreation
OBJECTIVE: 7A: Develop community stakeholders in mitigation strategies by use of local resources	
Project Title/Action	7A1: Encourage and continue development of CERT Teams and Neighborhood Watch groups to assist in citizens to be self-reliant and responsible for their own safety measures lessening the burden on the local government so a more concentrated effort can be placed on the execution of COOP plans
Project Status	Ongoing
Project Title/Action	7A2: Continue to monitor and document the completion of mandatory NIMS training necessary for national compliance standards
Project Status	Ongoing
Responsible Agency	Emergency Management

3.3.36. CITY OF RICHFIELD

Hennepin County - Richfield

City Website: https://www.richfieldmn.gov

Long before suburban homes were built here, Richfield was characterized by its abundance of rich farmland (hence the name) as the Minneapolis and St. Paul area was beginning to grow. In 1908, Richfield officially became a city by adopting a President/Trustee form of government. However, residents of Richfield held town meetings dating back to May 11, 1858—the date on which Congress admitted Minnesota into the Union. Richfield is an inner-ring suburb and is bordered by Minneapolis to the north, Minneapolis/St. Paul International Airport to the east, Bloomington to the south, and Edina to the west. Interstates 35W and 494 and Minnesota State Highways 62 and 77 are the four main arterial routes for the city.





Population density: 5,297 people per square mile (average).

Tornado activity: Richfield-area historical tornado activity is slightly above Minnesota state average. It is 32% greater than the overall U.S. average.

Earthquake activity: Richfield-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

Latitude/Longitude:	44.8762525, -93.282074
Area:	6.99 sq. miles
Area - Land only:	6.85 sq. miles (98%)
Area - Water only:	0.14 sq. miles (2%)

People & Housing	
Population Estimate (2022)	36,809
H.S. Diploma or More - % of Adults 25+ (2022)	91.5%
Bachelor's Deg. or More - % of Adults 25+ (2022)	44.2%
Households (2022)	15,900
Total Housing Units (2022)	16,331
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.7%

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation P1- (1B3)
- Working with our diverse community through community outreach groups on educational material regarding vaccinations and illnesses.

2 Mitigation P2- (2A1)
- Publicize and encourage the adoption of appropriate hazard mitigation actions.

2 Mitigation P3- (2B2)
- Support or provide the public sector events, workshop, symposium, and continued education opportunities.

School District
- 280 Richfield

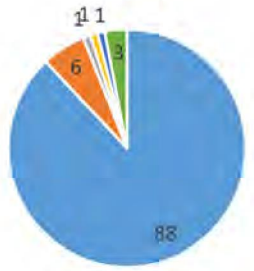
Vulnerability
- Bridges 39
- Functional Needs 347
- Airport to East
- Monticello NPP: 38 Miles

Capability
- Fire Department
- Police Department
- Streets and Highways
- Parks and Recreation
- Public Safety
- Water Supply
- FCC Registered Amateur Radio Licenses: 123

Corporate/ Employer
- Best Buy HQ 4500
- US Bank 2400
- Richfield public schools 682
- Target 394

Infrastructure:
Streets 142 mi.
Sidewalks 40 mi.
Water System 122 mi.
Sanitary Sewer 120 mi.

Language



https://apps.mla.org/map_data

https://www.richfieldmn.gov/departments/public_safety/emergency_preparedness/index.php

https://www.city-data.com/city/Richfield-Minnesota.html

2024 Richfield Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Assess and upgrade the City/County warning system							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Creating a schedule to replace warning siren systems within next 7 years	Police	100K	Long	Complete		
1A2	Update our evacuation and sheltering plans for Municipal buildings in 1 year	EM / Fire / Police / Exec.	500	Long	Complete		
1A3	Update our Emergency Operations Center (EOC) concerning technology in 1 year. Tabletop exercise and activation of EOC within 1 year.	EM / All Depts.	1K	Short	Complete		
1A4	Perform exercises to test the various components of the EOC within 1 year	EM/All Depts.	1K	Short	Complete		
1A5	Develop more information to warn/mitigate disasters on our social media in 6 months	Police/Exe	200	Short	Complete		
1A6	Use of our EVERBRIDGE system to warn residents of hazardous weather or man-made hazards	Police	300	Long	Complete		
Objective 1B: Maintain Links to other sources of reliable information about infectious disease response, including quarantine							
1B1	Maintain Contracts with Bloomington Public Health for ongoing services	BPH / Police / City Gov.	200	Short	Ongoing	Low	1
1B2	Provide educational material along with the location of vaccination clinics to employees and the public.	EM / Police / BPH	1K	Medium	Ongoing	Low	1
1B3	Working with our diverse community through community outreach groups on educational material regarding vaccinations and illnesses.	EM / Police / Fire / JCCP	1.5K	Short	Ongoing	1	1
1B4	Review and Update Emergency Response Pandemic Plan Protocols.	All depts./BPH	1K	Short	Complete		
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							

Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions.	EM / Police / Fire	500	Short	Ongoing	2	1
2A2	Provide information to the public on the city website and through public education opportunities	EM / Police	500	Short	Ongoing	Low	1
Objective 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions.							
2B1	Participate as a member in local or regional hazard mitigation planning group	Police/Fire	500	Short	Complete		
2B2	Support or provide the public sector events, workshop, symposium, and continued education opportunities.	EM / Police / Fire	1.5K	Long	Complete	3	1
Objective 2C: Work with Chamber of Commerce, businesses and other local agencies to promote hazard mitigation in local community.							
2C1	Increase awareness and knowledge of hazard mitigation principles and practices	EM / Police / Fire	2K	Medium	Ongoing	Low	1
2C2	Encourage businesses to develop and implement hazard mitigation actions	EM / Police / Fire	1K	Medium	Ongoing	Low	1
2C3	Ensure that Police and Fire have the latest edition of the Emergency Response Guidebook	EM / Police / Fire	500	Long	Complete		
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
3A1	Work with the Park and Recreation and Public Works on maintenance of parks and other natural resources	Police/ParkRec/PW	25K	Long	Ongoing	Low	1
3A2	Ensure that DNR requirements are being met with improvements to Natural wetlands and DNR regulations	Police/ParkRec/PW	5K	Long	Ongoing	Low	1, 2
3A3	Meet with the Richfield Historical Society to mitigate Historical and Cultural assets within the community from natural disasters	EM/ParkRec/Richfield Historical Society	2K	Long	Ongoing	Low	1, 5

Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Create a strategy to work with private industry and businesses to identify locations of hazardous materials							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Meet with Hazardous material producers to review state and federal guidelines	EM / Police / Fire / Bus	1.2K	Medium	Complete		
4A2	Receive updated emergency operations plans for private industry on their protocols responding to Hazardous material incidents	EM / Police / Fire / Bus	500	Short	Ongoing	Low	1
4A3	Receive updated locations of where Hazardous materials are stored on site.	EM / Police / Fire / Bus	800	Short	Complete		
Objective 4B: Share SARA information with other city departments through ACTIVE 911 App.							
4B1	Have access through the Fire Department to other ACTIVE 911 User to receive the SARA information overlay for other departments specifically police.	Police/Fire	500	Short	Complete		
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Increase coordination with the State Duty Officer for Highway spills							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Work with the Fire Department and Public works on spill protocols	EM / Police / Fire	700	Medium	Complete		
5A2	Update information with State Duty Officer	EM / Police / Fire	500	Short	Complete		
Objective 5B: Maintain and Update plan to contact Utility Companies							
5B1	Provide contact information for City personnel to Utility Companies	EM / Police / Fire	500	Medium	Ongoing	Low	1
Objective 5C: Active Shooter situation. Coordination and Training with all local, county, and state agencies							
5C1	Continue to develop “Play Book” for active shooter incidents.	EM / Police / Fire	1.5K	Medium	Complete		

5C2	Continue to train with Fire Department and other agencies in response protocols and procedures.	EM / Police / Fire	1.5K	Long	Ongoing	Low	1
5C3	Apply and receive grant funding to train on a more regional basis.	EM / Police / Fire	1.5K	Long	Ongoing	Low	1
5C4	Continue to work with the Business and School Communities in response protocols and procedures, review actions, and build plans	Community/EM/Fire/Police	1.5K	Medium	Ongoing	Low	1
Objective 5D: CERT Training and Regional Asset sharing of resources							
5D1	Continue to recruit and train CERT volunteers	EM / Police / Fire	3K	Short	Ongoing	Low	1
5D2	Work with local jurisdictions on exercises and events.	EM / Police / Fire	2K	Long	Ongoing	Low	1
5D3	Apply and receive grant funding to offset the cost of the CERT Program.	EM, CERT Admin, Regional Partners	5K	Long	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Work in Partnership with Community Development on education contractors and new developers on Hazard Mitigation							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Review and implement, if possible, changes in city ordinances	EM / Police / Fire	5K	Long	Ongoing	Low	1
6A2	Conduct Study Sessions with City Council on new development possibilities and include Hazard Mitigation/Disaster protocols	Attorney / CD / City Counsel	5K	Long	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Training for Police, Fire, and Public Works personnel in response protocols to hazards							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Update training protocols and plans for all City departments on hazard response including evacuation.	EM / Police / Fire / City	1.5K	Long	Ongoing	Low	1
Objective 7B: Continue with Business CERT and TEEN CERT models in the community							

7B1	Train more businesses in the CERT Model and solicit more volunteers.	EM / Police / Fire / CERT / Admin / Businesses / Park and Rec	1.5K	Long	Ongoing	Low	1
7B2	Continue to train TEEN CERT volunteers in our community.	EM / Police / Fire / CERT / Admin / Businesses / Park and Rec	1.5K	Long	Ongoing	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A: Identify and Mitigate Public Health and City Services for the community							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Continue to focus on direct service (WIC, vaccines, breastfeeding education and support, maternal-child health, infectious disease, heath promotion) this work will build resilience in the underserved populations in the city of Richfield through Bloomington Public Health	Community/City/BPH	$100K	Long	Ongoing	4	1
8A2	Our community health improvement partnership work is addressing complex health issues and aims to reverse health and racial inequities. It does this by partnering communities, public health agencies, health systems, and clinics, housing developers providers, spiritual, faith and cultural communities, schools, and human service organizations.	Community/City/BPH	$100K	Long	Ongoing	Low	1
8A3	Working on Language barriers within our diverse population. Translating all city in languages spoken in Richfield and increasing our staff to mirror the diverse population we serve	City Government	$500K	Long	Ongoing	Low	1
8A4	Working with Planners and developers on affordable housing and programs to help our diverse community find housing.	Community Development	$500K	Long	Ongoing	5	1

8A5	Work with community organizations that support and provide resources to our disability community	City Government/Community	$100K	Long	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A: Follow the established City Climate Control Plan							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Develop and Promote Energy Efficiency Efforts-Understand City's energy usage and how to reduce it while helping the environment.	City Government/Community	$750K	Long	Ongoing	Low	1
9A2	Promote Renewable Energy Installation and Purchasing-Reduce reliance on fossil fuel derived energy and educate residents and businesses on installation incentives	City Government	$750K	Long	Ongoing	Low	1
9A3	Encourage Sustainable Design and Building Practices- ensure design and construction plans integrate environmental best practices and amenities, making the buildings life cycle more environmentally efficient.	City Government/Community	$500K	Long	Ongoing	Low	1
9A4	Strengthen and Expand Natural Resource Management-Inventory various natural resources and include the public in restoration and maintenance of trees, parks, and bodies of water	City Government/Community	$750K	Long	Ongoing	Low	1
9A5	Reduce Waste Generated and Promote Responsible Disposal- Understand how to responsibly dispose of many different goods and materials while promoting a circular, low waste economy.	City Government/Community	$500K	Long	Ongoing	Low	1
9A6	Improve Access to Local Healthy Food-Increase convenient purchasing	City Government/Community	$500K	Long	Ongoing	Low	1

	opportunities and create more gardening and food population opportunities.						
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A: Multiple Hazards as it relates to critical infrastructure and the community							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Assess Community Risk-Developing and maintaining a database to track community vulnerability (i.e., exposure to known hazard areas.)	City Government/Community	$30K	Medium	Ongoing	Low	1
10A2	Map Community Risk-Obtaining hazard data and using GIS to map various hazards	Public Works/Community Development/EM/Community	$30K	Medium	Ongoing	Low	1
10A3	Prevent Development in Hazard Areas-Purchasing land and title in the name of local government to remove structures and enforce permanent restrictions on development.	Community Development	$50K	Medium	Ongoing	Low	1
10A4	Adopt Development Regulations in Hazard Areas-Evaluating the use of performance/impact zoning to set risk-based standards for land development.	Community Development.	$30K	Long	Ongoing	Low	1
10A5	Limit Density in Hazard Areas-Ensuring the zoning ordinance encourages higher densities only outside of known hazards.	Community Development	$30K	Long	Ongoing	Low	1
10A6	Create Local Funding Mechanisms for Hazard Mitigation-Establish a local reserve fund for public mitigation measures.	City Government/Community Development	$750K	Long	Ongoing	Low	1
10A7	Monitor Mitigation Plan Implementation-Preparing a plan implementation monitoring schedule and outlining roles for those responsible for monitoring (i.e. local departments, agencies, and committees.)	City Government/Community Development	$100K	Long	Ongoing	6	1

Richfield 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Assess and upgrade the City/County warning system	
Project Title/Action	1A1: Creating a schedule to replace warning siren systems within next 7 years
Project Status	Complete
Responsible Agency	Richfield Police
Project Title/Action	1A2: Update our evacuation and sheltering plans for Municipal buildings in 1 year
Project Status	Complete
Responsible Agency	EM/Fire/Police/Exec
Project Title/Action	1A3: Update our Emergency Operations Center (EOC) concerning technology in 1 year. Tabletop exercise and activation of EOC within 1 year
Project Status	Complete
Responsible Agency	EM/All Depts
Project Title/Action	1A4: Perform exercises to test the various components of the EOC within 1 year
Project Status	Complete
Responsible Agency	EM/All Depts
Project Title/Action	1A5: Develop more information to warn/mitigate disasters on our social media in 6 months
Project Status	Complete
Responsible Agency	Police/Exe
Project Title/Action	1A6: Use of our EVERBRIDGE system to warn residents of hazardous weather or man-made hazards
Project Status	Complete
Responsible Agency	Police
OBJECTIVE: 1B: Maintain Links to other sources of reliable information about infectious disease response, including quarantine	
Project Title/Action	1B1: Maintain Contracts with Bloomington Public Health for ongoing services
Project Status	Complete
Responsible Agency	BPH/Police/City Gov
Project Title/Action	1B2: Provide educational material along with the location of vaccination clinics to employees and the public
Project Status	Complete
Responsible Agency	EM/Police/BPH
Project Title/Action	1B3: Working with our diverse community through community outreach groups on educational material regarding vaccinations and illnesses
Project Status	Ongoing
Responsible Agency	Update
Project Title/Action	1B4: Review and Update EBOLA Response Plan Protocols
Project Status	Complete
Responsible Agency	All Depts./BPH

OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	Delayed
Responsible Agency	EM/Police/Fire
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	On-Schedule
Responsible Agency	EM/Police
OBJECTIVE: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning group
Project Status	Complete
Responsible Agency	Police/Fire
Project Title/Action	2B2: Support or provide the public sector events, workshop, symposium, and continued education opportunities
Project Status	Complete
Responsible Agency	EM/Police/Fire
OBJECTIVE: 2C: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2C1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
Project Title/Action	2C2: Encourage businesses to develop and implement hazard mitigation actions
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
Project Title/Action	2C3: Ensure that Police and Fire have the latest edition of the Emergency Response Guidebook
Project Status	Complete
Responsible Agency	EM/Police/Fire
OBJECTIVE: 4A: Create a strategy to work with private industry and businesses to identify locations of hazardous materials	
Project Title/Action	4A1: Meet with Hazardous material producers to review state and federal guidelines
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire/Bus
Project Title/Action	4A2: Receive updated emergency operations plans for private industry on their protocols responding to Hazardous material incidents
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire/Bus
Project Title/Action	4A3: Receive updated locations of where Hazardous materials are stored on site
Project Status	Complete

Responsible Agency	EM/Police/Fire/Bus
OBJECTIVE: 4B: Share SARA information with other city departments through ACTIVE 911 App	
Project Title/Action	4B1: Have access through the Fire Department to other ACTIVE 911 User to receive the SARA information overlay for other departments specifically police
Project Status	On-Schedule
Responsible Agency	Police/Fire
OBJECTIVE: 5A: Increase coordination with the State Duty Officer for Highway spills	
Project Title/Action	5A1: Work with the Fire Department and Public Works on spill protocols
Project Status	Ongoing
Responsible Agency	EM/Police/Fire
Project Title/Action	5A2: Update information with State Duty Officer
Project Status	Complete
Responsible Agency	EM/Police/Fire
OBJECTIVE: 5B: Maintain and Update plan to contact Utility Companies	
Project Title/Action	5B1: Provide contact information for City personnel to Utility Companies
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
OBJECTIVE: 5C: Active Shooter situation. Coordination and Training with all local, county, and state agencies	
Project Title/Action	5C1: Continue to develop “Play Book” for active shooter incidents
Project Status	Complete
Responsible Agency	EM/Police/Fire
Project Title/Action	5C2: Continue to train with Fire Department and other agencies in response protocols and procedures
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
Project Title/Action	5C3: Apply and receive grant funding to train on a more regional basis
Project Status	Complete
Responsible Agency	EM/Police/Fire
OBJECTIVE: 5D: CERT Training and Regional Asset sharing of resources	
Project Title/Action	5D1: Continue to recruit and train CERT volunteers
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
Project Title/Action	5D2: Work with local jurisdictions on exercises and events
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire
Project Title/Action	5D3: Apply and receive grant funding to offset the cost of the CERT Program
Project Status	On-Schedule
Responsible Agency	Emergency Management
OBJECTIVE: 6A: Work in Partnership with Community Development on education contractors and new developers on Hazard Mitigation	
Project Title/Action	6A1: Review and implement, if possible, changes in city ordinances
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire

Project Title/Action	6A2: Conduct Study Sessions with City Council on new development possibilities and include Hazard Mitigation/Disaster protocols
Project Status	On-Schedule
Responsible Agency	Attorney/CD/City Counsel
OBJECTIVE: 7A: Training for Police, Fire, and Public Works personnel in response to hazards	
Project Title/Action	7A1: Update training protocols and plans for all City departments on hazard response including evacuation
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire/City
OBJECTIVE: 7B: Continue with Business CERT and TEEN CERT models in the community	
Project Title/Action	7B1: Train more businesses in the CERT Model and solicit more volunteers
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire/CERT Admin/Businesses/ Park and Rec
Project Title/Action	7B2: Continue to train TEEN CERT volunteers in our community
Project Status	On-Schedule
Responsible Agency	EM/Police/Fire/CERT Admin/Businesses/ Park and Rec

3.3.37. CITY OF ROBBINSDALE

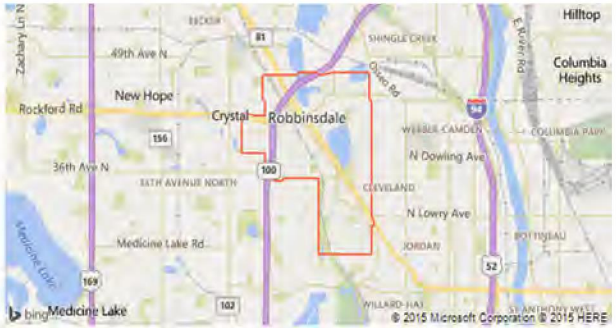
Hennepin County - Robbinsdale

City Website: https://www.robbinsdalemn.com/

Once property of the Village of Crystal, Robbinsdale became a village on April 19, 1893, after a special election was held to dissolve the Village of Crystal. The geographical area of Robbinsdale has remained at 2.9 square miles since that time. Robbinsdale was also the first suburb of Minneapolis and was named for Andrew Robbins, an entrepreneur who purchased 90 acres of land for the purpose of making the area a suburban town. Robbinsdale is home to North Memorial Medical Center, which is one of the state's Level 1 Trauma Center and operates "Air Care", an air medical transport service. Minnesota State Highway 100 and County Road 81 are the two main transportation route of the city.



https://www.statsamerica.org/town/



Population density: 5,120 people per square mile (average).

Tornado activity: Robbinsdale-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: Robbinsdale-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	14,452
H.S. Diploma or More - % of Adults 25+ (2022)	94.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	40.7%
Households (2022)	6,480
Total Housing Units (2022)	6,591
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.024446, -93.337232
Area:	2.98 sq. miles
Area - Land only:	2.79 sq. miles (94%)
Area - Water only:	0.19 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1 (1C1)
- Upgrade Emergency Operations Center Technology and identify and create a backup Emergency Operations Center

10 Mitigation Priority 2 (10A1)
- Continue with installation of fiber optics throughout the city to establish an updated technology and ensure redundancy.

7 Mitigation Priority 3 (7A1)
- Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community.

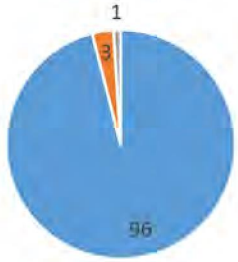
Vulnerability
- Monticello NPP: 29 Miles
- Functional Needs: 511
- Bridges: 29
- Broadway Court Senior Apartments: 57 Units
- Clare House: 150 individuals
- Copperfield Hill Assisted Living

Capability
- Law Enforcement
- Fire Department
- North Memorial Hospital (Trauma level 1)
  - 8 helicopters
  - 120 Ambulances
- FCC Registered Amateur Radio Licenses: 39

Corporate/Employer
- North Memorial Hospital: 725

School District
- 281 Robbinsdale

Language



https://apps.mla.org/map_data

Social Media: Facebook - https://www.facebook.com/CityOfRobbinsdale/

https://www.city-data.com/city/Robbinsdale-Minnesota.html

2024 Robbinsdale Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Retrofit/Upgrade/Repair water main from Minneapolis to Crystal							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Inspect main to ensure its durability	City of Crystal	$300,000	Short	Complete		
Objective 1B: Provide a Mobile Command Post for use during critical incidents.							
1B1	Conduct meetings with Police and Fire personnel to determine vehicle needs and capabilities	City of Robbinsdale	$500	Short	Ongoing	Low	1
1B2	Purchase a multi-use Command Post Vehicle for use by Police and Fire units	City of Robbinsdale	$400,000	Medium	Ongoing	Low	1
Objective 1C: Update EOC							
1C1	Review current technology and make upgrades as necessary	City of Robbinsdale	$30,000	Short	Ongoing	1	1
1C2	Provide ongoing training for EOC users	City of Robbinsdale	$20,000	Long	Ongoing	Low	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Put information on city website providing up-to-date disaster awareness information							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Create a page and/or links on the city website related to disaster awareness and preparedness	City of Robbinsdale	$5,000	Short	In Progess	Low	1
2A2	Assign personnel to periodically update the website to ensure accurate and up-to-date information is available to citizens	City of Robbinsdale	$5,000	Long	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Reducing Phosphorus in Crystal Lake							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Ensure newly installed Flocculation Plant is fully operational and reducing Phosphorus according to plan and maintain a safe level	City of Robbinsdale	$5,000	Short	Ongoing	Low	1
3A2	Continue testing throughout year and tracking data	City of Robbinsdale	$10,000	Long	Ongoing	Low	1

Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Monitor Burlington Northern Railway Blue Line Construction Project							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Attend meetings and engage Engineers and Designers of new system throughout the construction process	City of Robbinsdale	$2,000	Short	Cancelled	Low	1
Objective 4B: Partner with Burlington Northern to understand what Hazmat controls and response would be needed once construction completed							
4B1	With chemicals being transported through the city. Create an "emergency action plan" with Burlington Northern using hazardous material release scenario	City of Robbinsdale	$25,000	Medium	Cancelled	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Maintaining City Staff/Elected Officials that are aware of Emergency Management plans and procedures							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Require that all applicable city personnel receive training in current Emergency Management and FEMA practices	City of Robbinsdale	$5,000	Short	Ongoing	Low	1
5A2	Ensure that Disaster Plans are maintained and applicable city personnel are familiar with them	City of Robbinsdale	$5,000	Short	Ongoing	Low	1
5A3	Provide information and instructions on how they can access or enroll in classes toward state certification	City of Robbinsdale	$500	Short	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Maintain City Building Codes to ensure to most up-to-date and disaster resistant designs are used for future construction and renovations							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Require that applicable city engineers and inspectors receive adequate training in current building designs and renovation processes that provide enhanced disaster resistance	City of Robbinsdale	$5,000	Short	Ongoing	Low	1
6A2	Assist Elected Officials/Department Heads in reviewing and implementing building codes that promote enhanced safety and integrity of structures	City of Robbinsdale	$1,000	Short	Ongoing	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury All Overhead Power lines							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community.	City of Robbinsdale	$3,000,000	Long	Ongoing	3	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	The City of Robbinsdale is striving to connect with these communities and ensure basic needs are met and find ways to thrive to include; Embedded Social Workers, Joint Community Police and Partnership Programs, and a Multicultural Advisory Committee.	City of Robbinsdale	$75,000 / year	Short	Ongoing	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Become a host city for MN GreenCorps interns to aid the city in reducing environmental impacts in the community through education, policy changes, and participating in Green Programs.	City of Robbinsdale		Short	Ongoing	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Continue with installation of fiber optics throughout the city to establish an updated technology and ensure redundancy.	City of Robbinsdale	$5,000,000	Long	Ongoing	2	1

Robbinsdale 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Retrofit/Upgrade/Repair water main from Minneapolis to Crystal	
Project Title/Action	1A1: Inspect main to ensure its durability
Project Status	Complete
Responsible Agency	City of Robbinsdale
OBJECTIVE: 1B: Provide a Mobile Command Post for use during critical incidents	
Project Title/Action	1B1: Conduct meetings with Police and Fire personnel to determine vehicle needs and capabilities
Project Status	Project Ongoing
Project Title/Action	1B2: Purchase a multi-use Command Post Vehicle for use by Police and Fire units
Project Status	Delayed
Responsible Agency	City of Robbinsdale
OBJECTIVE: 1C: Update EOC	
Project Title/Action	1C1: Review current technology and make upgrades as necessary
Project Status	Anticipated completion date: March 2024
Project Title/Action	1C2: Provide ongoing training for EOC users
Project Status	Project Ongoing
Responsible Agency	City of Robbinsdale
OBJECTIVE: 2A: Put information on city website providing up-to-date disaster awareness information	
Project Title/Action	2A1: Create a page and/or links on the city website related to disaster awareness and preparedness
Project Status	On-Schedule
Project Title/Action	2A2: Assign personnel to periodically update the website to ensure accurate and up-to-date information is available to citizens
Project Status	On-Schedule
Responsible Agency	City of Robbinsdale
OBJECTIVE: 3A: Reducing Phosphorus in Crystal Lake	
Project Title/Action	3A1: Ensure newly installed Flocculation Plant is fully operational and reducing Phosphorus according to plan and maintain a safe level
Project Status	Project Ongoing
Project Title/Action	3A2: Continue testing throughout year and tracking data
Project Status	Project Ongoing
Responsible Agency	City of Robbinsdale
OBJECTIVE: 4A: Monitor Burlington Northern Railway Blue Line Construction Project	
Project Title/Action	4A1: Attend meetings and engage Engineers and Designers of new system throughout the construction process
Project Status	Canceled
Responsible Agency	City of Robbinsdale
OBJECTIVE: 4B: Partner with Burlington Northern to understand what Hazmat controls and response would be needed once construction completed	
Project Title/Action	4B1: With chemicals being transported through the city. Create an “emergency action plan” with Burlington Northern using hazardous material release scenario
Project Status	Canceled
Responsible Agency	City of Robbinsdale

OBJECTIVE: 5A: Maintaining City Staff/Elected Officials that are aware of Emergency Management plans and procedures	
Project Title/Action	5A1: Require that all applicable city personnel receive training in current Emergency Management and FEMA practices
Project Status	Project Ongoing
Project Title/Action	5A2: Ensure that Disaster Plans are maintained, and applicable city personnel are familiar with them
Project Status	Project Ongoing
Project Title/Action	5A3: Provide information and instructions on how they can access or enroll in classes toward state certification
Project Status	Project Ongoing
Responsible Agency	City of Robbinsdale
OBJECTIVE: 6A: Maintain City Building Codes to ensure the most up-to-date and disaster resistant designs are used for future construction and renovations	
Project Title/Action	6A1: Require that applicable city engineers and inspectors receive adequate training in current building designs and renovation processes that provide enhanced disaster resistance
Project Status	On-Schedule
Project Title/Action	6A2: Assist Elected Officials/Department Heads in reviewing and implementing building codes that promote enhanced safety and integrity of structures
Project Status	On-Schedule
Responsible Agency	City of Robbinsdale
OBJECTIVE: 7A: Bury All Overhead Power Lines	
Project Title/Action	7A1: Work within the community and Xcel Energy to identify all power lines which could be buried to reduce significant power failures throughout the community
Project Status	On-Schedule
Responsible Agency	City of Robbinsdale

3.3.38. CITY OF ROCKFORD

Hennepin County - Rockford

Nestled along the banks of the Crow River on the edge of both Hennepin and Wright Counties, the City of Rockford offers some of the best of small-town living found in Minnesota. Located along Highway 55, just 30 miles west of Minneapolis, Rockford is home to over 4,500 residents and 467 businesses.. Wright County provides emergency services to Rockford with Hennepin County supporting Wright County.

City Website: https://www.cityofrockford.org/about





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	4,638
H.S. Diploma or More - % of Adults 25+ (2022)	94.8%
Bachelor's Deg. or More - % of Adults 25+ (2022)	40.5%
Households (2022)	1,810
Total Housing Units (2022)	1,810
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.0939095, -93.7469775
Area:	2.67 sq. miles
Area - Land only:	2.61 sq. miles (98%)
Area - Water only:	0.06 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1
- Partner with local agencies to enhance resident understanding of local hazards.

4 Mitigation Priority 2
- Assess flood related hazards within the community.

5 Mitigation Priority 3
- Coordinate with regional water districts to assess flood vulnerability.

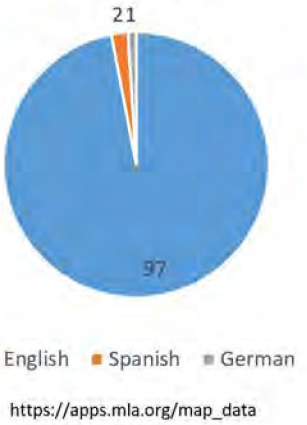
Vulnerability
- Monticello NPP: 15 Miles
- Bridges: 3

Capability
- Rockford Fire Department
- Public Works
- Wright County Sheriff
- Hennepin County Sheriff
- Parks and Recreation
- FCC Registered Amateur Radio Licenses: 6

Corporate/Employer
- Tractor Supply
- Rockford Public Schools

School District
- 883 Rockford

Language



https://apps.mla.org/map_data

2024 Rockford Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Enhance resident awareness.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Partner with local agencies to enhance resident understanding of local hazards.	Emergency Management	Personnel Time	Ongoing	Ongoing	1	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Assess flood related hazards within the community.	Emergency Management	Personnel Time	Ongoing	Ongoing	2	1, 6
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordinate with water districts.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Coordinate with regional water districts to assess flood vulnerability.	Emergency Management	Personnel Time	Ongoing	Ongoing	3	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects.							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Rockford 2018 – 2024 Mitigation Strategies Progress Report
No Prior Projects.

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3.3.39. CITY OF ROGERS

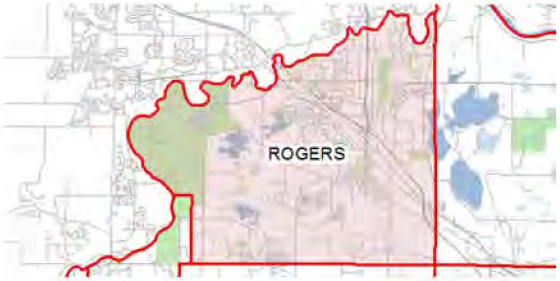
Hennepin County - Rogers

City Website: https://www.rogersmn.gov/

The City of Rogers is a vibrant and growing city on the edge of the Twin Cities Metropolitan area. Situated as a key gateway between the metro and Greater Minnesota, Rogers delivers the best combination of "big-city" access and amenities along with small-town character and wide-open spaces. Residents and visitors enjoy a unique mix of urban and rural residential neighborhoods, commercial shopping opportunities, and an important industrial employment center. Interstate 94 and Minnesota State Highway 101 are the main transportation routes for Rogers. The fire department is responsible for emergency management operations and functions within the community.



https://www.statsamerica.org/town/



Population density: 2,670 people per square mile (average).

Tornado activity: Rogers-area historical tornado activity is slightly above Minnesota state average. It is 21% greater than the overall U.S. average.

Earthquake activity: Rogers-area historical earthquake activity is significantly above Minnesota state average. It is 53% smaller than the overall U.S. average.

People & Housing	
Population Estimate (2022)	13,283
H.S. Diploma or More - % of Adults 25+ (2022)	97.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	52.3%
Households (2022)	4,406
Total Housing Units (2022)	4,647
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	45.192536, -93.590128
Area:	26.34 sq. miles
Area - Land only:	25.49 sq. miles (97%)
Area - Water only:	0.85 sq. miles (3%)

Hazard Mitigation Project Goal Priority Ranking Aid

1 Mitigation Priority 1
- Fill station for fire apparatus.

1 Mitigation Priority 2
- Reduce travel time to fill fire apparatus in our non-hydrant areas.

4 Mitigation Priority 3
- Conduct annual fire inspections – Tier 2 Facilities.

Vulnerability
- Monticello NPP: 14 Miles
- Functional Needs: 106
- Wellstead Senior Living
- Country Acres Mobile Home Park

Capability
- Law Enforcement
- Fire Department
- Public Works
- Parks and Recreation
- FCC Registered Amateur Radio Licenses: 33

Corporate/Employer
- Graco
- Bobcat
- Cabellas
- Medline

School District
- 278 Elk River

Language



https://apps.mla.org/map_data

Disaster History
16Sept06- F2 Tornado damaged 300 homes with 7 injuries/1 casualty over 10 Million in damages

Social Media: https://www.facebook.com/cityofrogers/

https://www.city-data.com/city/Rogers-Minnesota.html

2024 Rogers Mitigation Goals/Objectives/Actions/Status Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Storm Shelter							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Construct a shelter in a Senior Development Area	EM/PW	75K	5	Cancelled	Low	1, 5
1A2	Construct a shelter in the New South Community Park	EM/PW	75K	5	On going	Low	1, 5
1A3	Provide shelters for severe weather	EM/Fire/Police /PW	Staff Time	10	Ongoing	Low	1, 5
1A4	Approve construction documents	EM/PW	15K	1	Cancelled	Low	1
1A5	Construct storm shelters in existing parks and school field areas	EM/PW	400K	10	On Going	Low	1, 5
Objective 1B: Water Fill Station in the SW Quadrant of our City (Non-Hydrant area)							
1B1	Fill station for fire apparatus	EM/Fire/PW	100K	4	On going	1	1
1B2	Reduce travel time to fill fire apparatus in our non-hydrant areas	EM/Fire/PW	Staff Time	Continuously	On Going	2	1
1B3	Purchase land	EM/PW	15K	3	Cancelled	Low	1
1B4	Engineering study for well site	EM/PW	25K	1	Cancelled	Low	1

Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Become a Storm Ready Community	EM	5K	2	On-going	Low	1
2A2	Provide flood insurance education to community through various platforms	EM/Fire	1K	Continuous	On-going	Low	1, 5
2A3	Spread emergency management and preparedness messages across all community social media pages	EM/FIRE/PD/City	1K	Continuous	On-going	Low	1
2A4	Become Fire Wise community	EM/Fire	1K	5	On-going	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Identify historic and culturally impactful properties and areas within the community.	EM/PW	5K	5	On-Going	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Create a strategy to work with private industry and businesses to identify locations of hazardous materials							
Action	Description	Agency	Estimated	Estimated	Status	Priority	Funding

		Responsible	Cost	Timeline			Sources
4A1	Conduct annual fire inspections – Tier 2 Facilities	Fire	15K	Yearly	On-going	3	1
4A2	Conduct fire inspections and pre-plans of commercial and industrial occupancies at 1, 3, and 5 year benchmarks	Fire	15K	Yearly	On-going	Low	1
4A3	Implement hazardous materials operational permits	Fire	10K	Yearly	On-going	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Bi-Directional Amplifiers (BDA) Equipment							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Improve radio coverage in large buildings	EM	100K	5	Cancelled	Low	1
5A2	Improve radio coverage at the Rogers High School for REP	EM	20K	2	Cancelled	Low	1
5A3	Improve radio coverage in underground parking ramps and tunnels between buildings	EM	60K	3	Cancelled	Low	1
5A4	Meet with building owners on installing a BDA system	EM/Fire/Police	Staff Time	Ongoing	Cancelled	Low	1
5A5	BDA Engineer	EM	10K	1	Cancelled	Low	1
5A6	Meet with Hennepin County Dispatch on existing	EM/Fire/Police	Staff Time	Ongoing	Cancelled	Low	1

	radio coverage						
5A7	Improve radio coverage and reliability throughout the community	EM/Fire/Police	Varies	Continuously	On-going	Low	1
Objective 5B: Mass Emergency Notification System							
5B1	Distribute emergency messages via telephone	EM	9.5K	2	Cancelled	Low	1
5B2	Deliver pre-recorded messages from the National Weather Service	EM	3.5K	2	Cancelled	Low	1
5B3	Smart phone Code Red app	EM	$1/Year	Ongoing	Cancelled	Low	1
5B4	Promote the use of NOAA Weather Radios	EM	Staff Time	Ongoing	Cancelled	Low	1
5B5	Code Red Sales Engineer	EM/Fire/PD/PW	Staff Time	1	Cancelled	Low	1
5B6	Source and implement a mass emergency notification system through the Rogers Community	EM/Fire/PD/PW	7K	1	On-going	Low	1
Objective 5C: Severe Weather Siren Maintenance and Installation							
5C1	Install storm sirens to develop redundancy and coverage throughout the remainder of the community	EM	200K	10	On-going	Low	1
5C2	Update aging storm sirens to more modern technology and siren style	EM	125K	5	On-going	Low	1
5C3	Strengthen current siren maintenance by bird proofing poles and conducting annual	EM	75K	Continuously	On-going	Low	1

	inspections and maintenance						
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ordinance development							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Work to develop shoreland ordinance	CED	Staff time	2	On-going	Low	1
6A2	Consider and evaluate flood management plan	EM/CED/PW	Staff time	2	On-going	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Plan development							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Develop economic development plan	EM/CED	Staff Time	5	On-going	Low	1
7A2	Develop post disaster recovery plan	EM/CED/PW	Staff Time	5	On-going	Low	1
7A3	Develop CERT program	EM/Fire	35K	10	On-going	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Develop emergency management cache	EM	Staff time	Continuous	On-going	Low	1

8A2	Develop sheltering plan and identify additional sheltering locations	EM	Staff time	Continuous	On-going	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Assess wildfire risk of park district land	EM/Fire	Staff time	Continuous	On-going	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Develop continuity of operation plan	EM/City	Staff Time	5	On-going	Low	1

Rogers 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Storm Shelter	
Project Title/Action	1A1: Construct a shelter in a Senior Development Area
Project Status	Cancelled
Responsible Agency	EM/PW
Project Title/Action	1A2: Construct a shelter in the New South Community Park
Project Status	Ongoing
Responsible Agency	EM/PW
Project Title/Action	1A3: Provide shelters for severe weather
Project Status	Ongoing
Responsible Agency	EM/Fire/Police/PW
Project Title/Action	1A4: Approve construction documents
Project Status	Cancelled
Responsible Agency	EM/PW
Project Title/Action	1A5: Construct storm shelters in existing parks and school field areas
Project Status	Ongoing
Responsible Agency	EM/PW
OBJECTIVE: 1B: Water Fill Station in the SW Quadrant of our City (Non-Hydrant area)	
Project Title/Action	1B1: Fill Station for fire apparatus
Project Status	Ongoing
Responsible Agency	EM/Fire/PW
Project Title/Action	1B2: Reduce travel time to fill fire apparatus in our non-hydrant areas
Project Status	Ongoing
Responsible Agency	EM/Fire/PW
Project Title/Action	1B3: Purchase Land
Project Status	Cancelled
Responsible Agency	EM/PW
Project Title/Action	1B4: Engineering Study for well site
Project Status	Cancelled
Responsible Agency	EM/PW
OBJECTIVE: 5A: Bi-Directional Amplifiers (BDA) Equipment	
Project Title/Action	5A1: Improve radio coverage in large buildings
Project Status	Cancelled
Summary of Project	Large Buildings
Responsible Agency	EM
Project Title/Action	5A2: Improve radio coverage at the Rogers High School for REP
Project Status	Cancelled
Summary of Project	HS radio coverage
Responsible Agency	EM
Project Title/Action	5A3: Improve radio coverage in underground parking ramps and tunnels between buildings
Project Status	Cancelled
Summary of Project	Parking and Tunnels
Responsible Agency	EM
Project Title/Action	5A4: Meet with building owners on installing a BDA system
Project Status	Cancelled

Summary of Project	Building Owners
Responsible Agency	EM/Fire/Police
Project Title/Action	5A5: BDA Engineer
Project Status	Cancelled
Summary of Project	Engineer study
Responsible Agency	EM
Project Title/Action	5A6: Meet with Hennepin County Dispatch on existing radio coverage
Project Status	Cancelled
Summary of Project	Meet/Time with HCSO
Responsible Agency	EM/Fire/Police
OBJECTIVE: 5B: Code Red Emergency Notification System	
Project Title/Action	5B1: Distribute emergency messages via telephone
Project Status	Cancelled
Summary of Project	Alert Messages
Responsible Agency	EM
Project Title/Action	5B2: Deliver Pre-recorded messages from the National Weather Service
Project Status	Cancelled
Summary of Project	NWS Messages
Responsible Agency	EM
Project Title/Action	5B3: Smart phone Code Red app
Project Status	Cancelled
Summary of Project	Code Red Application renewal
Responsible Agency	EM
Project Title/Action	5B4: Promote the use of NOAA Weather Radios
Project Status	Cancelled
Summary of Project	NOAA radios
Responsible Agency	EM
Project Title/Action	5B5: Code Red Sales Engineer
Project Status	Cancelled
Summary of Project	Sales Engineer
Responsible Agency	EM/Fire/PD/PW

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3.3.40. CITY OF SAINT ANTHONY

Hennepin County - St. Anthony

St. Anthony shares a boundary between both Ramsey (39.4% land) and Hennepin (60.6% land) counties. The City is a "first-ring" suburb of Minneapolis and as such is part of the metropolitan area. It is located 5 miles northeast of downtown Minneapolis and eight miles northwest of downtown St. Paul. St. Anthony was also the name of the older twin city of Minneapolis, located across from downtown Minneapolis on the east bank of the Mississippi River. Minneapolis and St. Anthony merged in 1872. St. Anthony has a total area of 2.4 square miles and is easily accessible via I-35W, I-694, and Minnesota State Highway 10.

Population density: 3,950 people per square mile (average).

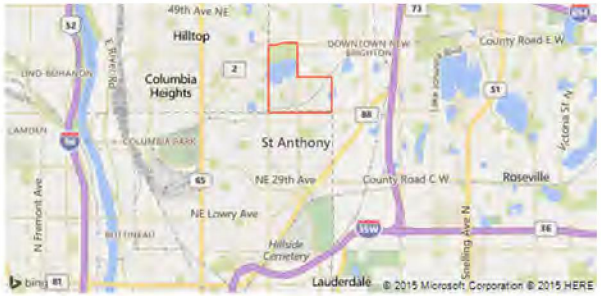
Tornado activity: St. Anthony-area historical tornado activity is slightly above Minnesota state average. It is 28% greater than the overall U.S. average.

Earthquake activity: St. Anthony-area historical earthquake activity is significantly above Minnesota state average. It is 56% smaller than the overall U.S. average.

City Website: https://www.savmn.com/



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	9,332
H.S. Diploma or More - % of Adults 25+ (2022)	97.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	59.0%
Households (2022)	4,022
Total Housing Units (2022)	4,205
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.9%

Latitude/Longitude:	45.03 N, 93.22 W
Area:	2.37 sq. miles
Area - Land only:	2.25 sq. miles
Area - Water only:	0.12 sq. miles

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Replacement of undersized storm sewer piping; this action allows the city to increase the amount of rainwater removed that may cause flooding and aids in prevention of structural damage

10 Mitigation Priority 2 (10A1)
- Expand 800 MHz Communication Capabilities of PW and Admin to ensure lines of communications in an emergency

1 Mitigation Priority 3 (1G1)
- nstall battery backup systems at all signalized intersections

Vulnerability
- Monticello NPP: 34 Miles
- Functional Needs: 314
- Bridges: 2

Capability
- Fire Department
- Law Enforcement
- Parks and Recreation
- Ramsey County shares portion of city
- FCC Registered Amateur Radio Licenses: 4

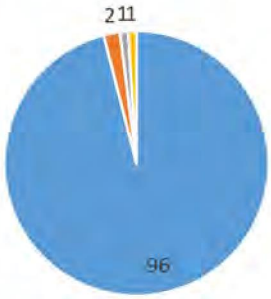
Corporate/Employer

School District
- 282 St. Anthony-New Brighton

Social Media:
https://www.facebook.com/CityofSAV
https://www.facebook.com/StAnthonyPolice
https://www.facebook.com/StAnthonyVillageFireDepartment
https://twitter.com/CityofStAnthony
https://twitter.com/StAnthonyPolice

https://www.city-data.com/city/St.-Anthony-Minnesota.html

Language



English Spanish Ukranian Chinese

https://apps.mla.org/map_data

2024 Saint Anthony Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Connect all city facilities to City Hall along with security system cameras and access key cards: develop the ability to provide a secure environment both from an entry access and visual standpoint of all city facilities from a central location. Facilities include water treatment plant, well houses, city hall, fire station, public works, park shelters/warming houses and storage garage.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Complete Fiber Optic Connections to all city facilities and infrastructure	ENG/PW	$150,000	Medium	In Progress	4	1
1A2	Expand card system able to be controlled through one central secure location	ENG/PW	$120,000	Long	In Progress	4	1
1A3	Expand camera system able to be controlled through one central location	ENG/PW	$180,000	Long	In Progress	4	1
Objective 1B: Provide traffic control upon signal failure: Obtain 50 temporary, portable stop signs							
1B1	Place reflective roll-up temporary stop signs with portable sign bases at all intersections with traffic signals as needed during a power outage	PW	$12,000	Medium	In Progress	Low	1
1B2	Provide neighboring municipalities with temporary stop signs by request during a power outage	PW	Staff Time	Medium	In Progress	Low	1
Objective 1C: Severe Weather/Tornado Occurrence: Develop safe policies, procedures, and facilities to reduce injuries and losses resulting from severe weather							
1C1	Annually review severe weather protocols and procedures with students, faculty, and staff	EM/ISD 282	Staff Time 10 hours	Short	In Progress	Low	1
1C2	Publish and publicize procedures and plans for orderly and safe shelter of the community as a distribution center and resource	EM/ISD 282	Staff Time 4 Hours	Medium	In Progress	Low	1
1C3	Develop facilities to serve community for emergency access for both summer and winter protection	EM/ISD 282	Staff Time 40 Hours	Long	Delayed	Low	1
Objective 1D: Dangerous Intruder Entry: Develop safe policies, procedures, and facilities to protect students, faculty, and staff in situations with dangerous intruders that have entered the campus							
1D1	Annually review emergency evacuation and protection protocols with faculty, staff, and emergency responders	EM/ISD 282	Staff Time 10 Hours	Short	In Progress	Low	1
1D2	Identify safe gathering and retreat locations protected as against intruders and unwanted campus entry	EM/ISD 282	Staff Time 10 Hours	Medium	In Progress	Low	1

1D3	Develop facilities to serve as retreat locations for safety and security of students, faculty and staff.	EM/ISD 282	Staff Time 40 Hours	Long	Delayed	Low	1
Objective 1E: Destruction of primary emergency infrastructure and facilities: Develop contingency plans to ensure secure remote command center for local emergency responders in case of destruction or incapacity of primary facilities or infrastructure							
1E1	Annually review protocols and responsibility shifting if critical infrastructure fails with local stakeholders at school, city, county, state, and federal levels as necessary	EM/ISD 282	Staff Time 16 Hours	Short	In Progress	2	1
1E2	Identify and construct contingency facilities capable of serving and supporting critical infrastructure upon failure of primary facilities	EM/ISD 282	Staff Time	Long	Delayed	2	1
Objective 1F: Prevent inflow and infiltration into sanitary sewer, prevent sanitary sewer system backups							
1F1	Replace sanitary sewer pipe, manholes, and service pipe. This allows the city to provide sanitary sewer capability and reduce the risk of sewer backups	ENG	$185,000/ YR	4 Years	In Progress	Low	1, 4
Objective 1G: Provide safe intersections for motorists and pedestrians							
1G1	Install battery backup systems at all signalized intersections	ENG/PW	$90,000	3 Years	Delayed	3	1
Objective 1H: Increase fire flow capacity of water main, provide sufficient water to the public							
1H1	Replacement of water main pipe, hydrants, and service pipe	ENG	$90,000	Annually	Ongoing	5	1, 4
1H2	Complete utility interconnect at Roseville Water Connection	ENG	$125,000	Short	Delayed	5	1, 4
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Protect the City's municipal water supply from contamination							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Continue implementation of wellhead protection plan document, public education, and outreach, and implement projects identified in wellhead protection plan	ENG/PW	$25,000	4 years	In Progress	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

3A1	Continue implementation of stormwater BMP's to protect watershed in the area.	PW	Undetermined	Short	Ongoing	Low	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: School Campus: Identify ongoing concerns and risks facing facilities and spaces and identify critical infrastructure							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Annually review procedures with interested persons including police, fire, medical regarding enhanced risks and concerns	ISD 282	Staff hours: 10 hours annually	4 Months	Delayed	Low	1
4A2	Promulgate plans and contingencies to protect and support critical infrastructure and facilities	ISD 282	Staff hours: 10 hours annually	1 Month	Delayed	Low	1
4A3	Identify and develop backup and support facilities and infrastructure in case of failure or emergency use	ISD 282	Staff hours: 40 hours annually	1 Month	Delayed	Low	1
Objective 4B: Community Parks: Identify risks and issues preserving safety and security to users in parks and associated facilities shared by school district and city (LGUs)							
4B1	Annually review emergency protocols with emergency responders and critical school stakeholders.	ISD/EM/LE/ Fire	Staff hours: 10 hours annually	Annually	Ongoing	Low	1
4B2	Identify and develop safe gathering and retreat locations protected as against hazards including natural disaster or man-made emergencies	ISD/EM/LE/ Fire	Staff hours: 40 hours annually	Annually	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Coordinate resources in shared environments: Review and discuss coordination of responses in shared facilities and spaces							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

5A1	Determine line-of-command discussions and needs to alert protocol	ISD 282	Staff hours: 10 hours annually	Annually, short term	Delayed	Low	1
5A2	Develop and enhance facilities to serve multiple jurisdictional needs and uses	ISD 282	Staff hours: 40 hours annually	Annually, short term	Delayed	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Identify disaster-resistant components to new construction: In a fully developed community, determine design guidelines and facility needs required for Inclusion in construction and remodeling of existing facilities							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Identify best practices and procedures with police, fire, medical, and other interested parties for access, safety, and protection	ISD 282	Staff hours: 10 hours annually	Annually, short term	In Progress	Low	1
6A2	Determine novel multi-use facilities capable to serve multiple jurisdictional needs and priorities	ISD 282	Staff hours: 10 hours annually	Medium	Delayed	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Increase the amounts of storm water removed from surface grade during rain events							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Replacement of undersized storm sewer piping; this action allows the city to increase the amount of rainwater removed that may cause flooding and aids in prevention of structural damage	ENG/PW	$200,000	Ongoing	In Progress	1	1, 4, 5
Objective 7B: Provide for emergency functions at City Hall and neighboring municipalities							
7B1	Purchase a portable trailer mounted 300k Generator	PW	$150,000	Long	Complete	Low	1, 5
7B2	Configure separate circuit(s) for emergency functions	PW	$35,000	Long	Complete	Low	1, 4, 5
7B3	Provide neighboring municipalities the ability to use the portable trailer mounted generator during power outage	PW	Staff Time	Long	Complete	Low	1

Objective 7C: Locate and create facilities capable of providing protection against likely hazards: Identify and construct optimal safe structures to protect against probable hazards							
7C1	Identify and prioritize hazards likely to occur with police, fire, medical, and other interested parties for access, safety, and protection	ISD 282	Staff hours: 10 hours annually	Short	In Progress	Low	1
7C2	Construct a shared, multi-season, multiple-use shelter to maximize safety from and resulting after severe weather, unwanted intruders, or other emergency situations affecting the community and school facilities, that will serve multiple-jurisdictional needs and be available and accessible for use by local cities and the general public community in case of emergency situations occurring either inside or outside Central Park including as a remote operations center for emergency services in case of failure of primary critical infrastructure.	ISD 282	$1 million	1 Year	Delayed	Low	1, 5
Objective 7D: Prevent failure of control systems for water treatment facilities and municipal wells 3,4, & 5							
7D1	Upgrade SCADA System	ENG/PW	$100,000	2 years	Complete	Low	1
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
8A1	Expand city communications capabilities to include multiple languages	EM/Communications	Nominal; use of existing capabilities Staff hours: 10 hours annually	Short	Delayed	Low	1
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
9A1	Enhance Groundwater and well monitoring capabilities to ensure safe and adequate drinking water Levels	PW/ENG	$50,000	Short	In Progress	Low	1
9A2	Work with Hennepin County EM to expand MESONET to a monitoring site located in the city of St Anthony	EM	Staff Time	Short/Medium	In Progress	Low	1
9A3	Begin Climate Action Study and potential subsequent Climate Action Plan	Admin	Staff Time	Short	In Progress	Low	1
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
10A1	Expand 800 mhz Communication Capabilities of PW and Admin to ensure lines of communications in an emergency	EM/PW	$250,000	Short	Delayed	2	1

Saint Anthony 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Connect all city facilities to City Hall along with security system cameras and access key cards: develop the ability to provide a secure environment both from an entry access and visual standpoint of all city facilities from a central location. Facilities include water treatment plant, well houses, city hall, fire station, public works, park shelters/warming houses and storage garage.	
Project Title/Action	1A1: Complete Fiber Optic Connections to all city facilities
Project Status	Anticipated completion date: 2026
Project Title/Action	1A2: Expand card system able to be controlled through one central secure location
Project Status	Anticipated completion date: 2026
Project Title/Action	1A3: Expand camera system able to be controlled through one central location
Project Status	Anticipated completion date: 2026
Responsible Agency	Eng./PW
OBJECTIVE: 1B: Provide traffic control upon signal failure: Obtain 50 temporary, portable stop signs	
Project Title/Action	1B1: Place reflective roll-up temporary stop signs with portable sign bases at all intersections with traffic signals as needed during a power outage
Project Status	Anticipated completion date: 2025
Project Title/Action	1C2: Provide neighboring municipalities with temporary stop signs by request during a power outage
Project Status	Anticipated completion date: 2025
Responsible Agency	PW
OBJECTIVE: 1C: Severe Weather/Tornado Occurrence: Develop safe policies, procedures, and facilities to reduce injuries and losses resulting from severe weather	
Project Title/Action	1C1: Annually review severe weather protocols and procedures with students, faculty, and staff
Project Status	Delayed
Project Title/Action	1C2: Publish and publicize procedures and plans for orderly and safe shelter of the community as a distribution center and resource
Project Status	Delayed
Project Title/Action	1C3: Develop facilities to serve community for emergency access for both summer and winter protection
Project Status	Delayed
Responsible Agency	ISD
OBJECTIVE: 1D: Dangerous Intruder Entry: Develop safe policies, procedures, and facilities to protect students, faculty, and staff in situations with dangerous intruders that have entered the campus	
Project Title/Action	1D1: Annually review emergency evacuation and protection protocols with faculty, staff, and emergency responders
Project Status	Anticipated completion date: 2025
Project Title/Action	1D2: Identify safe gathering and retreat locations protected as against intruders and unwanted campus entry
Project Status	Delayed
Project Title/Action	1D3: Develop facilities to serve as retreat locations for safety and security of students, faculty, and staff
Project Status	Delayed
Responsible Agency	EM/ISD 282

OBJECTIVE: 1E: Destruction of primary emergency infrastructure and facilities: Develop contingency plans to ensure secure remote command center for local emergency responders in case of destruction or incapacity of primary facilities or infrastructure	
Project Title/Action	1E1: Annually review protocols and responsibility shifting if critical infrastructure fails with local stakeholders at school, city, county, state, and federal levels as necessary
Project Status	Delayed
Project Title/Action	1E2: Identify and construct contingency facilities capable of serving and supporting critical infrastructure upon failure of primary facilities
Project Status	Delayed
Responsible Agency	EM/ISD 282
OBJECTIVE: 1G: Prevent inflow and infiltration into sanitary sewer, prevent sanitary sewer system backups	
Project Title/Action	1F1: Replace sanitary sewer pipe, manholes, and service pipe. This allows the city to provide sanitary sewer capability and reduce the risk of sewer backups
Project Status	Anticipated completion date: 2037
Responsible Agency	Engineering
OBJECTIVE: 1H: Provide safe intersections for motorists and pedestrians	
Project Title/Action	1G1: Install battery backup systems at all signalized intersections
Project Status	Delayed
Responsible Agency	Eng./PW
OBJECTIVE: 1I: Increase fire flow capacity of water main, provide sufficient water to the public	
Project Title/Action	1H1: Replacement of water main pipe, hydrants, and service pipe
Project Status	Anticipated completion date: 2037
Project Title/Action	1H2: Complete utility interconnect at Roseville Water Connection
Project Status	Delayed
Responsible Agency	Engineering
OBJECTIVE: 2A: Protect the City's municipal water supply from contamination	
Project Title/Action	2A1: Continue implementation of wellhead protection plan document, public education, and outreach, and implement projects identified in wellhead protection plan
Project Status	On-Schedule
Responsible Agency	Eng./PW
OBJECTIVE: 4A: School Campus: Identify ongoing concerns and risks facing facilities and spaces and identify critical infrastructure	
Project Title/Action	4A1: Annually review procedures with interested persons including police, fire, medical regarding enhanced risks and concerns
Project Status	Delayed
Project Title/Action	4A2: Promulgate plans and contingencies to protect and support critical infrastructure and facilities
Project Status	Delayed
Project Title/Action	4A3: Identify and develop backup and support facilities and infrastructure in case of failure or emergency use
Project Status	Delayed
Responsible Agency	EM/ISD 282

OBJECTIVE: 4B: Community Parks: Identify risks and issues preserving safety and security to users in parks and associated facilities shared by school district and city (LGUs)	
Project Title/Action	4B1: Annually review emergency protocols with emergency responders and critical school stakeholders.
Project Status	Anticipated completion date: 2026
Project Title/Action	4B2: identify and develop safe gathering and retreat locations protected as against hazards including natural disaster or man-made emergencies.
Project Status	Delayed
Responsible Agency	ISD/EM/LE/Fire
OBJECTIVE: 5A: Coordinate resources in shared environments: Review and discuss coordination of responses in shared facilities and spaces	
Project Title/Action	5A1: Determine line-of-command discussions and needs to alert protocol
Project Status	Delayed
Project Title/Action	5A2: Develop and enhance facilities to serve multiple jurisdictional needs and uses
Project Status	Delayed
Responsible Agency	EM/ISD 282
OBJECTIVE: 6A: Identify disaster-resistant components to new construction: In a fully developed community, determine design guidelines and facility needs required for Inclusion in construction and remodeling of existing facilities	
Project Title/Action	6A1: Identify best practices and procedures with police, fire, medical, and other interested parties for access, safety, and protection
Project Status	Delayed
Project Title/Action	6A2: Determine novel multi-use facilities capable to serve multiple jurisdictional needs and priorities
Project Status	Delayed
Responsible Agency	EM/ISD 282
OBJECTIVE: 7A: Increase the amounts of storm water removed from surface grade during rain events	
Project Title/Action	7A1: Replacement of undersized storm sewer piping; this action allows the city to increase the amount of rainwater removed that may cause flooding and aids in prevention of structural damage
Project Status	Delayed
Responsible Agency	Eng./PW
OBJECTIVE: 7B: Provide for emergency functions at City Hall and neighboring municipalities	
Project Title/Action	7B1: Purchase a portable trailer mounted 300k Generator
Project Status	Complete
Project Title/Action	7B2: Configure separate circuit(s) for emergency functions
Project Status	Complete
Project Title/Action	7B3: Provide neighboring municipalities the ability to use the portable trailer mounted generator during power outage
Project Status	Complete
Responsible Agency	PW

OBJECTIVE: 7C: Locate and create facilities capable of providing protection against likely hazards: Identify and construct optimal safe structures to protect against probable hazards	
Project Title/Action	7C1: Identify and prioritize hazards likely to occur with police, fire, medical, and other interested parties for access, safety, and protection
Project Status	Anticipated completion date: 2026
Project Title/Action	7C2: Construct a shared, multi-season, multiple-use shelter to maximize safety from and resulting after severe weather, unwanted intruders, or other emergency situations affecting the community and school facilities, that will serve multiple-jurisdictional needs and be available and accessible for use by local cities and the general public community in case of emergency situations occurring either inside or outside Central Park including as a remote operations center for emergency services in case of failure of primary critical infrastructure.
Project Status	Delayed
Responsible Agency	ISD
OBJECTIVE: 7D: Prevent failure of control systems for water treatment facilities and municipal wells 3,4, & 5	
Project Title/Action	7D1: Upgrade SCADA System
Project Status	Complete
Summary of Project	Update; Redundant server is online, beginning in December 2023
Responsible Agency	Eng./PW

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3.3.41. CITY OF SAINT BONIFACIUS

Hennepin County - St. Bonifacius

The City of St. Bonifacius currently has its corporate boundaries surrounded by the City of Minnetrista. St. Bonifacius is close enough to Minneapolis and the first- and second-ring suburbs that many residents commute to jobs in those areas. The last five years have proven that infill development and redevelopment is a major source of real estate investment, and those opportunities are sure to benefit St. Bonifacius in the coming years assuming a continued strong economy. The City of St. Bonifacius is located 25 miles west of Minneapolis in the southwest corner of Hennepin County.

City Website: https://ci.st-bonifacius.mn.us/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	1,956
H.S. Diploma or More - % of Adults 25+ (2022)	97.2%
Bachelor's Deg. or More - % of Adults 25+ (2022)	34.6%
Households (2022)	801
Total Housing Units (2022)	856
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.4%

Latitude/Longitude:	44.903539, -93.7477605
Area:	1.06 sq. miles
Area - Land only:	1.06 sq. miles (100%)
Area - Water only:	0.00 sq. miles (0%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation Priority 1 (7A1)
- Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas

2 Mitigation Priority 2 (2A1)
- Increase awareness and knowledge of hazard mitigation principles and practices

3 Mitigation Priority 3 (3A1)
- Work with the local watersheds to continue to protect our lakes and streams for future water quality

Vulnerability
- Monticello NPP: 28 Miles

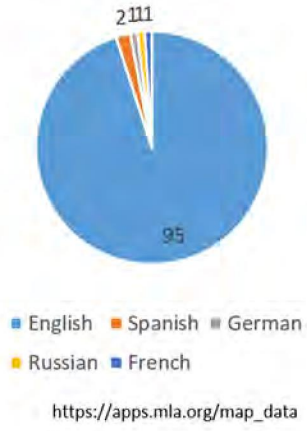
Capability
- Law Enforcement Minnetrista
- Fire Department
- CERT Program
- Police Chaplains Group
- FCC Registered Amateur Radio Licenses: 1

Corporate/Employer
- Crown College

6MAY1965- A category F4 tornado (wind Speeds of 207-260 mph) touched down 4.6 miles from the city center killing 3 and injuring 175 people causing 5-50 million in damages

School District
- 110 Waconia

Language



https://apps.mla.org/map_data

2024 Saint Bonifacius Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and update policies that discourage growth in flood-prone areas	City of St. Bonifacius	Staff Time	Ongoing	Ongoing	Low	1
1A2	Continue to participate in the National Flood Insurance Program	City of St. Bonifacius	Staff Time	Ongoing	Ongoing	Low	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Work with local agencies to promote hazard mitigation in local community							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Increase awareness and knowledge of hazard mitigation principles and practices	City of St. Bonifacius	Staff Time	Ongoing	Ongoing	2	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-Jurisdictional partnership to reduce runoff							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of St. Bonifacius	Cost for construction of holding ponds Design Construction	Ongoing	Ongoing	3	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A							
Action	Action	Action	Action	Action	Action	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of St. Bonifacius	Staff Time	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A							
Action	Action	Action	Action	Action	Action	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of St. Bonifacius	Plans Construction	Ongoing	Too Cost Prohibitive	1	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Saint Bonifacius 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and update policies that discourage growth in flood-prone areas
Project Status	In-Progress
Responsible Agency	City of St. Bonifacius
Project Title/Action	1A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	City of St. Bonifacius
OBJECTIVE: 2A: Work with local agencies to promote hazard mitigation in local community	
Project Title/Action	2A1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Summary of Project	Administration, Police Department
Responsible Agency	City of St. Bonifacius
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Summary of Project	Public Works Department, Watershed Districts
Responsible Agency	City of St. Bonifacius
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Summary of Project	Public Works, Planning Department
Responsible Agency	City of St. Bonifacius
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	In-Progress
Responsible Agency	City of St. Bonifacius

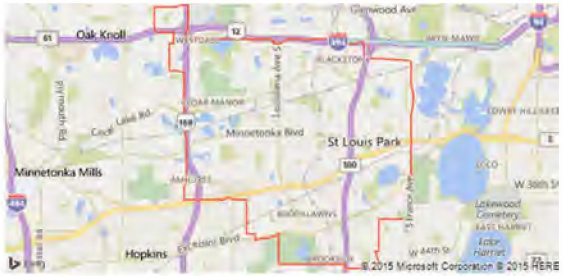
3.3.42. CITY OF SAINT LOUIS PARK

Hennepin County - St. Louis Park

City Website: https://www.stlouisparkmn.gov/

St. Louis Park is a "first-ring" city located immediately west of Minneapolis. The 1860s village that became St. Louis Park was originally known as Elmwood, which today is a neighborhood inside the city. St. Louis Park was incorporated into the Village of St. Louis Park on November 19, 1886. The name St. Louis Park was derived from the Minneapolis and St. Louis Railway that ran through the area. Interstate 394, U.S. Route 169, and State Highways 7 and 100 are the four main transportation routes in the city.





Population density: 4,593 people per square mile (average).

Tornado activity: St. Louis Park-area historical tornado activity is slightly above Minnesota state average. It is 30% greater than the overall U.S. average.

Earthquake activity: St. Louis Park-area historical earthquake activity is significantly above Minnesota state average. It is 55% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	49,500
H.S. Diploma or More - % of Adults 25+ (2022)	97.4%
Bachelor's Deg. or More - % of Adults 25+ (2022)	62.8%
Households (2022)	24,098
Total Housing Units (2022)	25,117
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.1%

Latitude/Longitude:	44.9490655, -93.369591
Area:	10.84 sq. miles
Area - Land only:	10.62 sq. miles (98%)
Area - Water only:	0.22 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

Mitigation Priority 1
- Improve storm water management planning.

Mitigation Priority 2
- Adopt policies to reduce storm water runoff

Mitigation Priority 3
- Coordinate with Minnehaha Watershed

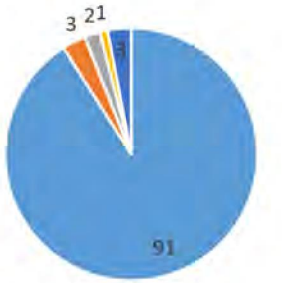
Vulnerability
- Monticello NPP: 32 Miles
- Functional Needs: 754
- Bridges: 69

Capability
- Law Enforcement
- Fire Department
- Parks and Recreation
- Public Works
- FCC Registered Amateur Radio Licenses: 5

Corporate/Employer
- Park Nicollet- 4500
- Japs Olson Printing- 600
- Travelers Express- 450
- Novartis- 400
- Benilde St. Margaret's School- 200

School District
- 283 St. Louis Park

Language



https://apps.mla.org/map_data

6MAY1965- A category F4 tornado (max wind Speeds 207-260 mph) touched down 2.5 miles from the city center killing 6 and injuring 158 causing 5-50 million dollars in damage

Social Media:
Facebook: https://www.facebook.com/stlouispark
Twitter: https://twitter.com/stlouispark

https://www.city-data.com/city/St.-Louis-Park-Minnesota.html

2024 Saint Louis Park Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Spring thaw and water bodies rising							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Improve storm water management planning	Emergency Management	Personnel Time	Complete	Complete	1	1
1A2	Adopt policies to reduce storm water runoff	Emergency Management	Personnel Time	Cancelled	Cancelled	2	1
1A3	Coordinate with Minnehaha Watershed	Emergency Management	Personnel Time	Ongoing	Ongoing	3	1
Objective 1B: Short term flooding from torrential rain							
1B1	Improve storm water management planning	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
1B2	Adopt policies to reduce storm water runoff	Emergency Management	Personnel Time	1 Year	Delayed	Low	1
1B3	Coordinate with Minnehaha Watershed	Emergency Management	Personnel Time	Complete	Complete	Low	1
Objective 1C: Unusual snow event							
1C1	Adopt and enforce building codes	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1C2	Protect buildings and infrastructure	Emergency Management	Personnel Time	Complete	Complete	Low	1
1C3	Protect power lines	Emergency Management	Personnel Time	Complete	Complete	Low	1
1C4	Reduce impact to roadways	Emergency Management	Personnel Time	Complete	Complete	Low	1
Objective 1D: Wind/Tornados							
1D1	Encourage safe rooms	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1D2	Require wind resistant building techniques	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1D3	Protect power lines	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 1E: Evacuation routes rail or hazardous materials							
1E1	Assess community risk	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 1F: Vulnerable populations							
1F1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
1F2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1

1F3	Assist vulnerable populations	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 1G: Severe cold, closed schools, impact on infrastructure							
1G1	Reduce the effects of the urban heat island effect	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1G2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1G3	Educate property owners on cold weather preparations	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 1H: Severe hot weather							
1H1	Reduce urban heat island effect	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1H2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
1H3	Manage cooling centers	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 1I: Lightning strikes							
1I1	Protect critical infrastructure	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 1J: Wild land urban interface							
1J1	Educate on the importance of maintaining debris and fuel loads close to structures	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 1K: Train derailment/crude oil, ethanol, or other hazardous materials							
1K1	Improve communications between rail companies and responders	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
1K2	Train for response and evacuation	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
1K3	Educate stakeholders in high-risk areas	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Public outreach – rail corridor							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2A2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2A3	Assist vulnerable populations	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1

2A4	Integrate mitigation into local planning	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 2B: Evacuation routes rail and hazardous materials							
2B1	Protect infrastructure and critical facilities	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2B2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2B3	Improve household disaster preparedness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 2C: Wind/Tornados							
2C1	Conduct tornado awareness activities	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2C2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2C3	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 2D: Power grid down interruption: address heat and cold conditions							
2D1	Protect infrastructure and critical facilities	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2D2	Reduce urban heat island effect	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2D3	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2D4	Protect power lines	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2D5	Assess back-up generator capacity	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2D6	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 2E: Vulnerable populations, lack of resiliency							
2E1	Improve household disaster preparedness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2E2	Increase hazard education and awareness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2E3	Assist vulnerable populations	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2E4	Assess vulnerable populations	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 2F: Warning notifications							
2F1	Assess community risk	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1

2F2	Assist vulnerable populations	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
2F3	Increase education and risk awareness	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 2G: Severe cold, close school, impact on infrastructure							
2G1	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2G2	Increase hazard education	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 2H: Severe hot weather							
2H1	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2H2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2H3	Improve household disaster preparedness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2H4	Assess cooling centers	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 2I: Lightning strikes							
2I1	Conduct lightning awareness programs	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2I2	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2I3	Improve household disaster preparedness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Objective 2J: Unusual snow event							
2J1	Conduct winter weather risk awareness activities	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2J2	Increase awareness of extreme temperature risk and safety	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2J3	Increase hazard education and risk awareness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
2J4	Improve household disaster preparedness	Emergency Management	Personnel Time	Cancelled	Cancelled	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Security of water supply							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Protect infrastructure and critical facilities	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 4B: Power grid down/interruption; address heat and cold issues							
4B1	-		Personnel Time	Ongoing	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Evacuation routes rail-hazardous materials							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Assess community risk	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A2	Map community risk	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A3	Adopt development regulations in hazard areas	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A4	Limit density in hazard areas	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A5	Protect structures	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
5A6	Protect infrastructure and critical facilities	Emergency Management	Personnel Time	Ongoing	Ongoing	Low	1
Objective 5B: Major city events and their impact on planning							
5B1	Assess community risk	Emergency Management	Personnel Time	Complete	Complete	Low	1
5B2	Map community risk	Emergency Management	Personnel Time	Complete	Complete	Low	1
5B3	Protect infrastructure and critical facilities	Emergency Management	Personnel Time	Complete	Complete	Low	1
Objective 5C: Civil disturbance							
5C1	Assess community risk	Emergency Management	Personnel Time	Complete	Complete	Low	1
5C2	Map community risk	Emergency Management	Personnel Time	Complete	Complete	Low	1
5C3	Protect critical infrastructure and critical facilities	Emergency Management	Personnel Time	Complete	Complete	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							

Objective 6A: Require fire sprinklers in all new construction							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Increase education and risk awareness	Emergency Management	Personnel Time	Complete	Complete	Low	1
6A2	Improve household disaster preparedness	Emergency Management	Personnel Time	Complete	Complete	Low	1
6A3	Assess community risk	Emergency Management	Personnel Time	Complete	Complete	Low	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Saint Louis Park 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Spring thaw and water bodies rising	
Project Title/Action	1A1: Improve storm water management planning
Project Status	Complete
Project Title/Action	1A2: Adopt policies to reduce storm water runoff
Project Status	Cancelled
Project Title/Action	1A3: Coordinate with Minnehaha Watershed
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 1B: Short term flooding from torrential rains	
Project Title/Action	1B1: Improve storm water management planning
Project Status	Ongoing
Project Title/Action	1B2: Adopt policies to reduce storm water runoff
Project Status	Delayed
Project Title/Action	1B3: Coordinate with Minnehaha Watershed
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1C: Unusual snow event	
Project Title/Action	1C1: Adopt and enforce building codes
Project Status	Cancelled
Project Title/Action	1C2: Protect buildings and infrastructure
Project Status	Complete
Project Title/Action	1C3: Protect power lines
Project Status	Complete
Project Title/Action	1C4: Reduce impacts to roadways
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 1D: Wind/Tornados	
Project Title/Action	1D1: Encourage safe rooms
Project Status	Cancelled
Project Title/Action	1D2: Require wind resistant building techniques
Project Status	Cancelled
Project Title/Action	1D3: Protect power lines
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 1E: Evacuation routes rail or hazardous materials	
Project Title/Action	1E1: Assess community risk
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 1F: Vulnerable Populations	
Project Title/Action	1F1: Improve household disaster preparedness
Project Status	Ongoing
Project Title/Action	1F2: Increase hazard education and risk awareness
Project Status	Ongoing
Project Title/Action	1F3: Assist vulnerable populations
Project Status	Ongoing

Responsible Agency	Emergency Management
OBJECTIVE: 1G: Severe cold, close schools, impact on infrastructure	
Project Title/Action	1G1: Reduce the effects of the urban heat island effect
Project Status	Cancelled
Project Title/Action	1G2: Increase awareness of extreme temperature risk and safety
Project Status	Cancelled
Project Title/Action	1G3: Educate property owners on cold weather preparations
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 1H: Severe hot weather	
Project Title/Action	1H1: Reduce urban heat island effect
Project Status	Cancelled
Project Title/Action	1H2: Increase awareness of extreme temperature risk and safety
Project Status	Ongoing
Project Title/Action	1H3: Manage cooling centers
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 1I: Lightning Strikes	
Project Title/Action	1I1: Protect critical infrastructure
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 1J: Wild land urban interface	
Project Title/Action	1J1: Educate on the importance of maintaining debris and fuel loads close to structures
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 1K: Train derailment/crude oil, ethanol, or other hazardous materials	
Project Title/Action	1K1: Improve communications between rail companies and responders
Project Status	Cancelled
Project Title/Action	1K2: Train for response and evacuation
Project Status	Ongoing
Project Title/Action	1K3: Educate stakeholders in high-risk areas
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 2A: Public outreach -rail corridor	
Project Title/Action	2A1: Improve household disaster preparedness
Project Status	Ongoing
Project Title/Action	2A2: Increase hazard education and risk awareness
Project Status	Ongoing
Project Title/Action	2A3: Assist vulnerable populations
Project Status	Ongoing
Project Title/Action	2A4: Integrate mitigation into local planning
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2B: Evacuation routes rail and Hazardous materials	
Project Title/Action	2B1: Protect infrastructure and critical facilities

Project Status	Cancelled
Project Title/Action	2B2: Increase hazard education and risk awareness
Project Status	Cancelled
Project Title/Action	2B3: Improve household disaster preparedness
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 2C: Wind/Tornado	
Project Title/Action	2C1: Conduct tornado awareness activities
Project Status	Cancelled
Project Title/Action	2C2: Increase hazard education and risk awareness
Project Status	Ongoing
Project Title/Action	2C3: Improve household disaster preparedness
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2D: Power grid down interruption: address heat and cold conditions	
Project Title/Action	2D1: Protect infrastructure and critical facilities
Project Status	Cancelled
Project Title/Action	2D2: Reduce urban heat island effect
Project Status	Cancelled
Project Title/Action	2D3: Increase awareness of extreme temperature risk and safety
Project Status	Cancelled
Project Title/Action	2D4: Protect power lines
Project Status	Cancelled
Project Title/Action	2D5: Assess back-up generator capacity
Project Status	Complete
Project Title/Action	2D6: Improve household disaster preparedness
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2E: Vulnerable populations, lack of resiliency	
Project Title/Action	2E1: Improve household disaster preparedness
Project Status	Ongoing
Project Title/Action	2E2: Increase hazard education and awareness
Project Status	Ongoing
Project Title/Action	2E3: Assist vulnerable populations
Project Status	Ongoing
Project Title/Action	2E4: Assess vulnerable populations
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 2F: Warning notifications	
Project Title/Action	2F1: Assess community risk
Project Status	Ongoing
Project Title/Action	2F2: Assist vulnerable populations
Project Status	Ongoing
Project Title/Action	2F3: Increase education and risk awareness
Project Status	Ongoing
Responsible Agency	Emergency Management

OBJECTIVE: 2G: Severe cold; close schools, impact on infrastructure	
Project Title/Action	2G1: Increase awareness of extreme Temperature risk and safety
Project Status	Cancelled
Project Title/Action	2G2: Increase hazard education
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 2H: Severe hot weather	
Project Title/Action	2H1: Increase awareness of extreme temperature risk and safety
Project Status	Cancelled
Project Title/Action	2H2: Increase hazard education and risk awareness
Project Status	Cancelled
Project Title/Action	2H3: Improve household disaster preparedness
Project Status	Cancelled
Project Title/Action	2H4: Assess cooling centers
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 2I: Lightning strikes	
Project Title/Action	2I1: Conduct lighting awareness programs
Project Status	Cancelled
Project Title/Action	2I2: Increase hazard education and risk awareness
Project Status	Cancelled
Project Title/Action	2I3: Improve household disaster preparedness
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 2J: Unusual snow event	
Project Title/Action	2J1: Conduct winter weather risk awareness activities
Project Status	Cancelled
Project Title/Action	2J2: Increase awareness of extreme temperature risk and safety
Project Status	Cancelled
Project Title/Action	2J3: Increase hazard education and risk awareness
Project Status	Cancelled
Project Title/Action	2J4: Improve household disaster preparedness
Project Status	Cancelled
Responsible Agency	Emergency Management
OBJECTIVE: 4A: Security of water supply	
Project Title/Action	4A1: Protect infrastructure and critical facilities
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 4B: Power grid down/interruption; address heat and cold issues	
Project Title/Action	4B1:
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 5A: Evacuation routes rail-hazardous materials	
Project Title/Action	5A1: Assess community risk
Project Status	Ongoing
Project Title/Action	5A2: Map community risk

Project Status	Ongoing
Project Title/Action	5A3: Adopt development regulations in hazard areas
Project Status	Ongoing
Project Title/Action	5A4: Limit density in hazard areas
Project Status	Ongoing
Project Title/Action	5A5: Protect structures
Project Status	Ongoing
Project Title/Action	5A6: Protect infrastructure and critical facilities
Project Status	Ongoing
Responsible Agency	Emergency Management
OBJECTIVE: 5B: Major city events and their impact on planning	
Project Title/Action	5B1: Assess community risk
Project Status	Complete
Project Title/Action	5B2: Map community risk
Project Status	Complete
Project Title/Action	5B3: Protect infrastructure and critical facilities
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 5C: Civil disturbance	
Project Title/Action	5C1: Assess community risk
Project Status	Complete
Project Title/Action	5C2: Map community risk
Project Status	Complete
Project Title/Action	5C3: Protect critical infrastructure and critical facilities
Project Status	Complete
Responsible Agency	Emergency Management
OBJECTIVE: 6A: Require fire sprinklers in all new construction	
Project Title/Action	6A1: Increase education and risk awareness
Project Status	Complete
Project Title/Action	6A2: Improve household disaster preparedness
Project Status	Complete
Project Title/Action	6A3: Assess community risk
Project Status	Complete
Responsible Agency	Emergency Management

3.3.43. CITY OF SHOREWOOD

Hennepin County - Shorewood

City Website: https://ci.shorewood.mn.us/

The City of Shorewood, once a part of Excelsior Township, was organized as a Village in 1956 and became a statutory city in 1974. The City sits on the shores of Lake Minnetonka and also somewhat surrounds the city of Excelsior. Minnesota State Highway 7 serves as the main transportation route to the city. Three islands—Enchanted, Shady and Spray—are included as part of Shorewood. Due to their access, these islands receive postal service, fire protection and educational services from the Mound area. Shorewood remains primarily residential, although there are now several businesses scattered throughout its boundaries.





Population density: 1,455 people per square mile (low).

Tornado activity: Shorewood-area historical tornado activity is slightly above Minnesota state average. It is 30% greater than the overall U.S. average.

Earthquake activity: Shorewood-area historical earthquake activity is significantly above Minnesota state average. It is 53% smaller than the overall U.S. average.

https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	7,722
H.S. Diploma or More - % of Adults 25+ (2022)	99.0%
Bachelor's Deg. or More - % of Adults 25+ (2022)	72.0%
Households (2022)	2,926
Total Housing Units (2022)	3,009
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.2%

Latitude/Longitude:	44.9302645, -93.573816
Area:	13.33 sq. miles
Area - Land only:	5.34 sq. miles (40%)
Area - Water only:	7.99 sq. miles (60%)

Hazard Mitigation Project Goal Priority Ranking Aid

6 Mitigation Priority 1 (6B1)
- Include language in building code recommending buried power lines

2 Mitigation Priority 2 (2A1)
- Achieve certification in the National Weather Service Storm Ready Program

2 Mitigation Priority 3 (2B1)
- Host annual severe weather awareness courses

Vulnerability
- Monticello NPP: 30 Miles
- Functional Needs: 4
- Bridges: 1

Capability
- Fire Department- Excelsior and Mound
- Law Enforcement- South Lake Minnetonka
- Police Chaplains Group
- Park and Recreation
- Family Support Services
- Facebook/Twitter
- FCC Registered Amateur Radio Licenses: 23

Corporate/Employer

School District
- 276 Minnetonka

Social Media:
Facebook
X (Twitter)
Nextdoor
Instagram

Language



https://www.city-data.com/city/Shorewood-Minnesota.html

2024 Shorewood Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in the National Weather Service Storm Ready Program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Achieve certification in the National Weather Service Storm Ready Program	SLMPD	Staff Time	3 Years	Ongoing	2	1
Objective 2B: Improve citizens understanding of available communications for notification of severe weather warnings.							
2B1	Host annual severe weather awareness courses	SLMPD	Staff Time	Ongoing	Ongoing	3	1
2B2	Host annual Skywarn course for local citizens and first responders	SLMPD	Staff Time	Ongoing	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Monitor Burlington Northern Railway Blue Line Construction Project							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A: Ensure building code compliance and inspections are conducted on new construction projects							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
6A1	Design and implement checklists with timelines for all new projects	Inspections	Staff Time	Ongoing	Ongoing	Low	1
Objective 6B: Encourage new or existing power lines to be buried for the reduction of future power outages							
6B1	Include language in building code recommending buried power lines	Planning	Staff Time	Ongoing	Ongoing	1	1
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Shorewood 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 2A: Achieve certification in the National Weather Service Storm Ready Program	
Project Title/Action	2A1: Achieve certification in the National Weather Service Storm Ready Program
Project Status	Ongoing
Responsible Agency	SLMPD
OBJECTIVE: 2B: Improve citizens understanding of available communications for notification of severe weather warnings	
Project Title/Action	2B1: Host annual severe weather awareness courses
Project Status	Ongoing
Project Title/Action	2B2: Host annual Skywarn course for local citizens and first responders
Project Status	Ongoing
Responsible Agency	SLMPD
OBJECTIVE: 6A: Ensure building code compliance and inspections are conducted on new construction projects	
Project Title/Action	6A1: Design and implement checklists with timelines for all new projects
Project Status	Ongoing
Responsible Agency	Inspections
OBJECTIVE: 6B: Encourage new or existing power lines to be buried for the reduction of future power outages	
Project Title/Action	6B1: Include language in building code recommending buried power lines
Project Status	Ongoing
Responsible Agency	Planning

3.3.44. CITY OF SPRING PARK

Hennepin County - Spring Park

Spring Park is unique in that the two largest sides of the City are on Lake Minnetonka lake shore fronting Spring Park Bay, West Arm and Black Lake. There are approximately 22,900 feet of shoreline (4.34 miles) in Spring Park. There are two parks in the City. Wilkes Park is located on Channel Road and Thor Thompson is located on Sunset Drive.

Presently, the City maintains 1.5 miles of City roads with the county maintaining 1.9 miles of road. Approximately 5.3 miles of water and sewer lines exist serving every parcel of land within the City.

The City employs three full-time employees and contracts most major services. The Orono Police Department and the Mound Fire Department service Spring Park. Also contracted are engineering, planning, public works, attorney, accounting, assessing, building inspection and snowplow services.

City Website: https://www.ci.spring-park.mn.us/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	1,919
H.S. Diploma or More - % of Adults 25+ (2022)	93.7%
Bachelor's Deg. or More - % of Adults 25+ (2022)	29.2%
Households (2022)	1,220
Total Housing Units (2022)	1,296
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	0.0%

Latitude/Longitude:	44.937347, -93.6304325
Area:	0.61 sq. miles
Area - Land only:	0.36 sq. miles (58%)
Area - Water only:	0.26 sq. miles (42%)

Hazard Mitigation Project Goal Priority Ranking Aid

7 Mitigation P1- (7A1)
- Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas

3 Mitigation P2- (3A1)
- Work with the local watersheds to continue to protect our lakes and streams for future water quality

5 Mitigation P3- (5A1)
- Continue to meet the State and Federal regulations with the protection plan

Vulnerability
- Bridges 3
- Functional Needs 373
- Monticello NPP: 27 miles

Capability
- Water Supply
- Law Enforcement- Orono
- Police Chaplains Group
- Fire
- Park and Recreation
- Solid Waste
- 1 FCC registered amateur radio license

Corporate/Employer

School District
- 277 Westonka

Language



Social Media: https://www.facebook.com/SpringParkMN/

https://apps.mla.org/map_data

2024 Spring Park Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review and update policies that discourage growth in flood-prone areas	City of Orono	Staff Time	2024-2028	Ongoing	5	1
1A2	Continue to participate in the National Flood Insurance Program	City of Orono	Staff Time	2024-2028	Ongoing	4	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Increase awareness and knowledge of hazard mitigation principles and practices	City of Orono	Staff Time	2024-2028	Ongoing	6	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A: Establish Multi-jurisdictional partnership to reduce runoff							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
3A1	Work with the local watersheds to continue to protect our lakes and streams for future water quality	City of Orono	20K	2024-2028	Ongoing	2	1
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A: Wellhead Protection Plan							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue to meet the State and Federal regulations with the protection plan	City of Orono	Staff Time	2024-2028	Ongoing	3	1

Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	City of Orono	100K	2024-2028	Ongoing	1	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action Item	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Spring Park 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Flooding: Develop a comprehensive approach to reducing the possibility of damage and losses due to flooding	
Project Title/Action	1A1: Review and update policies that discourage growth in flood-prone areas
Project Status	Ongoing
Project Title/Action	1A2: Continue to participate in the National Flood Insurance Program
Project Status	Ongoing
Responsible Agency	City of Orono
OBJECTIVE: 2A: Work with Chamber of Commerce, businesses, and other local agencies to promote hazard mitigation in local community	
Project Title/Action	2A1: Increase awareness and knowledge of hazard mitigation principles and practices
Project Status	Ongoing
Responsible Agency	City of Orono
OBJECTIVE: 3A: Establish Multi-Jurisdictional partnership to reduce runoff	
Project Title/Action	3A1: Work with the local watersheds to continue to protect our lakes and streams for future water quality
Project Status	Ongoing
Responsible Agency	City of Spring Park
OBJECTIVE: 5A: Wellhead Protection Plan	
Project Title/Action	5A1: Continue to meet the State and Federal regulations with the protection plan
Project Status	Ongoing
Responsible Agency	City of Spring Park
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	City of Spring Park

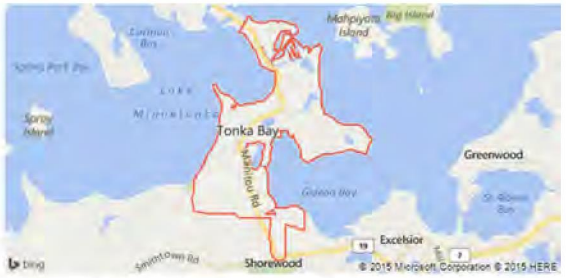
3.3.45. CITY OF TONKA BAY

Hennepin County - Tonka Bay

Tonka Bay was incorporated as a village on September 11, 1901. The city, which has an area of about one square mile, is located between the upper and lower bodies of Lake Minnetonka. It has more Minnetonka shoreline than any other city of its size. Tonka Bay made history long before 1901. In 1853, Peter Gideon staked out a claim of 160 acres in what is now Tonka Bay and where Gideon's Bay still bears his name. Gideon successfully propagated his first apples, "The Wealthy," named for his wife, before he died in 1899. There are two capital improvement projects taking place in 2023- the Manitou Road Watermain Replacement Project and the Street and Utility Improvements Project

City Website: https://www.cityoftonkabay.net/





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	1,462
H.S. Diploma or More - % of Adults 25+ (2022)	99.3%
Bachelor's Deg. or More - % of Adults 25+ (2022)	60.3%
Households (2022)	613
Total Housing Units (2022)	655
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	1.2%

Latitude/Longitude:	44.9146405, -93.587792
Area:	0.99 sq. miles
Area - Land only:	0.93 sq. miles (94%)
Area - Water only:	0.06 sq. miles (6%)

Hazard Mitigation Project Goal Priority Ranking Aid

4 Mitigation Priority 1 (4A5)
- Elevate Sunrise Avenue due to continual flooding

1 Mitigation Priority 2 (1A1)
- Encourage new or existing power lines to be buried for the reduction of future power outages

4 Mitigation Priority 3 (4A6)
- Elevate power supply/transformer above last known flood level along Woodpecker Ridge Road

Vulnerability
- Monticello NPP: 29 Miles

Capability
- Fire Department- Excelsior
- Law Enforcement- South Lake Minnetonka
- Police Chaplains Group
- FCC Registered Amateur Radio Licenses: 1
- Public Works

Corporate/Employer
- Tonka Bay Marina
- The Caribbean Marina
- Country Club Lanes

School District
- 276 Minnetonka

Language



https://apps.mla.org/map_data

Social Media:
Facebook: https://www.facebook.com/CityofTonkaBay/

2024 Tonka Bay Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Reduce future losses to power lines due to severe storms							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Encourage new or existing power lines to be buried for the reduction of future power outages	PW	Staff Time	Ongoing	Ongoing	2	1
Objective 1B: Reduce future losses to Lift Stations during storms							
1B1	Repair /reline all of Lift Station #7's lines	PW	15,000	2-5 yrs.	Ongoing	Low	1, 4, 5
1B2	Reduce future flooding around Lift Station #9 by elevating the grade	PW	5,000	2-5 yrs.	Ongoing	Low	1, 4, 5
1B3	Elevate land around Lift Station #1 & #2 above last known flood level near Woodpecker Ridge Road.	PW	9,000	2-5 yrs.	Ongoing	Low	1, 4, 5
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in the National Weather Service Storm Ready Program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Achieve certification in the National Weather Service Storm Ready Program	SLMPD	Staff Time	3 Years	Delayed	2	1
Objective 2B: Improve citizens understanding of available communications for notification of severe weather warnings							
2B1	Host annual severe weather awareness courses.	SLMPD	Staff Time	Ongoing	Ongoing	3	1
2B2	Host annual Skywarn course for local citizens and first responders	SLMPD	Staff Time	Ongoing	Ongoing	4	1
Objective 2C: Reduce the impact of flooding on private and public structures							
2C1	Encourage participation in the National Flood Insurance Program (NFIP)	PW	NA	Ongoing	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Reduce future losses due to flooding							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Extend Woodpecker Ridge Road on the south end to prevent flood water from getting into sewer manhole	PW	25,000	2-5 yrs.	Ongoing	Low	1, 4, 5
4A2	Elevate West Point Road & west Point Drive above last known flood level.	PW	55,000	2-5 yrs.	Ongoing	Low	1, 4, 5
4A3	Elevate crabapple Lane to the last known flood level	PW	15,000	2-5 yrs.	Ongoing	Low	1, 4, 5
4A4	Build a berm along Woodpecker Ridge Road due to continual flooding	PW	8,000	2-5 yrs.	Ongoing	Low	1, 4, 5
4A5	Elevate Sunrise Avenue due to continual flooding	PW	20,000	2-5 yrs.	Ongoing	1	1, 4, 5
4A6	Elevate power supply/transformer above last known flood level along Woodpecker Ridge Road	PW	5,000	2-5 yrs.	Ongoing	3	1, 4, 5
4A7	Identify and mitigate future sinkholes along Pleasant Park Road	PW	9,000	2-5 yrs.	Ongoing	Low	1
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources

None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Tonka Bay 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Reduce future losses to power lines due to severe storms	
Project Title/Action	1A1: Encourage new or existing power lines to be buried for the reduction of future power outages
Project Status	Ongoing
Responsible Agency	PW
OBJECTIVE: 1B: Reduce future losses to Lift Station during storms	
Project Title/Action	1B1: Repair/reline all of Lift Station #7's lines
Project Status	Ongoing
Project Title/Action	1B2: Reduce future flooding around Lift Station #9 by elevating the grade
Project Status	Ongoing
Project Title/Action	1B3: Elevate land around Lift Station #1 & #2 above last known flood level near Woodpecker Ridge Road
Project Status	Ongoing
Responsible Agency	PW
OBJECTIVE: 2A: Achieve certification in the National Weather Service Storm Ready Program	
Project Title/Action	2A1: Achieve certification in the National Weather Service Storm Ready Program
Project Status	Delayed
Responsible Agency	SLMPD
OBJECTIVE: 2B: Improve citizens understanding of available communications for notification of severe weather warnings	
Project Title/Action	2B1: Host annual severe weather awareness courses
Project Status	Ongoing
Project Title/Action	2B2: Host annual Skywarn course for local citizens and first responders
Project Status	Ongoing
Responsible Agency	SLMPD
OBJECTIVE: 2C: Reduce the impact of flooding on private and public structures	
Project Title/Action	2C1: Encourage participation in the National Flood Insurance Program (NFIP)
Project Status	Ongoing
Responsible Agency	PW
OBJECTIVE: 4A: Reduce future losses due to flooding	
Project Title/Action	4A1: Extend Woodpecker Ridge Road on the south end to prevent flood water from getting into sewer manhole
Project Status	Ongoing
Project Title/Action	4A2: Elevate West Point Road & West Point Drive above last known flood level
Project Status	Ongoing
Project Title/Action	4A3: elevate Crabapple Lane to the last known flood level
Project Status	Ongoing
Project Title/Action	4A4: Build a berm along Woodpecker Ridge Road due to continual flooding
Project Status	Ongoing
Project Title/Action	4A5: Elevate Sunrise Avenue due to continual flooding
Project Status	Ongoing

Project Title/Action	4A6: Elevate power supply/transformer above last known flood level along Woodpecker Ridge Road
Project Status	Ongoing
Project Title/Action	4A7: Identify and mitigate future sinkholes along Pleasant Park Road
Project Status	Ongoing
Responsible Agency	PW

3.3.46. CITY OF WAYZATA

Hennepin County - Wayzata

Wayzata is a small lakeside city in Hennepin County. The population was 4,434 at the 2020 census.[2] It is about 16 miles west of Minneapolis on the shores of Lake Minnetonka. Wayzata is known for its small-town character and quaint downtown area along the lake. A line of the BNSF Railway runs through town.. U.S. Route 12 serves as the main transportation route of the city.

City Website: www.wayzata.org



https://www.statsamerica.org/town/



People & Housing	
Population Estimate (2022)	4,365
H.S. Diploma or More - % of Adults 25+ (2022)	97.7%
Bachelor's Deg. or More - % of Adults 25+ (2022)	67.6%
Households (2022)	2,169
Total Housing Units (2022)	2,557
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	7.7%

Latitude/Longitude:	44.966787, -93.512716
Area:	3.16 sq. miles
Area - Land only:	3.08 sq. miles (98%)
Area - Water only:	0.08 sq. miles (2%)

Hazard Mitigation Project Goal Priority Ranking Aid

2 Mitigation Priority 1 (2A1)
- Achieve certification in National Weather Service StormReady program

1 Mitigation Priority 2 (1A3)
- Improve Community Notification Capabilities

2 Mitigation Priority 3 (2A2)
- Prepare Community Presentation on severe weather awareness

Vulnerability
- Bridges 19
- Functional Needs 130
- Rail Miles 3
- Monticello NPP: 27 miles

Capability
- Law Enforcement
- Police Chaplains Group
- Streets and Highways Department
- Park and Recreation Department
- Sewage
- Water Supply
- FCC Registered amateur radio licenses: 50

Corporate/Employer
- TC Bank Corporation
- Wayzata Medical Center
- Cargill

School District
- 284 Wayzata

Social Media:
Facebook.com/CityofWayzata
Facebook.com/WayzataPD

Language



https://apps.mla.org/map_data

2024 Wayzata Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A: Improve Community Notification Capabilities							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
1A1	Review available products and vendors offering notification systems	EM Director	Staff Time	2 years	On Schedule	Low	1
1A2	Implement “Next Door” program for neighborhood specific notifications.	EM Director	Staff Time	2 years	Cancelled	Low	1
1A3	Prepare Community Presentation on emergency response/notification	EM Director	Staff Time	2 years	Ongoing	2	1
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Achieve certification in National Weather Service StormReady program							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Meet requirements of the program	EM Director	Training time	2 years	Delayed	1	1
2A2	Prepare Community Presentation on severe weather awareness	EM Director	1K	2 years	Delayed	3	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A: Ensure water runoff choke points have adequate infrastructure to withstand flood							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
4A1	Inventory critical choke points and inspect and/or improve infrastructure	EM Director EM Coord	Unknown	2 years	On Schedule	4	1, 4, 6
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							
Objective 5A:							

Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury power lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas	EM Director EM Coord	Staff Time	Ongoing	On Schedule	5	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment.							
Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards.							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Wayzata 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 1A: Improve Community Notification Capabilities	
Project Title/Action	1A1: Review available products and vendors offering notification systems
Project Status	Anticipated completion date: 2026
Project Title/Action	1A2: Implement “Next Door” program for neighborhood specific notifications
Project Status	Complete
Project Title/Action	1A3: Prepare Community Presentation on emergency response/notification
Project Status	Anticipated completion date: 2025
Responsible Agency	Wayzata Police Department
OBJECTIVE: 2A: Achieve certification in National Weather Service StormReady program	
Project Title/Action	2A1: Meet requirements of the program
Project Status	Anticipated completion date: 2025
Project Title/Action	2A2: Prepare Community Presentation on severe weather awareness
Project Status	Anticipated completion date: 2025
Responsible Agency	EM Director
OBJECTIVE: 4A: Ensure water runoff choke points have adequate infrastructure to withstand flood	
Project Title/Action	4A1: Inventory critical choke points and inspect and/or improve infrastructure
Project Status	Anticipated completion date: 2026
Responsible Agency	EM Director EM Coord
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines that could be buried to reduce power failures in heavily populated areas
Project Status	Ongoing
Responsible Agency	EM Director EM Coord

3.3.47. CITY OF WOODLAND

Hennepin County - Woodland

Woodland is a community in Hennepin County with lake shore property on Lake Minnetonka. With fewer than 600 residents, Woodland is a Statutory City, with an elected Mayor and four City Council Members. The City is administered from the Deephaven City Hall by an appointed Clerk. Woodland contracts with the Deephaven Police and Wayzata Fire

City Website: woodlandmn.org





https://www.statsamerica.org/town/

People & Housing	
Population Estimate (2022)	562
H.S. Diploma or More - % of Adults 25+ (2022)	99.6%
Bachelor's Deg. or More - % of Adults 25+ (2022)	81.3%
Households (2022)	223
Total Housing Units (2022)	254
Percent of Total Units Vacant for Seasonal or Recreational Use (2022)	11.8%

Latitude/Longitude:	44.95018, -93.51618
Area:	0.57 sq. miles
Area - Land only:	0.53 sq. miles (93.5%)
Area - Water only:	0.04 sq. miles (6.5%)

Hazard Mitigation Project Goal Priority Ranking Aid

5 Mitigation Priority 1 (5A1)
- Continue affording the opportunity for City Staff to attend or join emergency management associations like Lakes Area Emergency Management Planning Group, MEMA (Metropolitan Emergency Managers Association) and AMEM (Association of Minnesota Emergency Managers)

2 Mitigation Priority 2 (2A2)
- Provide information to the public on the city website and through public education opportunities

7 Mitigation Priority 3 (7A1)
- Work with the community to identify power lines which could be buried to reduce power failures.

Vulnerability
- Bridges 19
- Functional Needs 130
- Rail Miles 3
- Monticello NPP: 28 miles

Capability
- Law Enforcement
- Streets and Highways Dept
- Park and Recreation Dept
- Sewage
- Water Supply

Corporate/Employer

School District
- 284 Wayzata

Language



https://apps.mla.org/map_data

2024 Woodland Mitigation Goals, Objectives, and Actions Update							
Goal 1: Minimize loss of life, injury, and damage to property, the economy, and the environment from natural hazards							
Objective 1A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 2: Increase education opportunities and outreach, and improve resident awareness of natural hazards and hazard mitigation							
Objective 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
2A1	Publicize and encourage the adoption of appropriate hazard mitigation actions	LE, City Staff	5K	Medium	In Progress	4	1
2A2	Provide information to the public on the city website and through public education opportunities	LE, City Staff	5K	Medium	In Progress	2	1
Objective 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions							
2B1	Participate as a member in local or regional hazard mitigation planning group	EM	Undetermined	Ongoing	Ongoing	Low	1
2B2	Support or provide the public sector events, workshop, symposium, and continued education opportunities	EM	Undetermined	Ongoing	Ongoing	Low	1
Goal 3: Protect Natural, Cultural, and Historic resources from future losses due to natural disasters							
Objective 3A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 4: Identify areas with greatest impact, vulnerability, and risk from natural hazards							
Objective 4A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 5: Enhance and improve coordination and communication between local, state, and federal levels of government, as well as businesses, Non-Governmental Organizations, and other private sector entities.							

Objective 5A: Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operations plan that can be utilized on a larger regional platform.							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
5A1	Continue affording the opportunity for City Staff to attend or join emergency management associations like Lakes Area Emergency Management Planning Group, MEMA (Metropolitan Emergency Managers Association) and AMEM (Association of Minnesota Emergency Managers)	LE, HCEM, State and Local Affiliates	20K	Long	Ongoing	1	1
5A2	Continue participation in multi-jurisdictional / multiagency tabletop, drill, and full-scale exercises	EM	Undetermined	Ongoing	Ongoing	Low	1
5A3	Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves	EM	Undetermined	Ongoing	Ongoing	Low	1
Goal 6: Promote disaster-resistant future development throughout the county by reconsidering future development in high-risk areas.							
Objective 6A:							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 7: Support local communities' capacity and ability to mitigate against natural disasters in becoming more resilient and sustainable.							
Objective 7A: Bury Power Lines							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
7A1	Work with the community to identify power lines which could be buried to reduce power failures	LE, City Staff, City Council, Zoning, Xcel Energy	500K	Long	Ongoing	3	1, 4, 5
Goal 8: Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.							
Objective 8A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 9: Mitigate against the potential impacts of climate change on local communities, the economy, and the environment							

Objective 9A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							
Goal 10: Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards							
Objective 10A							
Action	Description	Agency Responsible	Estimated Cost	Estimated Timeline	Status	Priority	Funding Sources
None							

Woodland 2018 – 2024 Mitigation Strategies Progress Report	
OBJECTIVE: 2A: Educate the public to increase awareness of hazards and opportunities for mitigation actions	
Project Title/Action	2A1: Publicize and encourage the adoption of appropriate hazard mitigation actions
Project Status	On-Schedule
Project Title/Action	2A2: Provide information to the public on the city website and through public education opportunities
Project Status	On-Schedule
Responsible Agency	LE, City Staff
OBJECTIVE: 2B: Promote partnerships between the state, counties, local jurisdictions, and partner agencies to identify, prioritize, and implement mitigation actions	
Project Title/Action	2B1: Participate as a member in local or regional hazard mitigation planning group
Project Status	On-Schedule
Project Title/Action	2B2: Support or provide the public sector events, workshop, symposium, and continued education opportunities
Project Status	On-Schedule
Responsible Agency	LE, City Staff
OBJECTIVE: 5A: Continue the promotion of partnerships with federal, state, and local entities to develop successful mitigation plans and operational strategies. Work towards a common comprehensive emergency operations plan that can be utilized on a larger regional platform	
Project Title/Action	5A1: Continue affording the opportunity for City Staff to attend or join emergency management associations like Lakes Area Emergency Planning Group, MEMA, and AMEM
Project Status	On-Schedule
Project Title/Action	5A2: Continue participation in multi-jurisdictional / multi-agency tabletop, drill, and full-scale exercises
Project Status	On-Schedule
Project Title/Action	5A3: Research and implement lessons learned from actual hazardous events from local, regional, and national jurisdictions to avoid probable mistakes from repeating themselves
Project Status	On-Schedule
Responsible Agency	LE, HCEM, State and Local Affiliates.
OBJECTIVE: 7A: Bury Power Lines	
Project Title/Action	7A1: Work with the community to identify power lines which could be buried to reduce power failures
Project Status	On-Schedule
Responsible Agency	LE, City Staff, City Council, Zoning, Xcel Energy

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3.3.48. HENNEPIN COUNTY EMERGENCY MANAGEMENT

A. Hennepin County Objectives and Actions

Goal 1	Minimize loss of life, injury, and damage to property, the economy, and the environment from natural and man-made hazards.
OBJECTIVES	**ACTIONS**
1A: Improve or Install sensor systems	1A1: Implementing monitoring mechanisms/procedures (i.e., visual inspection and the installation of electronic monitoring systems).
	1A2: Develop and maintain a countywide network of stream stage sensors designed to measure stream height and transmit data automatically.
	1A3: Install a network of remote sensors, which provide highly accurate, near real-time measurements of weather, soil and water conditions to help emergency leaders make critical public warning and tactical decisions.
	1A4: Install a countywide lightning detection system to warn populations participating in outdoor recreational activities such as parks, sports venues and outdoor special events.
	1A5: Install a network of Wet Bulb Globe (WBGT) sensors in order to enhance public warning messaging as well as protect human life and property.
	1A6: Install a network of freezing rain sensors that detect the presence of icing conditions so that appropriate actions can be taken to prevent damage to power and communication lines, transportation systems such as mass transit and to warn of road hazards.
1B: Assess, survey and recommend mitigation actions	1B1: Conduct landslide hazard analysis and assessment.
	1B2: Completing an inventory of locations where critical facilities, other buildings and infrastructure are vulnerable to landslides
	1B3: Elevating roads and bridges above the base flood elevation to maintain dry access.
1C: Improve conditions for At-Risk populations	1C1: Identifying specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.
1D: Improve flood resilience.	1D1: Using small construction projects such as walls and berms in areas that cannot be mitigated through non-structural activities. Additionally using materials on existing riverbanks for flood protection.

Goal 2	Increase education, outreach, and awareness.
OBJECTIVES	**ACTIONS**
2A: Improve public awareness and outreach	2A1: Developing and implementing a multi-hazard public awareness program.
	2A2: Conduct outreach activities to increase awareness of natural and man-made hazards that pose a risk to Hennepin County.

	2A3: Promote the use of National Oceanic and Atmospheric Administration (NOAA) weather radios.
	2A4: Conduct tornado/severe weather table-top drills for school districts within Hennepin County.
	2A5: Conduct winter weather table-top drills for school districts within Hennepin County.
	2A6: Support Severe Weather Awareness Week.
	2A7: Establishing an interactive website for educating the public on hazard mitigation and preparedness measures.

Goal 3	Identify areas of greatest impact from hazards.
OBJECTIVES	**ACTIONS**
3A: Develop partnerships, participate in programs and Identify various risks that need to be addressed not already documented	3A1: Develop and maintain a County Community Wildfire Protection Plan.
	3A2: Participate in the NFPA's Firewise Program.
	3A3: Develop a historic database of natural and man-made hazards that post a risk to Hennepin County.
	3A4: Identifying the most at-risk critical facilities and evaluating potential mitigation techniques.
	3A5: Develop and maintaining a database to track community vulnerability (i.e., exposure in known hazard areas).
3B: Improve Flood Risk Assessment	Specifically incorporating technology and procedure to better track high water marks, using GIS in conjunction with developed plans to aid in historical flood impact and analysis of future impact. Future mitigation projects may include reimplementation of a river gauge local to the confluence of the Minnesota and Mississippi rivers.

Goal 4	Build and support local capacity and commitment to become less vulnerable to hazards.
OBJECTIVES	**ACTIONS**
4A: Build disaster Cache	4A1: Develop a countywide disaster caches to build local capacity in the immediate aftermath of an incident/disaster.
4B: Improve Comprehensive Plans	4B1: Incorporating risk assessment and hazard mitigation principles into comprehensive planning efforts.
4C: Improve Recovery Plan	4C1: Developing a recovery plan to facilitate decision making following a hazard event/disaster.
4D: Map and Assess Vulnerability to Landlslides	4D1: Based on data and recommendations from the 2020 Hennepin County Landslide Hazard Atlas, the Fort Snelling area along the Mississippi River gorge is vulnerable to sudden landslides that are difficult to predict (p. 21). Systems and tools to monitor land movement, as well as better systems to log and share information on landslide hazards are possible mitigation projects. Specific areas along the Mississippi River gorge are identified in the Landslide Hazard Atlas.

	LS-3 Preventing Impacts to Roadways identifies implementing monitoring tools and stabilization measures along roadways to mitigate risk to landslides. The vulnerable areas along the Mississippi River Gorge in Hennepin County are predominantly traveled by trail, and areas can use these same mitigation measures along traveled routes

Goal 5	Enhance hazard mitigation coordination and communication with federal, state and local governments.
OBJECTIVES	**ACTIONS**
None	None

Goal 6	Promote disaster-resistant future development.
OBJECTIVES	**ACTIONS**
None	None

Goal 7	Build and support local capacity and commitment to become less vulnerable to hazards.
OBJECTIVES	**ACTIONS**
None	None

Goal 8	Identify mitigation strategies for underserved communities, vulnerable populations, and those with access and functional needs.
OBJECTIVES	**ACTIONS**
None	None

Goal 9	Mitigate against the potential impacts of climate change on local communities, the economy, and the environment.
OBJECTIVES	**ACTIONS**
None	None

Goal 10	Enhance and improve the capability, capacity, and reliability of community lifelines and critical infrastructure in becoming more resistant to failure and resilient to natural hazards.
OBJECTIVES	**ACTIONS**
None	None

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Section 4	Minnesota Mitigation Crosswalk

4.1 Minnesota Crosswalk – Local Hazard Mitigation Plan Review Tool

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).
2. The Plan Review Checklist summarizes FEMA's evaluation of whether the plan has addressed all requirements.

Plan Information	
Jurisdiction(s)	Hennepin County
Title of Plan	Hennepin County Multi-Jurisdiction Mitigation Plan
New Plan or Update	Update
Single or Multi-Jurisdiction	Multi-Jurisdiction
Date of Plan	January 15, 2024
Local Point of Contact	
Title	Bruce Kelii, Deputy Director of Emergency Management
Agency	Hennepin County Hennepin County
Address	1600 Prairie Drive, Medina, MN
Phone Number	
Email	Bruce.Kelii@Hennepin.US
Additional Point of Contact	
Title	Dalton Herding, Senior Planner
Agency	Hennepin County Emergency Management
Address	1600 Prairie Drive, Medina, MN
Phone Number	
Email	Dalton.Herding@Hennepin.US
Review Information	
State Review	
State Reviewer(s) and Title	
State Review Date	
FEMA Review	
FEMA Reviewer(s) and Title	
Date Received in FEMA Region	
Plan Not Approved	
Plan Approvable Pending Adoption	
Plan Approved	

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4.1.1 REGULATION CHECKLIST

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been "met" or "not met." FEMA completes the "required revisions" summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is "not met." Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

Element A: Planning Process

Element A Requirements	Location in Plan	Met / Not Met
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))		
A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan's development, as well as who was involved?	Volume 1, pages 15 - 25	
A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process?	Volume 1, pages 15 - 25	
A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))		
A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity?	Volume 1, page 21 - 22	
A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))		
A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan?	Volume 1, pages 31 - 32	
A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))		

A4-a. Does the plan document what existing plans, studies, reports, and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document?	Volume 1, pages 26 – 27, 59	
ELEMENT A REQUIRED REVISIONS		
Required Revision:		

Element B: Risk Assessment

Element B Requirements	Location in Plan	Met / Not Met
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))		
B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area?	Volume 2, page 5 - 7	
B1-b. Does the plan include information on the location of each identified hazard?	Volume 1, pages 93, and 100 Volume 2, pages Volume 2, pages 212 – 228	
B1-c. Does the plan describe the extent for each identified hazard?	Volume 2, pages 15, 20, 24, 30, 34, 40, 56, 73 – 74, 85, 99, 112, 129, 132, 143, 153, 159, 171, 188, 204	
B1-d. Does the plan include the history of previous hazard events for each identified hazard?	Volume 2, pages 15, 20, 25, 30 – 31, 34, 40 – 41, 56 - 58, 75 – 77, 86 – 91, 113 – 114, 120 – 125, 133 - 135, 144 - 145, 154, 159, 170 – 175, 187 – 194, 204 - 207	
B1-e. Does the plan include the probability of future events for each identified hazard? Does the plan describe the effects of future conditions, including climate change (e.g., long-term weather patterns, average temperature and sea levels), on the type, location and range of anticipated intensities of identified hazards?	Volume 2, pages 16, 20, 25 - 26, 31, 35, 41, 57, 77, 91 – 92, 102, 114, 126, 133, 135 – 136, 145 - 146, 154, 162 - 163, 175 – 176, 194 - 195, 207	
B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area?	N/A	
B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))		
B2-a. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards?	Volume 2, pages 13 - 209, 244 - 358	

B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction?	Volume 2, pages 13 – 15, 19 – 20, 23 – 24, 29 – 30, 33 – 34, 39, 54 – 56, 71 – 72, 82 – 84, 97 – 98, 110 – 112, 118 – 119, 131 – 132, 143, 151 – 152, 158, 168 – 170, 182 – 184, 201 – 203	
.B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods?	Volume 1, page 53 - 54	
ELEMENT B REQUIRED REVISIONS		
Required Revision:		

Element C: Mitigation Strategy

Element C Requirements	Location in Plan	Met / Not Met
C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))		
C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations?	Volume 1, pages 43 - 48	
C1-b. Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation?	Volume 1, page 43	
C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C2-a. Does the plan contain a narrative description or a table/list of their participation activities?	Volume 1, pages 49 - 52	
C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))		
C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan?	Volume 3, page 8	
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))		
C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment?	Volume 3, pages 14 - 322	
C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment?	Volume 3, pages 14 - 322	
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))		

C5-a. Does the plan describe the criteria used for prioritizing actions?	Volume 3, page 10	
C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame?	Volume 3, pages 12 - 322	
ELEMENT C REQUIRED REVISIONS		
Required Revision:		

Element D: Plan Maintenance

Element D Requirements	Location in Plan	Met / Not Met
D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))		
D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved?	Volume 1, pages 58 - 59	
D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))		
D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process?	Volume 1, page 56	
D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible.	Volume 1, page 56 - 57	
D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process?	Volume 1, pages 57 - 58	
D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))		
D3-a. Does the plan describe the process the community will follow to integrate the ideas, information, and strategy of the mitigation plan into other planning mechanisms?	Volume 1, page 59 – 61	
D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated?	Volume 1, page 59 - 61	

D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms?	Volume 1, page 59 - 61	
ELEMENT D REQUIRED REVISIONS		
Required Revision:		

Element E: Plan Update

Element E Requirements	Location in Plan	Met / Not Met
E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))		
E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved?	Volume 1, page 41, 114 - 118	
E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))		
E2-a. Does the plan describe how it was revised due to changes in community priorities?	Volume 3, pages 10 - 323	
E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan?	Volume 3, pages 14 - 323	
E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms?	Volume 1, page 59 - 61	
ELEMENT E REQUIRED REVISIONS		
Required Revision:		

Element F: Plan Adoption

Element E Requirements	Location in Plan	Met / Not Met
F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F1-a. Does the participant include documentation of adoption?	Volume 3, Appendices B and D Volume 1, Page 11	
F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))		
F2-a. Did each participant adopt the plan and provide documentation of that adoption?	Volume 3, Appendix D Volume 1, Page 11	
ELEMENT F REQUIRED REVISIONS		
Required Revision:		

Element G: High Hazard Potential Dams (Optional)

Element G Requirements	Location in Plan	Met / Not Met
No High Hazard Potential Dams Identified in Hennepin County		

Element H: Additional State Requirements (Optional)

Element H Requirements	Location in Plan	Met / Not Met
No Additional State Requirements Identified		

4.1.2. MULTI-JURISDICTIONAL SUMMARY SHEET

INSTRUCTIONS: Complete the Multi-jurisdiction Summary Spreadsheet by listing each participating jurisdiction which required Elements for each jurisdiction were 'Met' or 'Not Met'. Adoption resolutions may be tracked after the plan was reviewed by FEMA 'pending local adoption'. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

#	Jurisdiction Name	Jurisdiction Type (county/city)	Requirements Met (Y/N)				
			A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption
1	Bloomington	City	Y	Y	Y	Y	
2	Brooklyn Center	City	Y	Y	Y	Y	
3	Brooklyn Park	City	Y	Y	Y	Y	
4	Champlin	City	Y	Y	Y	Y	
5	Chanhassen	City	Y	Y	Y	Y	
6	Corocoran	City	Y	Y	Y	Y	
7	Crystal	City	Y	Y	Y	Y	
8	Dayton	City	Y	Y	Y	Y	
9	Deephaven	City	Y	Y	Y	Y	
10	Eden Prairie	City	Y	Y	Y	Y	
11	Edina	City	Y	Y	Y	Y	
12	Excelsior	City	Y	Y	Y	Y	
13	Fort Snelling	Unincorporated area	Y	Y	Y	Y	
14	Golden Valley	City	Y	Y	Y	Y	
15	Greenfield	City	Y	Y	Y	Y	
16	Greenwood	City	Y	Y	Y	Y	

#	Jurisdiction Name	Jurisdiction Type (county/city)	Requirements Met (Y/N)				
			A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption
17	Hanover	City	Y	Y	Y	Y	
18	Hopkins	City	Y	Y	Y	Y	
19	Independence	City	Y	Y	Y	Y	
20	Long Lake	City	Y	Y	Y	Y	
21	Loretto	City	Y	Y	Y	Y	
22	Maple Grove	City	Y	Y	Y	Y	
23	Maple Plain	City	Y	Y	Y	Y	
24	Medicine Lake	City	Y	Y	N	Y	
25	Medina	City	Y	Y	Y	Y	
26	Minneapolis	City	Y	Y	Y	Y	
27	Minnetonka Beach	City	Y	Y	Y	Y	
28	Minnetonka	City	Y	Y	Y	Y	
29	Minnetrista	City	Y	Y	Y	Y	
30	Mound	City	Y	Y	Y	Y	
31	New Hope	City	Y	Y	Y	Y	
32	Orono	City	Y	Y	Y	Y	
33	Osseo	City	Y	Y	Y	Y	
34	Plymouth	City	Y	Y	Y	Y	
35	Richfield	City	Y	Y	Y	Y	
36	Robbinsdale	City	Y	Y	Y	Y	

#	Jurisdiction Name	Jurisdiction Type (county/city)	Requirements Met (Y/N)				
			A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption
37	Rockford	City	Y	Y	Y	Y	
38	Rogers	City	Y	Y	Y	Y	
39	Shorewood	City	Y	Y	Y	Y	
40	Spring Park	City	Y	Y	Y	Y	
41	St. Anthony	City	Y	Y	Y	Y	
42	St. Bonifacius	City	Y	Y	Y	Y	
43	St. Louis Park	City	Y	Y	Y	Y	
44	Tonka Bay	City	Y	Y	Y	Y	
45	Wayzata	City	Y	Y	Y	Y	
46	Woodland	City	Y	Y	Y	Y	

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SECTION 5	ACRONYMS AND ABBREVIATIONS

5.1. Acronyms and Abbreviations

ADA	American Disabilities Act
ADT	Animal Disease Traceability
APHIS	Animal and Plant Health Inspection Service
CAPE	Convective Available Potential Energy
CDBG	Community Development Block Grant
CDC	Centers for Disease Control
CDFA	California Drug and Food Administration
CERT	Community Emergency Response Team
CFI	Critical Facilities Index
CFR	Code of Federal Regulation
COOP	Cooperative Observer Program
CPR	Cardiopulmonary Resuscitation
CRS	Community Rating Scheme
DMA	Disaster Mitigation Act of 2000
DPH	Department of Health
DNR	Department of Natural Resources
EDI	Emerging Disease Investigations
EF	Enhanced Fujita Scale
EID	Emerging Infectious Disease
EM	Emergency Manager
EML	Elevated Mixed Layer
EMRS	Emergency Management Response System
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FAD	Foreign Animal Disease
FBP	Forest Behavior Prediction
FEMA	Federal Emergency Management Administration
FMA	Flood Mitigation Assistance Program
FPI	Fire Potential Index
FWI	Fire Weather Index
GEOREF	Geographical Reference
GIS	Geographic Information System
GLS	Gray Leaf Spot
HACCP	Hazard Analysis Critical Control Point
HAZMAT	Hazardous Materials
HAZUS	Hazards United States
HAZUS-MH	Hazards United States- Multi Hazard
HCEM	Hennepin County Emergency Management
HEPA	High Efficiency Particulate Air
HMGP	Hazard Mitigation Grant Program
HSEM	Homeland Security Emergency Management- Minnesota
HWO	Hazardous Weather Outlook
ICS	Incident Command System
IFR	Interim Final Rule

IPCC	Intergovernmental Panel on Climate Change
LAT-LONG	Latitude and Longitude
MAP	Mitigation Action Plan
MD	Mesoscale Discussion
MEDSS	Minnesota Electronic Disease Surveillance System
MGRS	Military Grid Reference System
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
MNICS	Minnesota Incident Command System
MPRB	Minneapolis Parks and Recreation Board
MSP	Minneapolis/St. Paul
NAHERC	National Animal Health Emergency Response Corp
NAHSS	National Animal Health Surveillance System
NASA	National Aeronautics Space Administration
NDRF	National Disaster Recovery Framework
NFDRS	National Fire Danger Rating System
NFIP	National Flood Insurance Program
NHL	National Historic Landmarks
NIDIS	National Integrated Drought Information System
NIFC	National Interagency Fire Center
NPIC	National Preparedness and Incident Coordination Center
NVAP	National Veterinary Accreditation Program
NWS	National Weather Service
PDM	Pre-Disaster Mitigation Program
PIC	Preparedness and Incident Coordination
POD	Point of Dispensing
PRI	Priority Risk Index
REMPRC	Regional Emergency Management Planning Reference Collection
RF	Radio Frequency
RH	Relative Humidity
SBA	Small Business Administration
SMS	Situation Monitoring Station
SOP	Standard Operating Procedure
SPC	Storm Prediction Center
SPRS	Surveillance, Preparedness and Response Services
UC-ANR	University of California Agriculture and Natural Resources
USDA	US Dept. of Agriculture
USFA	United States Fire Administration
USNG	United States National Grid
UTC	Coordinated Universal Time
UTM	Universal Transverse Mercator
VS	Veterinary Services
VSMS	Vital Situation Monitoring Station
WBGT	Wet Bulb Globe Temperature
WEA	Wireless Emergency Alerts
WFAS	Wildland Fire Assessment System
WFO	Weather Forecast Office

SECTION 6	GLOSSARY

6.1. Terms

Multi-Jurisdictional Hazard Mitigation Plan- a countywide plan that identifies risks and ways to minimize damage by natural and manmade disasters. The plan is a comprehensive resource document that serves many purposes such as enhancing public awareness, creating a decision tool for management, promoting compliance with State and Federal program requirements, enhancing local policies for hazard mitigation capability, and providing inter-jurisdictional coordination.

Area Planning Group- One of four groups in Hennepin County divided by region that meet routinely to gather information, discuss issues, develop goals, prioritize goals, create approaches, prioritize approaches, and develop plans. Each step is necessary to the overall development and creation of the regional or jurisdictional plan.

Disaster Mitigation Act (DMA 2000)- is Public Law 106-390, also called DMA2K, is U.S. federal legislation passed in 2000 that amended provisions of the United States Code related to disaster relief. The amended provisions are named after Robert Stafford, who led the passage of the Stafford Disaster Relief and Emergency Assistance Act of 1988.

Hazard Mitigation Program Grant - to help communities implement hazard mitigation measures following a Presidential major disaster declaration. Hazard mitigation is any action taken to reduce or eliminate long term risk to people and property from natural hazards. The HMPG is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

Incident Action Plan- a written plan that defines the incident objectives and reflects the tactics necessary to manage an incident during an operational period.

Operational Period- An operational period is the period of time scheduled for executing a given set of operational actions. The length of the operational period is typically 12 to 24 hours.

Planning Team- A team whose members usually belong to different groups, functions and are assigned to activities for the same project.

Public Law 106-390- to establish a national disaster hazard mitigation program— (1) to reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters; and (2) to provide a source of pre-disaster hazard mitigation funding that will assist States and local governments (including Indian tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster.

Risk Assessment- is the determination of quantitative or qualitative estimate of risk related to a well-defined situation and a recognized threat (also called hazard assessment).

Social Media- are computer-mediated tools that allow people or companies to create, share, or exchange information, career interests, ideas, and pictures/videos in virtual communities and networks.

Steering Committee- a committee that provides guidance, direction and control to a project within an organization.

Vulnerability Assessment- the process of identifying, quantifying, and prioritizing (or ranking) the vulnerabilities in a system.

Whole Community- an approach to emergency management that reinforces the fact that FEMA is only one part of our nation's emergency management team; that we must leverage all the resources of our collective team in preparing for, protecting against, responding to, recovering from and mitigating against all hazards; and that collectively we must meet the needs of the entire community in each of these areas.

Working Group- is an *ad hoc* group of subject-matter experts working together to achieve specified goals.

Title 44 CFR Part 201- Identification name for Emergency Management and Assistance- specifically Mitigation Planning within the Code of Federal Regulation. (1)-The purpose of this part is to provide information on the policies and procedures for mitigation planning as required by the provisions of section 322 of the Stafford Act, 42 U.S.C. 5165. (2)-The purpose of mitigation planning is for State, local, and Indian tribal governments to identify the natural hazards that impact them, to identify actions and activities to reduce any losses from those hazards, and to establish a coordinated process to implement the plan, taking advantage of a wide range of resources.

SECTION 7	APPENDICES
APPENDIX A	APPLICABLE FEDERAL AND STATE REGULATIONS

A. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the Disaster Mitigation Act of 2000, provides the legal basis for state, tribal, and local governments to undertake risk-based approaches to reducing natural hazard risks through mitigation planning. Specifically, the Stafford Act requires state, tribal, and local governments to develop and adopt FEMA-approved hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance.

B. Another law relevant to hazard mitigation planning is the National Flood Insurance Act of 1968, as amended (42 U.S.C. § 4104c), which authorizes the Flood Mitigation Assistance (FMA) grant program with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA provides funding to states, territories, federally recognized tribes, and local communities for flood hazard mitigation projects, plan development, and management costs.

C. Title 44, Chapter 1, Part 201 (44 CFR Part 201) of the Code of Federal Regulations (CFR) contains requirements and procedures to implement the hazard mitigation planning provisions of the Stafford Act.

D. FEMA policies are external, authoritative statements that articulate the Agency's intent and direction to guide decision-making and achieve rational outcomes for Agency activities. The following mitigation planning guidance documents constitute FEMA's official policy on and interpretation of the hazard mitigation planning requirements in 44 CFR Part 201.
   - State Mitigation Plan Review Guide
   - Local Mitigation Plan Review Guide (English)
   - Tribal Multi-Hazard Mitigation Planning Guidance

Additional mitigation planning policies include:

- State Mitigation Plan Review Guide Policy (FP 302-094-2, March 6, 2015)
- Mitigation Planning (MT-PL) Memorandum #15: Local Mitigation Plan Review Guide (September 30, 2011)
- Mitigation Planning Memorandum (MT-PL) #1A: Implementation Procedures for States, Territories and Indian Tribal Governments Without an Approved State Mitigation Plan - Follow-up Guidance (Attachment) (May 2, 2005)
- Mitigation Planning Memorandum (MT-PL) #1: Disaster Declaration Procedures After May 1, 2005, for States Without an Approved State Mitigation Plan (April 13, 2005)

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APPENDIX B	HENNEPIN COUNTY BOARD OF COUNTY COMMISSIONERS ADOPTION F1a

STATE OF MINNESOTA

COUNTY OF HENNEPIN

CLERK TO THE COUNTY BOARD

I, Sheri Selton, Deputy Clerk to the County Board of the above named County, do hereby certify that I have compared the papers writing, to which this certificate is attached, with the original

Resolution No. 24-0035 adopted by the Hennepin County Board of Commissioners on February 2, 2024 as the same appears of record and on file in the said Clerk to the Board's office, at the Government Center in said Hennepin County, and find the same to be true and correct copy thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said County at the City of Minneapolis, this 22nd day of February A.D. 2024

Sheri Selton
Deputy Clerk to the County Board

HENNEPIN COUNTY
MINNESOTA

300 South Sixth Street
Minneapolis, MN
55487-0240

RESOLUTION

Board of Hennepin County Commissioners
RESOLUTION: 24-0035

At a meeting of the Board of Hennepin County Commissioners on 2/6/2024, a motion was made by Marion Greene, seconded by Kevin Anderson, that this Resolution be adopt. The motion passed.

WHEREAS, Hennepin County has participated in the hazard mitigation planning process as established under the federal Disaster Mitigation Act of 2000; and

WHEREAS, the Act establishes a framework for the development of a County Hazard Mitigation Plan; and

WHEREAS, the Act as requires public involvement and local coordination among neighboring local units of government and businesses in the assessment and planning process; and

WHEREAS, the Hennepin County Plan includes a risk assessment including county disaster history, an inventory of hazards that threaten the County, an estimate of infrastructure at risk, a general description of population, land use and development trends; and

WHEREAS, the Hennepin County Plan includes a mitigation strategy including goals and objectives and an action plan identifying specific mitigation projects and costs that will reduce disaster impacts; and

WHEREAS, the Hennepin County Plan includes a maintenance or implementation process including plan updates, integration of the plan into other planning documents and how Hennepin County will maintain public participation and coordination; and

WHEREAS, the Plan has been shared with the Minnesota Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency for review and comment; and

WHEREAS, this Hennepin County All-Hazard Mitigation Plan is multi-jurisdictional in scope and that cities that participated in the planning process may choose to adopt the County Plan and be included in eligibility to apply for federal mitigation grants.

Resolution:
BE IT RESOLVED, that the Hennepin County Board of Commissioners adopts the 2024 Hennepin County All-Hazard Mitigation Plan.

RESOLUTION ADOPTED ON 2/6/2024

The question was on the adoption of the resolution with the votes as follows:

Aye: 4 Commissioner Greene, Commissioner Conley, Commissioner Goettel, and Commissioner Anderson

File Number: 24-0035

Absent: 2 Commissioner Fernando, and Commissioner Lunde

Maria Rose M. Rose

Maria Rose

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APPENDIX C	FEMA APPROVAL

U.S. Department of Homeland Security
FEMA Region 5
536 S. Clark St. 6th Floor
Chicago, IL 60605

FEMA

May 2, 2024

Ms. Kristen Dellwo
Homeland Security and Emergency Management
Minnesota Department of Public Safety
444 Cedar Street, Suite 223
Saint Paul, MN 55101

Dear Ms. Dellwo:

The 2024 Hennepin County Multi-Jurisdictional Hazard Mitigation Plan was reviewed based on the local plan criteria contained in 44 CFR Part 201, as authorized by the Disaster Mitigation Act of 2000. The 2024 Hennepin County Multi-Jurisdictional Hazard Mitigation Plan met the required criteria for a multi-jurisdictional hazard mitigation plan and the plan is now approved for Hennepin County.

The expiration date of the 2024 Hennepin County Multi-Jurisdictional Hazard Mitigation Plan is five years from the date of this letter.

An approved local mitigation plan, including adoption by the local government, is one of the conditions for applying for and/or receiving FEMA mitigation grants from the following programs:

- Hazard Mitigation Grant Program (HMGP)
- HMGP Post-Fire
- Building Resilient Infrastructure and Communities
- Flood Mitigation Assistance

Having an approved mitigation plan does not mean that mitigation grant funding will be awarded. Specific application and eligibility requirements for the programs listed above can be found in each FEMA grant program's respective policies and annual Notice of Funding Opportunities, as applicable.

To avoid a lapsed plan, the next plan update must be approved before the end of the approval period, including adoption by the participating jurisdiction(s). Before the end of the approval period, please allow sufficient time to secure funding for the update, including the review and approval process. Please include time for any revisions, if needed, and for your jurisdiction to formally adopt the plan after the review, if not adopted prior to submission. This will enable you to remain eligible to apply for and receive funding from FEMA's mitigation grant programs with a mitigation plan requirement. Local governments, including special districts, with a plan status of "Approvable Pending Adoption" are not eligible for FEMA's mitigation grant programs with a mitigation plan requirement.

www.fema.gov

We look forward to discussing options for implementing this mitigation plan. If there are any questions from either you or the communities, please contact Meghan Cuneo at (202) 615-5294 or email at Meghan.cuneo@fema.dhs.gov.

Sincerely,

JOHN A WETHINGTON

Digitally signed by JOHN A WETHINGTON
Date: 2024.05.02 18:48:24 -05'00'

John Wethington
Chief, Risk Analysis Branch
Mitigation Division

APPENDIX D	MUNICIPAL AND LOCAL AGENCY ADOPTIONS F1a, F2a

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: N/A
BY: Mayor Graves

SUBJECT: Proclamation Recognizing Open Hands, Inc. for their 25th Anniversary on October 5, 2024

Requested Council Action:

Background:

Budget Issues:

Inclusive Community Engagement:

Antiracist/Equity Policy Effect:

ATTACHMENTS:

Description	Upload Date	Type
Proclamation	10/11/2024	Proclamation

PROCLAMATION RECOGNIZING OPEN HANDS, INC. FOR THEIR 25TH ANNIVERSARY ON OCTOBER 5, 2024

WHEREAS, Open Hands., Inc. is a small business in Brooklyn Center that owns two group homes for vulnerable adults; and

WHEREAS, Open Hands, Inc., goal and vision is to empower individuals with the skills necessary to become self-sufficient and live independently by providing daily living assistance and specialized care in a group home setting for individuals with a wide-array of needs; and

WHEREAS, Open Hands homes are staffed 24-hours a day to ensure that individuals receive the support needed, and are grateful for the opportunity to serve the Brooklyn Center community; and

WHEREAS, the longevity of Open Hand, Inc. has allowed then to work with numerous individuals, providing valuable experience in dealing with a wide range of personal needs, goals, and challenges; and

WHEREAS, Open Hands, Inc. empower individuals with skills they will need to live as independently as possible; and

WHEREAS, Open Hands, Inc. has successfully assisted many clients in developing the essential skills needed for self-sufficiency who have gone on to live independently and become productive members of society.

NOW, THEREFORE, I, April Graves, Mayor of the City of Brooklyn Center, do hereby recognizing Open Hands, Inc. for their 25th Anniversary on October 5, 2024.

October 14, 2024
Date

_____
Mayor

*ATTEST:*_____
City Clerk

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Jesse Anderson, Community Development Director
BY: Xiong Thao, Housing and Community Standard Manager

SUBJECT: Proposed Special Assessments for Nuisance Abatement Costs, Administrative Fines/Citations, Tall Grass and Weed Abatement Costs, Dead Disease Tree Abatement Costs, and Administratively Registered Vacant Properties

Requested Council Action:

- Motion to:
- *Open the public hearings concurrently;*
- *Take public input; and*
- *Close the public hearings.*

- Motion to Adopt Resolution Certifying Special Assessments for Administrative Citations to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Diseased Tree Removal Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Weed Removal Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Abatements Costs to the Hennepin County Property Tax Rolls

- Motion to Adopt Resolution Certifying Special Assessments for Administratively Registered Vacant Properties Costs to the Hennepin County Property Tax Rolls

Background:

Five (5) Public Hearings are scheduled for October 14, 2024 to consider certification of proposed special assessments. The Notice of Public Hearing was posted in the City's official newspaper, Sun Post, on September 26, 2024. All potentially affected property owners have been notified by certified mail of the date of the Public Hearing and the amount of the proposed special assessments. As of October 9, 2024, no formal appeal has not been made to City staff.

The following is a brief summary of the minimum process involved in City-facilitated abatements.

- Once a violation is verified or correction is identified, a written compliance notice is provided to the owner of record. In addition to notifying the owner of record, in certain cases, properties may be

posted or other responsible parties may be notified.

- A follow up inspection is conducted to verify that the property was brought into compliance with the code.
- If compliance has not been achieved, the city will send additional notices, or take corrective actions to remove the public nuisance or hazard, depending on the nature of the issue.
- In the case of an abatement, the city bills the owner of record for the portion of costs the city incurred directly related to the abatement action. A service charge is applied to help recover administrative costs associated with the abatement process such as time spent on inspections, notifications, invoicing, overhead, etc.
- The costs of the abatements are recorded as pending special assessments and this information is available to the public.
- When a property is sold, title companies, real estate agents, or other parties are obligated to conduct property searches to determine the pending and levied special assessment amounts. Payments of any pending or levied special assessment should be negotiated by the sellers and buyers as part of the sales transactions.

For administrative citations/fines, an appeal process is prescribed by City Ordinance Chapter 18. Information about the appeal process and timeframes is provided with the citation.

Vacant properties are administratively registered after the property has been posted and notice has been sent to the listed property owner prescribe by Ordinance section 12-1504. After several notices, the property is then administratively registered as a vacant building. The vacant building fee does not include the inspection cost of $195. That fee will be collected when the property owner requests to have the building inspected. All compliance orders must be completed before a Certificate of Re-Occupancy can be issued to the property owner.

Public Hearing Process
Staff recommends that the City Council conduct the hearings concurrently. The attached resolutions certifying the assessments to the Hennepin County tax rolls are provided for Council consideration upon closing of the Public Hearings.

If any additional property owner files an appeal with the City Clerk prior to the Public Hearing, or should any person appear at the hearing and object to an assessment, staff recommends that the Council refer any substantive objections to staff for a report back to the Council at a continued hearing to take place in two weeks. This would provide staff time to research the details of the items and assemble documentation for Council's consideration. If any assessments are removed from the proposed levy roll, it is recommended that the Council consider adopting the remaining proposed assessments.

If an appeal for a specific property is filed within district court, the City Attorney will advise the Council of options for handling the dispute and potential litigation issues.

Payment Options available to Property Owners
Once an assessment roll is adopted by the Council, the owner of each property has the following options:

1. Pay the entire amount of the special assessment, without interest, between October 14, 2024 and November 22, 2024.

2. If payments are made with property taxes, the first payment will be due with taxes in 2025. The total principal will be payable in annual installments for the period stated on the levy roll and as indicated below. Interest of 3.5 percent is accrued on the unpaid balance.

Nuisance Abatement Costs	One Year
Administrative Fines/Citations	One Year
Tall Grass and Weed Abatements	One Year
Administratively Register Vacant Buildings	One Year
Dead and Diseased Tree Abatements	Five Years

Partial prepayments:
Based on feedback from the City Council, staff had a discussion with Hennepin County Staff regarding partial payments. The County has stated that after an assessment is certified partial payments can't be accepted. However, they have granted Brooklyn Center permission to accept partial payments prior to the assessments being certified to Hennepin County.

The Certification occurs on December 1 annually. Therefore, any current assessment could allow for the assessment amount to be reduced with a partial payment prior to November 22, 2024.

Budget Issues:

These fees help recover some costs the City incurs related to services provided to specific properties. For accounting purposes, special assessments fees are included in the general fund as revenue. It is anticipated that these costs recovered through special assessments will be received in 2025, and are therefore included in the 2025 budget.

The levy roll for administrative fines/citation totals $164,350. ($183,050 - 2023 total).
The levy roll for weed destruction totals $17,661.25 ($10,223.75 - 2023 total)
The levy roll for dead/diseased tree removal totals $46,160.44. ($27,157 - 2023 total)
The levy roll for abatements totals $76,399.55 ($2,742 - 2023 total)
The levy roll for administratively registered vacant buildings totals $400.00 ($0 - 2023 total)
An updated list will be provided at the Council Meeting reflecting payments made by October 14, 2024.

Inclusive Community Engagement:

Antiracist/Equity Policy Effect:

Strategic Priorities and Values:

Maintain and enhance public places

ATTACHMENTS:

Description	Upload Date	Type
Public hearing notice	10/4/2024	Backup Material
Sun Post posting	10/4/2024	Backup Material

Resolutions	10/9/2024	Resolution Letter
Vacant Assessment Roll	10/9/2024	Backup Material
Tree Assessment Roll	10/9/2024	Backup Material
Nuisance Abatement Assessment Roll	10/9/2024	Backup Material
Administrative Citation Assessment Roll	10/9/2024	Backup Material
Weed Abatement Assessment Roll	10/10/2024	Backup Material

CITY OF BROOKLYN CENTER
NOTICE OF PUBLIC HEARING ON PROPOSED SPECIAL ASSESSMENTS

Notice is hereby given that the City Council of the City of Brooklyn Center, Minnesota, will meet in the Council Chambers of Brooklyn Center City Hall at 6301 Shingle Creek Parkway, on Monday, October 14, 2024 at 7 p.m. or as soon thereafter as the matter may be heard, to hear and pass upon any objections to the proposed assessments for the following:

DELINQUENT PUBLIC UTILITY ACCOUNTS

Special Assessments are proposed for public utility charges to those tracts or parcels where such charges were delinquent as of July 31, 2024, and, after due notice to the property owner, remain unpaid, pursuant to City Ordinances, Section 4-105 and Section 4-201.

DELINQUENT NUISANCE ABATEMENT ACCOUNTS

It is proposed to assess the costs of delinquent abatement costs to those tracts or parcels where, pursuant to City Ordinance Section 12-1101, 12-1206, 12-1504 and in accordance with MS 429 and 463.251, abatement procedures were performed by order of City Inspectors and the cost for such abatement remains unpaid.

DELINQUENT ADMINISTRATIVE FINES/CITATIONS

It is proposed to assess the costs of delinquent administrative fines/citations to those tracts or parcels where, pursuant to City Ordinance Section 18-204, 18-210 and in accordance with MS 429, delinquent administrative fines/citations were issued and the cost for such fines remains unpaid.

DISEASED TREE REMOVAL COSTS

It is proposed to assess the cost of diseased tree removal to those tracts or parcels where trees were removed by written agreement with the property owner or by order of the City Council pursuant to City Ordinances, Section 20-301 through 20-305 and in accordance with MS 429.

DELINQUENT WEED REMOVAL ACCOUNTS

It is proposed to assess the cost of noxious weed destruction to those tracts or parcels where, pursuant to City Ordinance Section 19-1601 through 19-1604 and in accordance with MS 429, noxious weeds were destroyed by order of the City Weed Inspector and the cost for such destruction remains unpaid.

UTILITY REPAIR COSTS

It is proposed to assess the cost of utility repairs to those tracts or parcels where, pursuant to City Ordinances, Section 04-201 through 04-305 service lines were repaired and the cost for such repairs remain unpaid.

DELINQUENT ADMINISTRATIVE VACANT BUILDING REGISTRATIONS

It is proposed to assess the cost of administratively registering vacant buildings to those tracts or parcels where, pursuant to City Ordinance Section 12-1504 and in accordance with MS 429,

administrative vacant building registration procedures were performed by order of the City Inspectors and the cost for such registration remains unpaid.

PROCEDURAL INFORMATION FOR OBJECTIONS TO SPECIAL ASSESSMENTS

An owner may appeal an assessment to district court pursuant to Minnesota Statutes, Section 429.081 by serving notice of the appeal upon the Mayor or City Clerk within 30 days after the adoption of the assessment and filing such notice with the district court within ten days after service upon the Mayor or City Clerk. No such appeal as to the amount of an assessment for a specific parcel of land may be made unless the owner has filed a written objection to that objection to that assessment, signed by the affected property owner, with the City Clerk prior to the hearing or has presented such a written objection to the presiding officer at the hearing.

These assessments are now on file at City Hall and open to public inspection. Written or oral objections to the proposed assessments will be considered at this meeting, but the City Council may consider any objection to the amount of a proposed individual assessment at an adjourned meeting upon such further notice to the affected property owners as it deems advisable.

AUXILIARY AIDS AVAILABLE UPON REQUEST

Auxiliary aids for persons with disabilities are available upon request at least 96 hours (4 days) in advance of the hearing. Please contact the City Clerk at 763-569-3300 to make arrangements.

Barbara Suciu, City Clerk
By order of the City Council

CITY OF BROOKLYN CENTER

NOTICE OF PUBLIC HEARING ON PROPOSED SPECIAL ASSESSMENTS

Notice is hereby given that the City Council of the City of Brooklyn Center, Minnesota, will meet in the Council Chambers of Brooklyn Center City Hall at 6301 Shingle Creek Parkway, on Monday, October 14, 2024 at 7 p.m. or as soon thereafter as the matter may be heard, to hear and pass upon any objections to the proposed assessments for the following:

DELINQUENT PUBLIC UTILITY ACCOUNTS

Special Assessments are proposed for public utility charges to those tracts or parcels where such charges were delinquent as of July 31, 2024, and, after due notice to the property owner, remain unpaid, pursuant to City Ordinances, Section 4-105 and Section 4-201.

DELINQUENT NUISANCE ABATEMENT ACCOUNTS

It is proposed to assess the costs of delinquent abatement costs to those tracts or parcels where, pursuant to City Ordinance Section 12-1101, 12-1206, 12-1504 and in accordance with MS 429 and 463.251, abatement procedures were performed by order of City Inspectors and the cost for such abatement remains unpaid.

DELINQUENT ADMINISTRATIVE FINES/CITATIONS

It is proposed to assess the costs of delinquent administrative fines/citations to those tracts or parcels where, pursuant to City Ordinance Section 18-204, 18-210 and in accordance with MS 429, delinquent administrative fines/citations were issued and the cost for such fines remains unpaid.

DISEASED TREE REMOVAL COSTS

It is proposed to assess the cost of diseased tree removal to those tracts or parcels where trees were removed by written agreement with the property owner or by order of the City Council pursuant to City Ordinances, Section 20-301 through 20-305 and in accordance with MS 429.

DELINQUENT WEED REMOVAL ACCOUNTS

It is proposed to assess the cost of noxious weed destruction to those tracts or parcels where, pursuant to City Ordinance Section 19-1601 through 19-1604 and in accordance with MS 429, noxious weeds were destroyed by order of the City Weed Inspector and the cost for such destruction remains unpaid.

UTILITY REPAIR COSTS

It is proposed to assess the cost of utility repairs to those tracts or parcels where, pursuant to City Ordinances, Section 04-201 through 04-305 service lines were repaired and the cost for such repairs remain unpaid.

DELINQUENT ADMINISTRATIVE VACANT BUILDING REGISTRATIONS

It is proposed to assess the cost of administratively registering vacant buildings to those tracts or parcels where, pursuant to City Ordinance Section 12-1504 and in accordance with MS 429, administrative vacant building registration procedures were performed by order of the City Inspectors and the cost for such registration remains unpaid.

PROCEDURAL INFORMATION FOR OBJECTIONS TO SPECIAL ASSESSMENTS

An owner may appeal an assessment to district court pursuant to Minnesota Statutes, Section 429.081 by serving notice of the appeal upon the Mayor or City Clerk within 30 days after the adoption of the assessment and filing such notice with the district court within ten days after service upon the Mayor or City Clerk. No such appeal as to the amount of an assessment for a specific parcel of land may be made unless the owner has filed a written objection to that objection to that assessment, signed by the affected property owner, with the City Clerk prior to the hearing or has presented such a written objection to the presiding officer at the hearing.

These assessments are now on file at City Hall and open to public inspection. Written or oral objections to the proposed assessments will be considered at this meeting, but the City Council may consider any objection to the amount of a proposed individual assessment at an adjourned meeting upon such further notice to the affected property owners as it deems advisable.

AUXILIARY AIDS AVAILABLE UPON REQUEST

Auxiliary aids for persons with disabilities are available upon request at least 96 hours (4 days) in advance of the hearing. Please contact the City Clerk at 763-569-3300 to make arrangements.

/s/ Barbara Suciu
Barbara Suciu, City Clerk
By order of the City Council

Published in the
Sun Post
September 26, 2024
1422630

Member introduced the following resolution and moved its adoption:

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR DISEASED TREE REMOVAL COSTS TO THE HENNEPIN COUNTY TAX ROLLS

WHEREAS, the City of Brooklyn Center has caused the removal of trees on certain properties within the City during 2024 under the authority of Minnesota Statutes, Section 18G.13, City Ordinance Section 20-301 through 20-306 and/or by written agreement with the owners of such property; and

WHEREAS, on October 14, 2024, certain tree removal costs remained unpaid; and

WHEREAS, an assessment roll for unpaid accounts during 2024, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where tree removal costs are to be assessed, together with the amounts proposed to be assessed to each property; and

WHEREAS, Minnesota State Statute authorizes the certification of delinquent tree removal costs to the County tax rolls for collection; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessment for tree removal costs.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota that:

1. The special assessment roll of tree removal costs incurred during the year 2024 is hereby adopted and certified as Levy No. 25049.

2. The special assessments as adopted and confirmed shall be payable in equal annual installments with interest thereon at 3.5 percent per annum, extending over a period of five years. The first of the installments shall be payable with ad valorem taxes in 2025, and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025. To each subsequent installment when due shall be added interest for one year on all unpaid installments.

3. The owner of any property so assessed may at any time prior to the certification of the assessment to the County Auditor pay the whole of the

assessment, to the City, without interest, if the entire assessment is paid on or before November 22, 2024. After November 22, 2024, he or she may pay the total special assessment, plus interest. Interest will accumulate from December 1, 2024 through the date of payment. Such payment must be made by the close of business November 22, 2024 or interest will be charged through December 31 of the succeeding year.

4. The City Clerk shall forthwith transmit a certified duplication of this assessment to the County Auditor to be extended on the proper tax lists of the county and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereon said resolution was declared duly passed and adopted.

Member introduced the following resolution and moves its adoption:

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR WEEDS AND TALL GRASS REMOVAL COSTS TO THE HENNEPIN COUNTY TAX ROLLS

WHEREAS, the City of Brooklyn Center has caused noxious weeds and tall grass to be cut down on properties within the City under the authority of Minnesota Statutes Section 18.78 and City Ordinance Section 19-1601 through 19-1604; and

WHEREAS, on October 14, 2024, certain weed destruction accounts for removal of said weeds and tall grass costs remained unpaid; and

WHEREAS, an assessment roll for unpaid accounts from 2024, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where unpaid weed destruction account costs are to be assessed to each property; and

WHEREAS, Minnesota State Statute authorizes the certification of delinquent weed destruction accounts to the County tax rolls for collection; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessment for weed destruction costs.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota that:

1. The special assessment roll of unpaid weed destruction accounts incurred during the year 2024 is hereby adopted and certified as Levy No. 25047.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes in 2024, in one annual installment with interest thereon at 3.5 percent per annum and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025.

3. The owner of any property so assessed may at any time prior to the certification of the assessment to the County Auditor pay the whole of the assessment, to the City Treasurer, without interest, if the entire assessment is paid on or before November 22, 2024. After November 22, 2024, he or she may pay the total special assessment, plus interest. Interest will accumulate from December 1, 2024 through the date of payment. Such payment must be made by the close of business November 22, 2024 or interest will be charged through December 31 of the succeeding year.

RESOLUTION NO. _____

4. The City Clerk shall forthwith transmit a certified duplication of this assessment to the County Auditor to be extended on the proper tax lists of the county and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereon said resolution was declared duly passed and adopted.

Member introduced the following resolution and moved its adoption:

RESOLUTION NO. _____

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR NUISANCE ABATEMENT COSTS TO THE HENNEPIN COUNTY TAX ROLLS

WHEREAS, the City of Brooklyn Center has caused abatement removal on certain properties within the City from September 16, 2023 thru September 17, 2024 under the authority of City Ordinance Section 12-1504 and 19-105 and Minnesota Statutes, Section 429 and/or by written agreement with the owners of such property; and

WHEREAS, on October 14, 2024, certain abatement accounts remained unpaid; and

WHEREAS, an assessment roll for unpaid accounts from September 16, 2023 thru September 17, 2024, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where abatement costs are to be assessed, together with the amounts proposed to be assessed to each property; and

WHEREAS, Minnesota State Statute authorizes the certification of delinquent abatement accounts to the County tax rolls for collection; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessment for abatement costs.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota that:

1. The special assessment roll of abatement costs incurred from September 16, 2023 thru September 17, 2024 is hereby adopted and certified as Levy No. 25048.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes in 2025, in one annual installment with interest thereon at 3.5 percent per annum and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025.

3. The owner of any property so assessed may at any time prior to the certification of the assessment to the County Auditor pay the whole of the assessment, to the City Treasurer, without interest, if the entire assessment is paid on or before November 22, 2024. After November 22, 2024, he or she may pay the total special assessment, plus interest. Interest will accumulate from December 1, 2024 through the date of payment. Such payment must be made by the close of business November 23, 2024 or interest will be charged through December 31 of the succeeding year.

RESOLUTION NO. _____

4. The City Clerk shall forthwith transmit a certified duplication of this assessment to the County Auditor to be extended on the proper tax lists of the county and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereon said resolution was declared duly passed and adopted.

Member introduced the following resolution and moved its adoption:

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR ADMINISTRATIVE FINES/CITATION COSTS TO THE HENNEPIN COUNTY TAX ROLLS

WHEREAS, the City of Brooklyn Center has caused Administrative Fines/Citation costs for certain properties within the City from September 16, 2024 thru September 17, 2024 under the authority of City Ordinance Section 18-204 and Minnesota Statutes, Section 429; and

WHEREAS, on October 14, 2024, certain Administrative Fines/Citation costs remained unpaid; and

WHEREAS, an assessment roll for unpaid accounts from September 16, 2023 thru September 17, 2024, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where Administrative Fines/Citation costs are to be assessed to each property; and

WHEREAS, City Ordinance Section 18-210 and Minnesota State Statute authorizes the certification of certain delinquent Administrative Fines/Citation accounts to the County tax rolls for collection; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessment for Administrative Fines/Citation costs.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota that:

1. The special assessment roll of Administrative Fines/Citation costs incurred from September 16, 2023 thru September 17, 2024 is hereby adopted and certified as Levy No. 25046.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes in 2025, in one annual installment with interest thereon at 3.5 percent per annum and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025.

3. The owner of any property so assessed may at any time prior to the certification of the assessment to the County Auditor pay the whole of the assessment, to the City Treasurer, without interest, if the entire assessment is paid on or before November 22, 2024. After November 22, 2024, he or she may pay the total special assessment, plus interest. Interest will accumulate from December1, 2024 through the date of payment. Such payment must be made by the close of business November 22, 2024 or interest will be charged through December 31 of the succeeding year.

RESOLUTION NO. _____

4. The City Clerk shall forthwith transmit a certified duplication of this assessment to the County Auditor to be extended on the proper tax lists of the county and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereon said resolution was declared duly passed and adopted.

Member introduced the following resolution and moved its adoption:

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR ADMINISTRATIVELY REGISTERED VACANT PROPERTIES COSTS TO THE HENNEPIN COUNTY TAX ROLLS

WHEREAS, the City of Brooklyn Center has caused administratively registered vacant properties on certain properties within the City from September 16, 2023 thru September 17, 2024 under the authority of City Ordinance Section 12-1504 and Minnesota Statutes, Section 429 and/or by written agreement with the owners of such property; and

WHEREAS, on October 14, 2024, certain administratively registered vacant property accounts remained unpaid; and

WHEREAS, an assessment roll for unpaid accounts from September 16, 2023 thru September 17, 2024, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where registered vacant property costs are to be assessed, together with the amounts proposed to be assessed to each property; and

WHEREAS, Minnesota State Statute authorizes the certification of vacant property registration accounts to the County tax rolls for collection; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessment for abatement costs.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota that:

1. The special assessment roll of administratively vacant building costs incurred from September 16, 2023 thru September 17, 2024 is hereby adopted and certified as Levy No. 25050.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes in 2025, in one annual installment with interest thereon at 3.5 percent per annum and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025.

3. The owner of any property so assessed may at any time prior to the certification of the assessment to the County Auditor pay the whole of the assessment, to the City Treasurer, without interest, if the entire assessment is paid on or before November 22, 2024. After November 22, 2024, he or she may pay the total special assessment, plus interest. Interest will accumulate from December 1, 2024 through the date of payment. Such payment must be made by the close of business November 23, 2024 or interest will be charged through December 31 of the succeeding year.

RESOLUTION NO. _____

4. The City Clerk shall forthwith transmit a certified duplication of this assessment to the County Auditor to be extended on the proper tax lists of the county and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereon said resolution was declared duly passed and adopted.

Amended Special Assessment Certified Roll (Administrative Vacant Building Registration)
September 13, 2023 to September 17, 2024 Administrative Vacant Building Registration
Printed October 09, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25050	5250 Ewing Ave N	10-118-21-12-0027	400.00	10.00	30.00	440.00
					Total:	**440.00**

Amended Special Assessment Certified Roll (Trees)
2024 Tree Removal
Printed October 09, 2024

Municipal Code No. 22

Levy Runs Five Years

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25049	5447 Emerson Ave N	01-118-21-33-0093	750.00	30.00	30.00	810.00
25049	2205 Brookview Dr	02-118-21-42-0049	900.00	30.00	30.00	960.00
25049	3600 53rd Ave N	03-118-21-43-0057	7,850.00	30.00	30.00	7,910.00
25049	6700 Quail Ave N	33-119-21-11-0087	7,321.17	30.00	30.00	7,381.17
25049	6728 Grimes Ave N	34-119-21-21-0019	3,050.00	30.00	30.00	3,110.00
25049	3006 63rd Ave N	34-119-21-41-0002	2,825.00	30.00	30.00	2,885.00
25049	2200 Freeway Blvd	35-119-21-13-0012	23,464.27	30.00	30.00	23,524.27
					Total:	**46,580.44**

Amended Special Assessment Certified Roll (Abatement)
September 13, 2023 to September 17, 2024 Abatement
Printed October 09, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25048	5607 Aldrich Ave N	01-118-21-31-0090	1,375.00	10.00	30.00	1,415.00
25048	5421 Girard Ave N	01-118-21-33-0055	675.00	10.00	30.00	715.00
25048	5447 Emerson Ave N	01-118-21-33-0093	1,859.50	10.00	30.00	1,899.50
25048	5951 Earle Brown Dr	02-118-21-12-0013	61,680.27	10.00	30.00	61,720.27
25048	6037 Brooklyn Blvd	03-118-21-12-0098	5,750.00	10.00	30.00	5,790.00
25048	6440 James Cir N	35-119-21-41-0008	2,477.28	10.00	30.00	2,517.28
					Total:	**74,057.05**

Amended Special Assessment Certified Roll (Admin Fines/Citations)
September 13, 2023 to September 17, 2024 Administrative Penalty/Citation
Printed October 09, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25046	6023 Lyndale Ave N	01-118-21-12-0031	1,500.00	10.00	30.00	1,540.00
25046	5919 Colfax Ave N	01-118-21-21-0022	3,500.00	10.00	30.00	3,540.00
25046	6019 Camden Ave N	01-118-21-21-0066	600.00	10.00	30.00	640.00
25046	5946 Colfax Ave N	01-118-21-21-0102	100.00	10.00	30.00	140.00
25046	5951 Emerson Ave N	01-118-21-22-0017	1,700.00	10.00	30.00	1,740.00
25046	6007 Girard Ave N	01-118-21-22-0083	2,800.00	10.00	30.00	2,840.00
25046	5914 Fremont Ave N	01-118-21-22-0093	185.00	10.00	30.00	225.00
25046	5700 Humboldt Ave N	01-118-21-23-0009	50.00	10.00	30.00	90.00
25046	5818 Emerson Ave N	01-118-21-23-0100	2,300.00	10.00	30.00	2,340.00
25046	5849 Colfax Ave N	01-118-21-24-0018	600.00	10.00	30.00	640.00
25046	5711 Camden Ave N	01-118-21-24-0105	200.00	10.00	30.00	240.00
25046	5637 Bryant Ave N	01-118-21-31-0011	60.00	10.00	30.00	100.00
25046	5603 Bryant Ave N	01-118-21-31-0035	300.00	10.00	30.00	340.00
25046	5544 Dupont Ave N	01-118-21-31-0082	2,600.00	10.00	30.00	2,640.00
25046	5607 Aldrich Ave N	01-118-21-31-0090	700.00	10.00	30.00	740.00
25046	806 55th Ave N	01-118-21-31-0150	100.00	10.00	30.00	140.00
25046	5556 Emerson Ave N	01-118-21-32-0010	900.00	10.00	30.00	940.00
25046	5637 Girard Ave N	01-118-21-32-0078	4,675.00	10.00	30.00	4,715.00
25046	5336 Girard Ave N	01-118-21-33-0011	300.00	10.00	30.00	340.00
25046	5337 Girard Ave N	01-118-21-33-0023	100.00	10.00	30.00	140.00
25046	5421 Girard Ave N	01-118-21-33-0055	100.00	10.00	30.00	140.00
25046	5444 Humboldt Ave N	01-118-21-33-0069	500.00	10.00	30.00	540.00
25046	1425 55th Ave N	01-118-21-33-0072	125.00	10.00	30.00	165.00
25046	5431 Emerson Ave N	01-118-21-33-0095	300.00	10.00	30.00	340.00
25046	5309 Emerson Ave N	01-118-21-33-0120	5,025.00	10.00	30.00	5,065.00
25046	5333 Dupont Ave N	01-118-21-33-0139	300.00	10.00	30.00	340.00
25046	5301 Dupont Ave N	01-118-21-33-0146	300.00	10.00	30.00	340.00
25046	5432 Bryant Ave N	01-118-21-34-0044	50.00	10.00	30.00	90.00
25046	5357 Colfax Ave N	01-118-21-34-0104	835.00	10.00	30.00	875.00
25046	5327 Bryant Ave N	01-118-21-34-0130	3,875.00	10.00	30.00	3,915.00
25046	5403 Bryant Ave N	01-118-21-34-0131	200.00	10.00	30.00	240.00
25046	5444 Camden Ave N	01-118-21-43-0047	50.00	10.00	30.00	90.00
25046	5930 Earle Brown Dr	02-118-21-12-0010	1,200.00	10.00	30.00	1,240.00
25046	5712 Logan Ave N	02-118-21-14-0006	250.00	10.00	30.00	290.00
25046	5724 James Ave N	02-118-21-14-0061	250.00	10.00	30.00	290.00
25046	5713 Humboldt Ave N	02-118-21-14-0071	1,200.00	10.00	30.00	1,240.00
25046	5931 Vincent Ave N	02-118-21-22-0038	1,475.00	10.00	30.00	1,515.00
25046	2312 Brookview Dr	02-118-21-31-0027	300.00	10.00	30.00	340.00
25046	1200 Shingle Creek Crossing	02-118-21-32-0018	700.00	10.00	30.00	740.00
25046	5307 Penn Ave N	02-118-21-34-0043	4,900.00	10.00	30.00	4,940.00
25046	5603 James Ave N	02-118-21-41-0059	700.00	10.00	30.00	740.00
25046	2118 Ericon Dr	02-118-21-42-0103	1,900.00	10.00	30.00	1,940.00
25046	5601 Logan Ave N	02-118-21-42-0120	8,500.00	10.00	30.00	8,540.00
25046	2006 55th Ave N	02-118-21-43-0077	300.00	10.00	30.00	340.00

Amended Special Assessment Certified Roll (Admin Fines/Citations)
September 13, 2023 to September 17, 2024 Administrative Penalty/Citation
Printed October 09, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25046	5400 Penn Ave N	02-118-21-43-0128	300.00	10.00	30.00	340.00
25046	5433 Knox Ave N	02-118-21-44-0018	700.00	10.00	30.00	740.00
25046	5431 James Ave N	02-118-21-44-0128	700.00	10.00	30.00	740.00
25046	6019 Brooklyn Blvd	03-118-21-12-0017	250.00	10.00	30.00	290.00
25046	5925 June Ave N	03-118-21-22-0022	100.00	10.00	30.00	140.00
25046	5805 Shores Dr	03-118-21-23-0027	6,600.00	10.00	30.00	6,640.00
25046	5811 Shores Dr	03-118-21-23-0030	200.00	10.00	30.00	240.00
25046	3715 58th Ave N	03-118-21-24-0059	350.00	10.00	30.00	390.00
25046	5833 Pearson Dr	03-118-21-24-0071	300.00	10.00	30.00	340.00
25046	5501 Xerxes Ave N	03-118-21-44-0033	125.00	10.00	30.00	165.00
25046	5130 Ewing Ave N	10-118-21-12-0042	300.00	10.00	30.00	340.00
25046	5049 Ewing Ave N	10-118-21-12-0077	300.00	10.00	30.00	340.00
25046	3321 50th Ave N	10-118-21-13-0013	500.00	10.00	30.00	540.00
25046	3416 50th Ave N	10-118-21-13-0032	10,150.00	10.00	30.00	10,190.00
25046	5019 Ewing Ave N	10-118-21-13-0040	700.00	10.00	30.00	740.00
25046	3616 50th Ave N	10-118-21-13-0051	2,800.00	10.00	30.00	2,840.00
25046	3607 50th Ave N	10-118-21-13-0059	3,700.00	10.00	30.00	3,740.00
25046	4110 Lakebreeze Ave	10-118-21-32-0071	6,600.00	10.00	30.00	6,640.00
25046	4207 Lakeside Ave 00131	10-118-21-32-0102	4,100.00	10.00	30.00	4,140.00
25046	4207 Lakeside Ave 00234	10-118-21-32-0146	125.00	10.00	30.00	165.00
25046	3601 47th Ave N	10-118-21-42-0028	1,000.00	10.00	30.00	1,040.00
25046	3513 47th Ave N	10-118-21-42-0029	1,300.00	10.00	30.00	1,340.00
25046	3501 47th Ave N	10-118-21-42-0030	1,300.00	10.00	30.00	1,340.00
25046	7113 Fremont Ave N	25-119-21-32-0045	125.00	10.00	30.00	165.00
25046	7112 Dallas Rd	25-119-21-42-0060	6,000.00	10.00	30.00	6,040.00
25046	7113 Morgan Ave N	26-119-21-42-0041	900.00	10.00	30.00	940.00
25046	6925 Morgan Ave N	26-119-21-43-0014	950.00	10.00	30.00	990.00
25046	7018 Irving Ave N	26-119-21-44-0056	150.00	10.00	30.00	190.00
25046	1510 69th Ave N	26-119-21-44-0068	100.00	10.00	30.00	140.00
25046	7213 Major Ave N	27-119-21-32-0045	300.00	10.00	30.00	340.00
25046	4401 71st Ave N	27-119-21-32-0123	375.00	10.00	30.00	415.00
25046	4407 71st Ave N	27-119-21-32-0124	100.00	10.00	30.00	140.00
25046	4600 69th Ave N	27-119-21-33-0044	100.00	10.00	30.00	140.00
25046	6930 Brooklyn Blvd	27-119-21-33-0103	300.00	10.00	30.00	340.00
25046	3701 Woodbine La	27-119-21-42-0055	60.00	10.00	30.00	100.00
25046	3806 72nd Ave N	27-119-21-42-0063	100.00	10.00	30.00	140.00
25046	3606 Urban Ave	27-119-21-43-0096	3,925.00	10.00	30.00	3,965.00
25046	7184 Unity Ave N	28-119-21-42-0039	700.00	10.00	30.00	740.00
25046	5341 72nd Cir	28-119-21-42-0055	300.00	10.00	30.00	340.00
25046	4702 69th Ave N	28-119-21-44-0002	2,000.00	10.00	30.00	2,040.00
25046	6824 Orchard Ave N	33-119-21-11-0011	375.00	10.00	30.00	415.00
25046	6718 Quail Ave N	33-119-21-11-0084	5,000.00	10.00	30.00	5,040.00
25046	6700 Quail Ave N	33-119-21-11-0087	1,900.00	10.00	30.00	1,940.00
25046	6330 Perry Ave N	33-119-21-41-0060	100.00	10.00	30.00	140.00

Amended Special Assessment Certified Roll (Admin Fines/Citations)
September 13, 2023 to September 17, 2024 Administrative Penalty/Citation
Printed October 09, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25046	5001 65th Ave N	33-119-21-41-0103	100.00	10.00	30.00	140.00
25046	6324 Scott Ave N	33-119-21-42-0024	900.00	10.00	30.00	940.00
25046	6431 Unity Ave N	33-119-21-42-0092	4,650.00	10.00	30.00	4,690.00
25046	6113 Scott Ave N	33-119-21-43-0041	4,000.00	10.00	30.00	4,040.00
25046	6106 Quail Ave N	33-119-21-44-0021	5,875.00	10.00	30.00	5,915.00
25046	3112 Thurber Rd	34-119-21-11-0089	4,000.00	10.00	30.00	4,040.00
25046	3801 69th Ave N	34-119-21-12-0060	300.00	10.00	30.00	340.00
25046	6801 Ewing Ave N	34-119-21-12-0067	300.00	10.00	30.00	340.00
25046	6800 France Ave N	34-119-21-12-0068	100.00	10.00	30.00	140.00
25046	6742 France Ave N	34-119-21-12-0077	500.00	10.00	30.00	540.00
25046	3701 66th Ave N	34-119-21-13-0027	300.00	10.00	30.00	340.00
25046	3016 Quarles Rd	34-119-21-14-0081	600.00	10.00	30.00	640.00
25046	3025 Quarles Rd	34-119-21-14-0084	500.00	10.00	30.00	540.00
25046	6720 Grimes Ave N	34-119-21-21-0018	600.00	10.00	30.00	640.00
25046	6727 Grimes Ave N	34-119-21-21-0020	5,500.00	10.00	30.00	5,540.00
25046	6715 Grimes Ave N	34-119-21-21-0022	300.00	10.00	30.00	340.00
25046	6707 Grimes Ave N	34-119-21-21-0023	600.00	10.00	30.00	640.00
25046	6307 Indiana Ave N	34-119-21-31-0046	300.00	10.00	30.00	340.00
25046	6230 Lee Ave N	34-119-21-33-0036	600.00	10.00	30.00	640.00
25046	3212 63rd Ave N	34-119-21-41-0011	125.00	10.00	30.00	165.00
25046	3306 Poe Rd	34-119-21-41-0053	100.00	10.00	30.00	140.00
25046	3006 65th Ave N	34-119-21-41-0097	350.00	10.00	30.00	390.00
25046	3301 63rd Ave N	34-119-21-44-0013	200.00	10.00	30.00	240.00
25046	6749 Humboldt Ave N	35-119-21-11-0018	1,800.00	10.00	30.00	1,840.00
25046	6769 Humboldt Ave N	35-119-21-11-0021	100.00	10.00	30.00	140.00
25046	2101 Freeway Blvd	35-119-21-13-0006	100.00	10.00	30.00	140.00
25046	2590 Freeway Blvd	35-119-21-24-0007	1,400.00	10.00	30.00	1,440.00
25046	6501 Brooklyn Dr	35-119-21-31-0009	1,200.00	10.00	30.00	1,240.00
25046	6312 Brooklyn Dr	35-119-21-32-0001	100.00	10.00	30.00	140.00
25046	6400 Xerxes Ave N	35-119-21-32-0036	110.00	10.00	30.00	150.00
25046	6221 Shingle Creek Pkwy	35-119-21-34-0004	50.00	10.00	30.00	90.00
25046	6648 West River Rd	36-119-21-13-0002	600.00	10.00	30.00	640.00
25046	6800 Humboldt Ave N	36-119-21-22-0047	450.00	10.00	30.00	490.00
25046	1312 68th Ln N	36-119-21-22-0058	300.00	10.00	30.00	340.00
25046	700 66th Ave N	36-119-21-24-0047	400.00	10.00	30.00	440.00
25046	6430 Girard Ave N	36-119-21-32-0036	1,200.00	10.00	30.00	1,240.00
25046	6114 Bryant Ave N	36-119-21-34-0012	100.00	10.00	30.00	140.00
25046	6135 Camden Ave N	36-119-21-34-0101	2,675.00	10.00	30.00	2,715.00

Total: 169,390.00

Amended Special Assessment Certified Roll (Grass/Weeds)
September 16, 2023 to September 17, 2024 Weed Destruction
Printed October 10, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
25047	6006 Camden Ave N	01-118-21-12-0036	266.25	10.00	30.00	306.25
25047	5834 Camden Ave N	01-118-21-13-0040	477.50	10.00	30.00	517.50
25047	5748 Humboldt Ave N	01-118-21-23-0085	390.00	10.00	30.00	430.00
25047	5705 Camden Ave N	01-118-21-24-0106	266.25	10.00	30.00	306.25
25047	5603 Bryant Ave N	01-118-21-31-0035	300.00	10.00	30.00	340.00
25047	5601 Aldrich Ave N	01-118-21-31-0091	165.00	10.00	30.00	205.00
25047	5421 Girard Ave N	01-118-21-33-0055	341.25	10.00	30.00	381.25
25047	5951 Earle Brown Dr	02-118-21-12-0013	3,180.00	10.00	30.00	3,220.00
25047	6030 Vincent Ave N	02-118-21-22-0004	1,810.00	10.00	30.00	1,850.00
25047	2312 Brookview Dr	02-118-21-31-0027	255.00	10.00	30.00	295.00
25047	5419 Queen Ave N	02-118-21-34-0015	315.00	10.00	30.00	355.00
25047	5300 Queen Ave N	02-118-21-34-0045	210.00	10.00	30.00	250.00
25047	5602 Knox Ave N	02-118-21-41-0060	165.00	10.00	30.00	205.00
25047	5537 Judy La	02-118-21-42-0080	165.00	10.00	30.00	205.00
25047	5601 Logan Ave N	02-118-21-42-0120	705.00	10.00	30.00	745.00
25047	6025 Abbott Ave N	03-118-21-11-0018	705.00	10.00	30.00	745.00
25047	6031 Brooklyn Blvd	03-118-21-12-0015	465.00	10.00	30.00	505.00
25047	6025 Brooklyn Blvd	03-118-21-12-0016	465.00	10.00	30.00	505.00
25047	6045 Brooklyn Blvd	03-118-21-12-0087	210.00	10.00	30.00	250.00
25047	6037 Brooklyn Blvd	03-118-21-12-0098	210.00	10.00	30.00	250.00
25047	5808 Pearson Dr	03-118-21-24-0064	210.00	10.00	30.00	250.00
25047	5250 Ewing Ave N	10-118-21-12-0027	210.00	10.00	30.00	250.00
25047	5261 Twin Lake Blvd E	10-118-21-21-0035	165.00	10.00	30.00	205.00
25047	5133 France Ave N	10-118-21-21-0049	255.00	10.00	30.00	295.00
25047	7112 Dallas Rd	25-119-21-42-0060	757.50	10.00	30.00	797.50
25047	7019 Knox Ave N	26-119-21-44-0020	165.00	10.00	30.00	205.00
25047	7113 Halifax Ave N	27-119-21-31-0076	165.00	10.00	30.00	205.00
25047	6939 Brooklyn Blvd	27-119-21-33-0011	165.00	10.00	30.00	205.00
25047	6933 Brooklyn Blvd	27-119-21-33-0012	165.00	10.00	30.00	205.00
25047	6927 Brooklyn Blvd	27-119-21-33-0013	165.00	10.00	30.00	205.00
25047	6921 Brooklyn Blvd	27-119-21-33-0014	165.00	10.00	30.00	205.00
25047	6931 Perry Ave N	28-119-21-44-0005	165.00	10.00	30.00	205.00
25047	6800 Quail Ave N	33-119-21-11-0065	165.00	10.00	30.00	205.00
25047	6801 Scott Ave N	33-119-21-12-0072	300.00	10.00	30.00	340.00
25047	6431 Unity Ave N	33-119-21-42-0092	210.00	10.00	30.00	250.00
25047	3113 66th Ave N	34-119-21-14-0058	266.25	10.00	30.00	306.25
25047	4512 65th Ave N	34-119-21-23-0080	187.50	10.00	30.00	227.50
25047	6306 France Ave N	34-119-21-42-0009	495.00	10.00	30.00	535.00
25047	6206 Chowen Ave N	34-119-21-43-0027	970.00	10.00	30.00	1,010.00
25047	6264 Brooklyn Dr	35-119-21-33-0012	210.00	10.00	30.00	250.00
25047	6518 Willow La N	36-119-21-14-0002	442.50	10.00	30.00	482.50
25047	6839 Colfax Ave N	36-119-21-21-0014	210.00	10.00	30.00	250.00
25047	6718 Colfax Ave N	36-119-21-21-0040	210.00	10.00	30.00	250.00
25047	1118 62nd Ave N	36-119-21-33-0018	176.25	10.00	30.00	216.25

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September 16, 2023 to September 17, 2024 Weed Destruction
Printed October 10, 2024

Municipal Code No. 22 Levy Runs One Year

Levy No.	Property Address	Property ID	Pending Amount	Capital Interest Charge	Special Assessment Charge	Total Amount Certified
					Total:	**19,421.25**

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: N/A
BY: Angela Holm, Finance Director

SUBJECT: Resolution Certifying Special Assessments for Delinquent 2024 Public Utility Service Accounts and Resolution Certifying Special Assessments for Emergency Private Utility Service Repairs to the Hennepin County Property Tax Rolls

Requested Council Action:

- Motion to:

- *Open the public hearing;*
- *Take public input; and*
- *Close the public hearing.*

- Motion to approve a resolution certifying special assessments for delinquent public utility service accounts to the Hennepin County property tax rolls.
- Motion to approve a resolution certifying special assessments for emergency private utility service repairs to the Hennepin County property tax rolls.

Background:

The City of Brooklyn Center certifies delinquent utility bills to Hennepin County annually. The certified bills become assessments on the property owner's property tax bill for the following year.

This process starts with a letter to the customer notifying them that their account is past due and that the amount will be certified against their property taxes. This letter details the process and the legal authority for certification. Recipients of this letter are advised they may dispute the charges at a public hearing. The date, time and location for the public hearing was published in the official newspaper of the City. Customers that have not paid by the cut-off date in the letter (November 22, 2024) are included in the final assessment roll submitted to the County.

The City has approximately 8,900 public utility service accounts.

Comparative number of accounts and dollars certified are as follows:

2018		677	$496,644.11
2019		661	$487,227.89
2020		489	$377,574.76
2021		663	$513,875.17
2022	968	$877,967.32	

2023	622	$582,021.22
2024	886	$905,656.82

There is currently one resident who has submitted a letter requesting review of the current assessment.

The City also has properties on its southern border with Minneapolis that are serviced by Minneapolis water services. City staff have been notified that two of these properties have delinquent water charges from 2023 that need to be certified to Hennepin County, as well as charges from 2024. These charges will be included in the certification roll for taxes payable in 2025.

The City has a policy that provides assistance to residents who are facing the unexpected financial burden of a needed exterior private utility repair. These repairs often involve the sewer line from a residential property to the main street line. This portion of the sewer system is the responsibility of the property owner. For taxes payable in 2025, there are three assessments that will be included on the final roll sent to Hennepin County. A listing of these items is included with this agenda item.

Budget Issues:

These delinquent utility billings are recorded as receivables and recognized as revenues in the current budget year. However, the actual collections of these accounts will likely occur in future years.

Inclusive Community Engagement:

Antiracist/Equity Policy Effect:

Strategic Priorities and Values:

Maintain a strong financial position, Provide quality services with fair and equitable treatment

ATTACHMENTS:

Description	Upload Date	Type
Utility Assessment Memo	10/11/2024	Cover Memo
Delinquent Utility Assessment Resolution	10/11/2024	Resolution Letter
Emergency Repair Resolution	10/11/2024	Resolution Letter
Emergency Repair Special Assessments	10/11/2024	Backup Material
Utilites Assessment Presentation	10/11/2024	Presentation

COUNCIL ITEM MEMORANDUM

DATE: October 14, 2024

TO: Reggie Edwards, City Manager

FROM: Angela Holm, Finance Director

SUBJECT: Resolution Certifying Special Assessments for Delinquent Public Utility Service Accounts and Emergency Private Utility Service Repairs to the Hennepin County Property Tax Rolls

Recommendation:

Motion to approve a resolution certifying special assessments for delinquent public utility service accounts to the Hennepin County property tax rolls.

Motion to approve a resolution certifying special assessments for emergency private utility service repairs to the Hennepin County property tax rolls.

Background:

The City of Brooklyn Center certifies delinquent utility bills to Hennepin County annually. The certified bills become assessments on the property owner's property tax bill for the following year.

This process starts with a letter to the customer notifying them that their account is past due and that the amount will be certified against their property taxes. This letter details the process and the legal authority for certification. Recipients of this letter are advised they may dispute the charges at a public hearing. The date, time and location for the public hearing was published in the official newspaper of the City. Customers that have not paid by the cut-off date in the letter (November 22, 2024) are included in the final assessment roll submitted to the County.

The City has approximately 8,900 public utility service accounts.

Comparative number of accounts and dollars certified are as follows:

2019	661	$487,227.89
2020	489	$377,574.76
2021	663	$513,875.17
2022	968	$877,967.32
2023	622	$582,021.22
2024	886	$905,656.82

There is currently one resident who has submitted a letter requesting review of the current assessment.

COUNCIL ITEM MEMORANDUM

The City also has properties on its southern border with Minneapolis that are serviced by Minneapolis water services. City staff have been notified that two of these properties have delinquent water charges from 2023 that need to be certified to Hennepin County, as well as charges from 2024. These charges will be included in the certification roll for taxes payable in 2025.

The City has a policy that provides assistance to residents who are facing the unexpected financial burden of a needed exterior private utility repair. These repairs often involve the sewer line from a residential property to the main street line. This portion of the sewer system is the responsibility of the property owner. For taxes payable in 2025, there are three assessments that will be included on the final roll sent to Hennepin County. A listing of these items is included with this agenda item.

Budget Issues:

The assessed values are recorded as receivables and recognized as revenues in the current budget year. However, the actual collections of these accounts will likely occur in future years.

Strategic Priorities:

- Maintain a strong financial position

Member introduced the following resolution and moved its adoption:

RESOLUTION NO. _____

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR DELINQUENT PUBLIC UTILITY SERVICE ACCOUNTS TO THE HENNEPIN COUNTY PROPERTY TAX ROLLS

WHEREAS, the records of the Utility Billing Division list certain accounts as delinquent as of July 31, 2024; and

WHEREAS, the owners of the properties served by each delinquent account have been notified of the delinquency according to legal requirements; and

WHEREAS, Minnesota Statutes 444.075 and City Ordinances, Sections 4-105 and 4-201 authorize certification of such delinquent accounts to the County property tax rolls for collection; and

WHEREAS, a special assessment roll, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where a delinquent public utility account is to be assessed with the amount and service charges to be assessed; and

WHEREAS, pursuant to proper notice duly given as required by law, the Council has met and heard and passed upon all objections to the proposed assessments for delinquent utility service accounts.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota, that:

1. The special assessment roll of delinquent public utility accounts is hereby adopted and certified as Assessment Roll No. 25051.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes levied in 2025, in one installment with interest thereon at three and one-half percent (3.5%) per annum, and shall bear interest on the entire assessment from December 1, 2024 through December 31, 2025.

3. The owner of any property so assessed may at any time prior to the certification of the assessments to the Hennepin County Auditor pay the entire assessment to the City, without interest, if the entire assessment is paid on or before November 22nd 2024.

4. The City Clerk shall forthwith transmit a certified duplicate of this assessment to the Hennepin County Auditor to be extended on the property tax lists of the County,

RESOLUTION NO. _____

and such assessments shall be collected and paid over in the same manner as other municipal taxes.

October 14, 2024
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereupon said resolution was declared duly passed and adopted.

Member introduced the following resolution and moved its adoption:

RESOLUTION NO. _____

RESOLUTION CERTIFYING SPECIAL ASSESSMENTS FOR EMERGENCY PRIVATE UTILITY SERVICE REPAIRS TO THE HENNEPIN COUNTY PROPERTY TAX ROLLS

WHEREAS, pursuant to the City's Emergency Private Utility Service Repair Assessment Policy provides assistance to Brooklyn Center residents who are facing the unexpected financial burden of a needed exterior private utility repair; and

WHEREAS, the City has provided funds to the homeowner to complete a private exterior repair; and

WHEREAS, the homeowner has agreed, as part of the assessment agreement, to the assessment and to waive any and all procedural and substantive objections to the improvement and assessment, including but not limited to hearing requirements and any claim that the assessment exceeds the benefit to the property; and

WHEREAS, a special assessment roll, a copy of which is attached hereto and made part hereof by reference, has been prepared by the City Clerk, tabulating those properties where a private utility repair cost is to be assessed with the amount, including interest and service charges if applicable, to be assessed,

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Brooklyn Center that:

1. The special assessment roll of emergency private utility repairs is hereby adopted and certified as Assessment Roll No. 25168.

2. The special assessments as adopted and confirmed shall be payable with ad valorem taxes levied in 2025, in five installments with interest thereon at three (3.5) percent per annum.

3. The owner of any property so assessed may at any time prior to the certification of the assessments to the Hennepin County Auditor pay the entire assessment to the City, without interest. Such payments must be made by the close of business on November 22, 2024 or interest will be charged through December 31 of the succeeding year.

4. The City Clerk shall forthwith transmit a certified duplicate of this assessment to the Hennepin County Auditor to be extended on the property tax lists of the County, and such assessments shall be collected and paid over in the same manner as other municipal taxes.

a

RESOLUTION NO. _____

October 14, 2024 _____
Date

_____
Mayor

ATTEST: _____
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:
whereupon said resolution was declared duly passed and adopted.

City of Brooklyn Center
Special Assessment Master Report
S/A Number: 25051

S/A Number: 25051 **Description:** 2023 Utility Repair

Assessment Total: $0.00 **Category:** **Calc Daily Interest:** No

Interest Rate: 3.5000 **Opened Date:** 11/20/2023 **Amortization Type:** HC

Payment Number: 0 **Of:** 5 **1st Hearing:** **County Admin Fee:** $0.00

1st Yr. Int. Months: 13 **1st Yr. Payable:** 2024 **2nd Hearing:** **Status:** Pending

Resolution Number: **Levied:** **Sub Status:**

Project Nbr: **Fund:** **Contract Nbr:** **Fin Acct Nbr:** 49141-4705 **Continue Calculating Deferred:** No

Int Acct Nbr: 49141-4705 **Grace Period End Date:**

St	Property ID	House	Street Name	Unit	Orig Assessment	Total Assessment	Payoff Amt	Closed Desc
A	01-118-21-32-0030	1300	55th Ave N		$5,000.00	$5,000.00	$5,000.00	
A	33-119-21-13-0092	5301	Howe La		$5,544.00	$5,544.00	$5,544.00	
A	36-119-21-34-0070	6200	Dupont Ave N		$7,244.00	$7,244.00	$7,244.00	
	A Count: 3			**A Total:**	**$17,788.00**	**$17,788.00**	**$17,788.00**	
	Total Count: 3			**Grand Total:**	**$17,788.00**	**$17,788.00**	**$17,788.00**	

Special Assessment Public Hearing

Delinquent Utilities
Emergency Private Utility Service Repairs

City Council Meeting, October 14, 2024

Angela Holm, Finance Director

Special Assessment Background

- Minnesota State law allows cities to recover costs of certain types of services through special assessments to the property
- The City incurs costs of providing public utilities, typically recovered through user charges. If these user charges remain unpaid, the costs may be assessed to the property.
- Public hearing required.

Delinquent Utility Process

- Customer receives a regular utility bill (water/sanitary sewer/storm drainage/street light/recycling).
- Balances of $400 or more that are past due as of July 31, 2024
- Letter is sent to the customer notifying them the account is past due and amount will be certified against property taxes if not paid. Customers given the opportunity to pay outstanding bill prior to certification.
- As of October 11, 2024, one formal appeal has been made to staff.

Payment Options

Once an assessment roll is adopted by the Council, the owner of each property has the following options:

- Pay the entire amount of the special assessment, without interest by November 22, 2024
- Pay with taxes in 2025 with interest accrued from December 1, 2024. The total principal and total interest is due in 2025.

Summary

- Unpaid Charges - $905,656.82
  - 2023 - $582,021.22
  - 2022 - $877,967.32
- Unpaid Accounts – 886
  - 2023 – 622
  - 2022 – 968
- 72% of certifications are under $1,000 (86% in 2023)
- Current amount as of October 11, 2024

Next Steps

- Public Hearing for Delinquent Public Utility accounts at this evening's meeting
- Customers may provide a basis for their appeal during the public hearing
- If needed, City Council may direct staff to investigate further and public hearing will be continued for those properties.
- Staff will review cases and provide a report at the upcoming City Council meeting for review by City Council

Emergency Private Utility Service Repairs

- Emergency repairs are performed to ensure sewer service is maintained at property
- Resident signs agreement to have cost of repairs assessed to their property tax for the next year
- This cannot be challenged at the public hearing
- As of October 11, 2024, there are three assessments to be included on the roll

Guidelines for Appellants

People wishing to appeal should:

- Approach the center podium and address the Council
- State their full name and their current address
- Provide the address of the property with the pending special assessment (if different)
- State the reason they think they should not have to pay the pending assessment costs
- Appellants should provide contact information to staff

Recommended Action

- *Motion to adopt resolution certifying special assessments for delinquent public utility service accounts to the Hennepin County property tax rolls.*
- *Motion to adopt resolution certifying emergency private utility service repairs to the Hennepin County property tax rolls.*

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Jesse Anderson, Community Development Director
BY: Ginny McIntosh, Planning Manager

SUBJECT: An Ordinance Amending Section 35-4103 (Allowed Use Table) of the City Code of Ordinances Regarding Places for Religious Assembly in the Business Mixed-Use (MX-B) District - 2nd Reading

Requested Council Action:

- Motion to deny the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (Allowed Use Table) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

The Planning Commission recommended approval of the requested amendment on a 3-2 vote at their September 12, 2024 meeting. At the September 23, 2024 City Council meeting, a request was made to table the first reading of the proposed ordinance amendment and a request for additional information was made.

City staff maintains the position that, based on the findings presented within the provided staff report, the requested ordinance amendment should be denied; however, if City Council elects to recommend approval of the request to amend Section 35-4103 (Allowed Use Table) to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District, the motion language should be to approve the second reading and adopt the ordinance amendment.

Background:

Rationale for City Staff Recommendation
At the September 23, 2024 City Council meeting, City staff presented a first reading of a request to amend the City's Unified Development Ordinance (UDO) to allow for "Places for Religious Assembly" in the City's Business Mixed-Use (MX-B) District as a conditional use. The application request was submitted by Applicant Trinity International Fellowship who has an interest in purchasing an MX-B zoned property.

Following a presentation by City staff, and questions posed by the City Council to City staff and the Applicant, a request to *table* consideration of the first reading of the application request to the October 14, 2024 meeting was made. As part of that request, City Council had requested additional information on "Sacred Settlements" and clarification as to City staff's recommendation of denial for the application request.

The request for additional information on Sacred Settlements stems from conversations following the September 12, 2024 Planning Commission meeting, in which the City Attorney informed City staff that a bill was passed during this last legislative session and went into effect on January 1, 2024 regarding "Sacred

Settlements." This information *was not* provided to the Planning Commission during their review of the requested ordinance amendment, but would allow religious institutions to site micro-unit dwellings on properties owned by religious institutions. City staff is currently unsure as to whether these micro-unit dwellings would be of consideration or feasible on any of the properties within the Business Mixed-Use (MX-B) District given how new this legislation is; however, additional information has been provided.

City staff recommended denial of Planning Commission Application No. 2024-011. This determination was made based on the following:

1. Applicant responses to the ordinance amendment, which were answered specific to the one property of interest (6010 Earle Brown Drive) as opposed to addressing the potential impacts of allowing for "Places for Religious Assembly" in the greater Business Mixed-Use (MX-B) District, which would affect 36 properties;

2. Non-conformity with the City of Brooklyn Center's 2040 Comprehensive Plan, including the purpose of the Business Mixed-Use (B-MU) land use designation, which substantially aligns with the City's Business Mixed-Use (MX-B) zoning district, and the implementation strategies outlined to achieve the City's employment intensity goals under Chapter 3 (*Land Use & Redevelopment*) and economic development and competitiveness goals under Chapter 5 (*Community Image, Economic Competitiveness & Stability*);

3. Mis-alignment with the purpose of the City's Business Mixed-Use (MX-B) zoning district, which is intended to accommodate land for a mix of business and light industrial uses, with allowances for supporting retail/service uses that encourage a more dynamic and connected experience for workers; and

4. Any future applications for the use will need to meet all conditional use permit criteria as outlined under Section 35-7700, which in part requires any conditional use to be in accordance with the general and specific objectives of the City's Comprehensive Plan and UDO, not be injurious to the use and enjoyment of other property in the immediate vicinity for purposes already permitted, and provide adequate measures to provide ingress, egress, and parking so designed to minimize traffic congestion in the public streets.

RLUIPA

When City planning staff receives a request or application from a religious institution, they are required to refer to the land use provisions outlined in the Religious Land Use and Institutionalized Persons Act of 2000 or "RLUIPA." This act protects, "individuals, houses of worship, and other religious institutions from discrimination in zoning and landmarking laws." Historically, those protected under RLUIPA include: houses of worship, individuals holding prayer meetings in their home, religious schools, religious retreat centers, cemeteries, and faith-based social services provided by a religious entity (e.g. Teen Challenge residential substance abuse center).

It is important to note that RLUIPA is not a blanket exemption from zoning laws. In general, religious institutions must apply for the same permits, follow the same requirements, and go through the same land use processes as other land users; however, RLUIPA prohibits a local government from applying zoning laws or regulations in a way that:

- Places substantial burdens on religious exercise

  Example: This prohibits the implementation of any land use regulation that imposes a "substantial burden" on the religious exercise of a person or religious assembly or institutions, except where justified by a "compelling governmental interest" that the government pursues in the least restrictive way possible.

- Results in unequal treatment for religious assemblies and institutions

  Example: Not allowing churches in zoning districts where similar assembly-type uses such as theaters, meeting halls, stadiums, or other places of assembly are permitted. Requiring religious institutions to undertake additional measures as part of an application process which are not imposed on secular/non-religious assemblies (e.g. a requirement that churches obtain the prior approval of 60% of neighbors located within a 1,300-foot radius).

- Supports, upholds, etc. religious or denominational discrimination

  Example: Not allowing a place for religious assembly or institution purely on the basis of religion or religious denomination (e.g. allowing for a church, but not a mosque, synagogue, or temple).

- Completely excludes religious assemblies

  Example: A government or municipality *cannot* totally exclude religious assemblies from a jurisdiction. The City of Brooklyn Center currently allows "Places for Religious Assembly" in the R1, R2, C, and I zoning districts of the City.

- Creates unreasonable limitations on religious assemblies

  Example: A government or municipality cannot unreasonably limit religious assemblies, institutions, or structures within a jurisdiction.

If there is ever a conflict between RLUIPA and the City's zoning code or how it is applied, RLUIPA, as a federal civil rights law, takes precedence.

Common accessory uses found at religious institutions or "Places for Religious Assembly" and often considered to be accessory uses, include:

1. Child day cares and after-school programming;
2. Religious schools;
3. Religious camps and retreat centers;
4. Adult day cares;
5. Food shelves and emergency overnight shelters;
6. Faith-based social services, counseling, and offices (e.g. administration, call centers); and
7. Community meeting space

Pursuant to Minnesota Statutes Section 327.30, cities must now allow religious institutions or "Places for Religious Assembly" the ability to site micro units on religious property to house chronically homeless individuals, extremely low-income individuals, and volunteers who elect to move into the settlement as intentional neighbors or "designated volunteers."

Sacred Settlements

Beginning on January 1, 2024, cities were required to allow micro-unit dwellings on religious institution property as a permitted or conditional use, and **no matter the zoning district**. In Brooklyn Center, this would apply wherever "Places for Religious Assembly" are permitted.

In Brooklyn Center, "Places for Religious Assembly" are considered a conditional use, and require approval by City Council. It should be noted that "conditional uses" are generally considered *permitted* uses with the caveat that they address the conditional use permit criteria under Section 35-7700 as a means to mitigate potential negative impacts on neighboring properties for uses already permitted. Given the protected status of religious institutions under RLUIPA, a municipality would very likely need to allow for a "sacred

settlement," if proposed, in the least burdensome way possible.

The following locations are current sacred settlement communities:

- Mosaic Christian Community in St. Paul (6 tiny homes—four for people experiencing chronic homelessness and catastrophic loss of family, and two for people who have not experienced homelessness but desire to be "intentional family")

- Prince of Peace Lutheran Church in Roseville (3 tiny homes)

Woodland Hills Church in Maplewood has partnered with non-profit Settled to build tiny homes out in a designated section of the church's parking lot until they are taken off-site to a Settled Community. The parking lot would remove existing bituminous and install native plantings and ponding so as to park the tiny homes, be staged to feel like a community, and provide gathering spaces and opportunities for community engagement. The church does not currently propose use of the tiny homes as living space at this property. Additional proposals include Faith Lutheran Church in Forest Lake and Trinity Lutheran in Duluth.

"Sacred Settlements" are comprised of micro-unit dwellings or tiny homes of no more than 400-square feet in size, and are to be built on a permanent chassis and anchored to pin foundations with fasteners. A dry, compostable, or plumbed toilet shall be provided in unit. Residents shall be provided access to water and electric utilities either by connecting the micro units to the utilities that are serving the principal building on the lot or by other comparable means, or by providing the residents access to permanent common kitchen facilities and common facilities for toilet, bathing, and laundry in accordance with the R-2 boarding house provisions under Minnesota Rules, part 1305.2902.

Functionally, a Sacred Settlement or community shall have between one-third and 40 percent (%) of the micro units occupied by "designated volunteers" who have not experienced homelessness and have been approved by a religious institution to live in a sacred community as their sole form of housing.

From the zoning perspective, Sacred Settlement micro units must comply with municipal setback requirements established by ordinance for manufactured homes. As the City of Brooklyn Center *does not* have a separate setback requirement for manufactured homes, micro units would need to be setback on all sides by <u>at least ten (10) feet</u>, which is less than required for a typical R1 or R2 district home, or the setback requirements within the City's C or I districts, which currently allow for Places for Religious Assembly as a conditional use. The micro unit's exterior materials would need to be compatible in "composition, appearance, and durability to the exterior materials used in standard residential construction."

<u>For more information on Sacred Settlements and RLUIPA:</u>
Minnesota Statutes Section 327.30 (Sacred Communities and Micro-Unit Dwellings):
https://www.revisor.mn.gov/statutes/cite/327.30#:~:text=(g)%20%22Sacred%20community%22,designated%20volunteers%20that%20meets%20the

Focus on New Laws: Sacred Settlement (League of Minnesota Cities):
https://www.lmc.org/news-publications/news/all/fonl-sacred-settlements/

Religious Land Use and Institutionalized Persons Act (US Department of Justice – Civil Rights Division):
https://www.justice.gov/d9/2024-03/2024_doj_letter_-_rluipa-final.pdf

Background:
Trinity International Fellowship ("the Applicant") is a non-denominational Liberian ministry that is

requesting a text amendment to Chapter 35 of the City Code to allow for "Places for Religious Assembly" as a conditional use within the City's Business Mixed-Use (MX-B) zoning district. "Conditional uses" are generally considered *permitted uses* so long as certain conditions are met with respect to the mitigating of potentially negative impacts on neighboring properties for uses already permitted within a district, in addition to other criteria.

Due to the nature of the request, a public hearing notice was published in the Brooklyn Center *Sun Post* on August 29, 2024. Mail notifications were sent to all 36 property owners and physical addresses located within the City's Business Mixed-Use (MX-B) District. A public hearing notice was also uploaded to the City's website.

A public hearing was held at the September 12, 2024 Planning Commission meeting, where the Planning Commission engaged in a lengthy discussion regarding the proposed amendments. No members of the public were present for the public hearing other than representation of Applicant Trinity International Fellowship and their architect, Vanman Architects, and no comments were submitted to City staff in advance of the meeting.

The Commissioners asked questions on the uses allowed within the Business Mixed-Use (MX-B) zoning district, its intended purpose as a district, and the 2040 Comprehensive Plan future land use designation, Business Mixed-Use (B-MU). City staff indicated that, while the 2040 Comprehensive Plan and new Business Mixed-Use zoning district provided more flexibility than in prior years, this area of the City is still largely a light industrial district, and the new uses permitted within this district are uses that can be considered as an amenity for employers and employees alike (e.g. restaurant access, hotels for business clients, grocery stores). Prior to submitting an application, City staff had explored options with the Applicant for creating lesser impacts through perhaps re-zoning the property the Applicant has an interest in, or determining an assembly use similar to that of a place for religious assembly (e.g. movie theaters, stadiums, event centers); however, there are no similar type uses permitted within the MX-B District.

One of the commissioners noted that the Heritage Center was within this district, to which City staff stated that it was currently a non-conforming use under the 2040 Comprehensive Plan and Unified Development Ordinance and as such, it was not a like-for-like comparison. Another commissioner inquired on whether event centers would be permitted to locate within the MX-B District by allowing for Places for Religious Assembly and given that event centers are oftentimes ancillary uses of Places for Religious Assembly. City staff noted that Places for Religious Assembly are granted extra protections under the Religious Land Use and Institutionalized Persons Act (RLUIPA) of 2000 and that a private event center would not be afforded the same rights to locate within the MX-B District.

Another commissioner noted that the establishment of Places for Religious Assembly might be beneficial to the industrial businesses in that they would likely operate on off hours in the MX-B District and that we might perhaps allow for it and see what happens. City staff relayed that both the 2040 Comprehensive Plan and Unified Development Ordinance outline non-industrial uses as "supporting retail and service uses" that encourage a more dynamic and connected experience for workers. Although there may be lesser impacts by operating at off hours, City staff questioned whether it provided any benefit to workers.

As there is only one current Place for Religious Assembly located in an industrial area of Brooklyn Center (4900 France Avenue North), City staff noted concerns regarding impacts to the neighboring industrial businesses in the I (General Industry) District following its approval in 2020 in that it appeared they were not meeting their conditions of approval. One of the commissioners inquired on how City staff were planning to address these apparent violations. Additional questions surrounded how likely it was that a property in the Business Mixed-Use (MX-B) District might convert to a Place for Religious Assembly.

Two of the commissioners noted that, while it cannot be considered as a reason for determination as part of a land use application and under the Planning Commission's scope of duties, there are considerations as to how Places for Religious Assembly would strengthen the City's tax base and particularly as the 2040 Comprehensive Plan outlines the Business Mixed-Use (B-MU) land use designation as the City's greatest opportunity to provide employment intensity and be competitive economically as a city.

The commissioners further noted concerns regarding potential impacts to existing light industrial businesses here in the City (e.g. non-complementary uses, impacts to business operations), our support and protection of them, and whether introducing this use would be in keeping with providing the "highest and best" uses for a given area of the City. One commissioner noted concerns of potentially spot zoning the property of interest.

Following close of the public hearing, the Planning Commission elected to recommend (3-2) City Council approval of the requested ordinance amendment to Section 35-4103 (*Allowed Use Table*) to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District.

A copy of the Planning Commission Report for Planning Commission Application No. 2024-011, dated September 12, 2024 and ordinance amendment language is included with this memorandum. Copies of the new Minnesota State Statute language regarding Sacred Settlements, as well as an article from the League of Minnesota are also included as reference.

Budget Issues:

None to consider at this time.

Inclusive Community Engagement:

Antiracist/Equity Policy Effect:

ATTACHMENTS:

Description	Upload Date	Type
Council Memo - PC Application No. 2024-011 (October 14, 2024)	10/10/2024	Cover Memo
League of Minnesota Cities Article - Focus on New Laws (Sacred Settlements)	10/10/2024	Backup Material
MN Statutes Language - Sacred Communities and Micro Unit Dwellings	10/10/2024	Backup Material
Staff Reports and Exhibits - Ordinance Amendment to Allow for Places for Religious Assembly in the MX-B Zoning District	10/10/2024	Backup Material
Ordinance Language - Amendment to Section 35-4103	9/18/2024	Ordinance
September 23, 2024 Council PowerPoint - PC Application No. 2024-011	9/24/2024	Presentation

DATE: October 14, 2024

TO: Dr. Reggie Edwards, City Manager

THROUGH: Jesse Anderson, Community Development Director

FROM: Ginny McIntosh, Planning Manager

SUBJECT: An Ordinance Amending Section 35-4103 (Allowed Use Table) of the City Code of Ordinances Regarding Places for Religious Assembly in the Business Mixed-Use (MX-B) District *–2nd Reading*

Recommendation:

Motion to deny the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (Allowed Use Table) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would allow for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

The Planning Commission recommended approval of the requested amendment on a 3-2 vote at their September 12, 2024 meeting. At the September 23, 2024 City Council meeting, a request was made to table the first reading of the proposed ordinance amendment and a request for additional information was made.

City staff maintains the position that, based on the findings presented within the provided staff report, the requested ordinance amendment should be denied; however, if City Council elects to recommend approval of the request to amend Section 35-4103 (Allowed Use Table) to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District, the motion language should be to approve the second reading and adopt the ordinance amendment.

Rationale for City Staff Recommendation

At the September 23, 2024 City Council meeting, City staff presented a first reading of a request to amend the City's Unified Development Ordinance (UDO) to allow for "Places for Religious Assembly" in the City's Business Mixed-Use (MX-B) District as a conditional use. The application request was submitted by Applicant Trinity International Fellowship who has an interest in purchasing an MX-B zoned property.

Following a presentation by City staff, and questions posed by the City Council to City staff and the Applicant, a request to *table* consideration of the first reading of the application request to the October 14, 2024 meeting was made. As part of that request, City Council had requested additional information on "Sacred Settlements" and clarification as to City staff's recommendation of denial for the application request.

The request for additional information on Sacred Settlements stems from conversations following the September 12, 2024 Planning Commission meeting, in which the City Attorney informed City staff that a bill was passed during this last legislative session and went into effect on January 1, 2024 regarding "Sacred Settlements." This information *was not* provided to the Planning Commission during their review of the requested ordinance amendment, but would allow religious institutions to site micro-unit dwellings on properties owned by religious institutions. City staff is currently unsure as to whether these micro-unit dwellings would be of consideration or feasible on any of the properties within the Business Mixed-Use (MX-B) District given how new this legislation is; however, additional information has been provided.

City staff recommended denial of Planning Commission Application No. 2024-011. This determination was made based on the following:

1. Applicant responses to the ordinance amendment, which were answered specific to the one property of interest (6010 Earle Brown Drive) as opposed to addressing the potential impacts of allowing for "Places for Religious Assembly" in the greater Business Mixed-Use (MX-B) District, which would affect 36 properties;

2. Non-conformity with the City of Brooklyn Center's 2040 Comprehensive Plan, including the purpose of the Business Mixed-Use (B-MU) land use designation, which substantially aligns with the City's Business Mixed-Use (MX-B) zoning district, and the implementation strategies outlined to achieve the City's employment intensity goals under Chapter 3 (*Land Use & Redevelopment*) and economic development and competitiveness goals under Chapter 5 (*Community Image, Economic Competitiveness & Stability*);

3. Mis-alignment with the purpose of the City's Business Mixed-Use (MX-B) zoning district, which is intended to accommodate land for a mix of business and light industrial uses, with allowances for supporting retail/service uses that encourage a more dynamic and connected experience for workers; and

4. Any future applications for the use will need to meet all conditional use permit criteria as outlined under Section 35-7700, which in part requires any conditional use to be in accordance with the general and specific objectives of the City's Comprehensive Plan and UDO, not be injurious to the use and enjoyment of other property in the immediate vicinity for purposes already permitted, and provide adequate measures to provide ingress, egress, and parking so designed to minimize traffic congestion in the public streets.

RLUIPA

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It is important to note that RLUIPA **is not a blanket exemption from zoning laws.** In general, religious institutions must apply for the same permits, follow the same requirements, and go through the same land use processes as other land users; however, RLUIPA prohibits a local government from applying zoning laws or regulations in a way that:

- Places substantial burdens on religious exercise
    - ***Example:*** This prohibits the implementation of any land use regulation that imposes a "substantial burden" on the religious exercise of a person or religious assembly or institutions, except where justified by a "compelling governmental interest" that the government pursues in the least restrictive way possible.

- Results in unequal treatment for religious assemblies and institutions
    - ***Example:*** Not allowing churches in zoning districts where similar assembly-type uses such as theaters, meeting halls, stadiums, or other places of assembly are permitted. Requiring religious institutions to undertake additional measures as part of an application process which are not imposed on secular/non-religious assemblies (e.g. a requirement that churches obtain the prior approval of 60% of neighbors located within a 1,300-foot radius).

- Supports, upholds, etc. religious or denominational discrimination
    - ***Example:*** Not allowing a place for religious assembly or institution purely on the basis of religion or religious denomination (e.g. allowing for a church, but not a mosque, synagogue, or temple).

- Completely excludes religious assemblies
    - ***Example:*** A government or municipality *cannot* totally exclude religious assemblies from a jurisdiction. The City of Brooklyn Center currently allows "Places for Religious Assembly" in the R1, R2, C, and I zoning districts of the City.

- Creates unreasonable limitations on religious assemblies
    - ***Example:*** A government or municipality cannot unreasonably limit religious assemblies, institutions, or structures within a jurisdiction.

If there is ever a conflict between RLUIPA and the City's zoning code or how it is applied, RLUIPA, as a federal civil rights law, takes precedence.

Common accessory uses found at religious institutions or "Places for Religious Assembly" and often considered to be accessory uses, include:

1. Child day cares and after-school programming;
2. Religious schools;
3. Religious camps and retreat centers;
4. Adult day cares;

5. Food shelves and emergency overnight shelters;
6. Faith-based social services, counseling, and offices (e.g. administration, call centers); and
7. Community meeting space

Pursuant to Minnesota Statutes Section 327.30, cities must now allow religious institutions or "Places for Religious Assembly" the ability to site micro units on religious property to house chronically homeless individuals, extremely low-income individuals, and volunteers who elect to move into the settlement as intentional neighbors or "designated volunteers."

Sacred Settlements

Beginning on January 1, 2024, cities were required to allow micro-unit dwellings on religious institution property as a permitted or conditional use, and **no matter the zoning district**. In Brooklyn Center, this would apply wherever "Places for Religious Assembly" are permitted.

In Brooklyn Center, "Places for Religious Assembly" are considered a conditional use, and require approval by City Council. It should be noted that "conditional uses" are generally considered *permitted* uses with the caveat that they address the conditional use permit criteria under Section 35-7700 as a means to mitigate potential negative impacts on neighboring properties for uses already permitted. Given the protected status of religious institutions under RLUIPA, a municipality would very likely need to allow for a "sacred settlement," if proposed, in the least burdensome way possible.

The following locations are current sacred settlement communities:

- Mosaic Christian Community in St. Paul (6 tiny homes—four for people experiencing chronic homelessness and catastrophic loss of family, and two for people who have not experienced homelessness but desire to be "intentional family");
- Prince of Peace Lutheran Church in Roseville (3 tiny homes)

Woodland Hills Church in Maplewood has partnered with non-profit Settled to build tiny homes out in a designated section of the church's parking lot until they are taken off-site to a Settled Community. The parking lot would remove existing bituminous and install native plantings and ponding so as to park the tiny homes, be staged to feel like a community, and provide gathering spaces and opportunities for community engagement. The church does not currently propose use of the tiny homes as living space at this property. Additional proposals include Faith Lutheran Church in Forest Lake and Trinity Lutheran in Duluth.

"Sacred Settlements" are comprised of micro-unit dwellings or tiny homes of no more than 400-square feet in size, and are to be built on a permanent chassis and anchored to pin foundations with fasteners. A dry, compostable, or plumbed toilet shall be provided in unit. Residents shall be provided access to water and electric utilities either by connecting the micro units to the utilities that are serving the principal building on the lot or by other comparable means, or by providing the residents access to permanent common kitchen facilities and common facilities for toilet, bathing, and laundry in accordance with the R-2 boarding house provisions under Minnesota Rules, part 1305.2902.

Functionally, a Sacred Settlement or community shall have between one-third and 40 percent (%) of the micro units occupied by "designated volunteers" who have not experienced homelessness and have been approved by a religious institution to live in a sacred community as their sole form of housing.

From the zoning perspective, Sacred Settlement micro units must comply with municipal setback requirements established by ordinance for manufactured homes. As the City of Brooklyn Center *does not* have a separate setback requirement for manufactured homes, micro units would need to be setback on all sides by at least ten (10) feet, which is less than required for a typical R1 or R2 district home, or the setback requirements within the City's C or I districts, which currently allow for Places for Religious Assembly as a conditional use. The micro unit's exterior materials would need to be compatible in "composition, appearance, and durability to the exterior materials used in standard residential construction."

For more information on Sacred Settlements and RLUIPA:

Minnesota Statutes Section 327.30 (Sacred Communities and Micro-Unit Dwellings):
https://www.revisor.mn.gov/statutes/cite/327.30#:~:text=(g)%20%22Sacred%20community%22,designated%20volunteers%20that%20meets%20the

Focus on New Laws: Sacred Settlement (League of Minnesota Cities):
https://www.lmc.org/news-publications/news/all/fonl-sacred-settlements/

Religious Land Use and Institutionalized Persons Act (US Department of Justice – Civil Rights Division):
https://www.justice.gov/d9/2024-03/2024_doj_letter_-_rluipa-final.pdf

Background:

Trinity International Fellowship ("the Applicant") is a non-denominational Liberian ministry that is requesting a text amendment to Chapter 35 of the City Code to allow for "Places for Religious Assembly" as a conditional use within the City's Business Mixed-Use (MX-B) zoning district. "Conditional uses" are generally considered *permitted uses* so long as certain conditions are met with respect to the mitigating of potentially negative impacts on neighboring properties for uses already permitted within a district, in addition to other criteria.

Due to the nature of the request, a public hearing notice was published in the Brooklyn Center *Sun Post* on August 29, 2024. Mail notifications were sent to all 36 property owners and physical addresses located within the City's Business Mixed-Use (MX-B) District. A public hearing notice was also uploaded to the City's website.

A public hearing was held at the September 12, 2024 Planning Commission meeting, where the Planning Commission engaged in a lengthy discussion regarding the proposed amendments. No members of the public were present for the public hearing other than representation of Applicant Trinity International Fellowship and their architect, Vanman Architects, and no comments were submitted to City staff in advance of the meeting.

The Commissioners asked questions on the uses allowed within the Business Mixed-Use (MX-B) zoning district, its intended purpose as a district, and the 2040 Comprehensive Plan future land use designation, Business Mixed-Use (B-MU). City staff indicated that, while the 2040 Comprehensive Plan and new

Business Mixed-Use zoning district provided more flexibility than in prior years, this area of the City is still largely a light industrial district, and the new uses permitted within this district are uses that can be considered as an amenity for employers and employees alike (e.g. restaurant access, hotels for business clients, grocery stores). Prior to submitting an application, City staff had explored options with the Applicant for creating lesser impacts through perhaps re-zoning the property the Applicant has an interest in, or determining an assembly use similar to that of a place for religious assembly (e.g. movie theaters, stadiums, event centers); however, there are no similar type uses permitted within the MX-B District.

One of the commissioners noted that the Heritage Center was within this district, to which City staff stated that it was currently a non-conforming use under the 2040 Comprehensive Plan and Unified Development Ordinance and as such, it was not a like-for-like comparison. Another commissioner inquired on whether event centers would be permitted to locate within the MX-B District by allowing for Places for Religious Assembly and given that event centers are oftentimes ancillary uses of Places for Religious Assembly. City staff noted that Places for Religious Assembly are granted extra protections under the Religious Land Use and Institutionalized Persons Act (RLUIPA) of 2000 and that a private event center would not be afforded the same rights to locate within the MX-B District.

Another commissioner noted that the establishment of Places for Religious Assembly might be beneficial to the industrial businesses in that they would likely operate on off hours in the MX-B District and that we might perhaps allow for it and see what happens. City staff relayed that both the 2040 Comprehensive Plan and Unified Development Ordinance outline non-industrial uses as "supporting retail and service uses" that encourage a more dynamic and connected experience for workers. Although there may be lesser impacts by operating at off hours, City staff questioned whether it provided any benefit to workers.

As there is only one current Place for Religious Assembly located in an industrial area of Brooklyn Center (4900 France Avenue North), City staff noted concerns regarding impacts to the neighboring industrial businesses in the I (General Industry) District following its approval in 2020 in that it appeared they were not meeting their conditions of approval. One of the commissioners inquired on how City staff were planning to address these apparent violations. Additional questions surrounded how likely it was that a property in the Business Mixed-Use (MX-B) District might convert to a Place for Religious Assembly.

Two of the commissioners noted that, while it cannot be considered as a reason for determination as part of a land use application and under the Planning Commission's scope of duties, there are considerations as to how Places for Religious Assembly would strengthen the City's tax base and particularly as the 2040 Comprehensive Plan outlines the Business Mixed-Use (B-MU) land use designation as the City's greatest opportunity to provide employment intensity and be competitive economically as a city.

The commissioners further noted concerns regarding potential impacts to existing light industrial businesses here in the City (e.g. non-complementary uses, impacts to business operations), our support and protection of them, and whether introducing this use would be in keeping with providing the "highest and best" uses for a given area of the City. One commissioner noted concerns of potentially spot zoning the property of interest.

Following close of the public hearing, the Planning Commission elected to recommend (3-2) City Council approval of the requested ordinance amendment to Section 35-4103 (*Allowed Use Table*) to allow for Places for Religious Assembly as a conditional use in the Business Mixed-Use (MX-B) District.

A copy of the Planning Commission Report for Planning Commission Application No. 2024-011, dated September 12, 2024 and ordinance amendment language is included with this memorandum. Copies of

the new Minnesota State Statute language regarding Sacred Settlements, as well as an article from the League of Minnesota are also included as reference.

Focus on New Laws: Sacred Settlements

September 5, 2023

Beginning Jan. 1, 2024, cities must allow faith communities to site micro units on religious property to house chronically homeless individuals, extremely low-income individuals, and volunteers.

During the 2023 legislative session, the Legislature passed a bill authorizing religious institutions beginning Jan.1, 2024, to site micro-unit dwellings on religious institution property. It also requires cities to permit sacred settlements of micro units either via a permitted use or conditional use.

The bill was signed into law as Chapter 53 in 2023 Session Law. The language can be found in Chapter 53, Article 11, Section 57.

Micro-unit eligibility

Micro-unit dwellings within sacred settlements are intended to provide an additional means for faith communities to serve chronically homeless individuals, designated volunteers, and extremely low-income individuals in accordance with their religious vocations.

- An individual who meets the definition of being chronically homeless is someone who is unhoused and lives or resides in a place not meant for human habitation, a safe haven, or in an emergency shelter for at least one year, or on at least four separate occasions in the last three years.
- An individual who meets the definition of being extremely low income has an income that is equal to or less than 30% of the area median income.
- A designated volunteer is an individual who has not experienced homelessness and is approved by the religious institution to live in the sacred settlement as their sole form of housing.
- The language defines a religious institution to include a church, synagogue, mosque, or religious organization organized under Minnesota Statutes Chapter 315.

Micro-unit requirements

There are myriad of requirements and minimum standards in the statutory language that address both the standards for the micro units themselves as well as requirements and restrictions for faith communities that chose to establish a sacred settlement of micro units on their religious property.

Under the new law, micro units must meet certain building requirements and standards to be allowed for placement in a sacred settlement on religious property.

All micro units must be built to the requirements of the American National Standards Institute (ANSI) Code 119.5, which includes standards for heating, electrical, fire, and life safety.

Additionally, micro units are subject to inspection for compliance with statutory standards and must meet the following minimum requirements:

- Be no more than 400 gross square feet.
- Be built on a permanent chassis and anchored to pin foundations with engineered fasteners.
- Have exterior material compatible in composition, appearance, and durability to materials used in standard residential construction.
- Meet minimum framing standards and insulation ratings for doors and windows and include a dry, compostable, or plumbed toilet meeting Minnesota Pollution Control Agency rules.
- Include smoke and carbon monoxide detectors and comply with municipal setback requirements if established by ordinance or be set back on all sides by at least 10 feet if no ordinance exists.
- Have access to water and electric utilities either by connecting the units to the principal building or by providing access to permanent common kitchen facilities and common facilities for toilet, bathing, and laundry consistent with boarding house requirements under Minnesota Rules, part 1305.2902.

Minimum standards for settlements

In addition to the requirements for individual units, the law establishes minimum standards for the religious institution's operation of the settlement itself, which will be important to reference if a city choses to permit settlements and units via a conditional use permit to ensure compliance.

Minimum standards for settlements include:

- Appropriate level of insurance and have between one-third and 40% of the micro units occupied by designated volunteers.
- Adherence to all laws governing landlord and tenants under Minnesota Statutes Chapter 504B.
- A written plan provided to the city in which the settlement is approved by the religious institution's governing board that includes:
  - Plans for disposal of water and sewage if not plumped and septic tank drainage if plumped units are not connected to the primary worship location's system.
  - Adequate parking, lighting, and access to units by emergency vehicles.
  - Protocols for security and addressing conduct within the settlement as well as safety protocols for severe weather.
- Authorization by a municipality as either a permitted use or conditional use without the application of additional standards not included in the bill.

Further considerations

The League recommends that cities be in communication with the religious institutions in their community and inquire about their plans with respect to this new law.

Additionally, consider specific parameters in a conditional use permit or ordinance to ensure compliance for micro units and sacred settlements that are outlined in statute leading up to the effective date of Jan. 1, 2024.

The League will continue to closely monitor the impacts of this language and continue to help provide guidance to cities on this new law.

Read more news articles

Your LMC Resource

Daniel Lightfoot

IGR Representative & Federal Relations Manager

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327.30 SACRED COMMUNITIES AND MICRO-UNIT DWELLINGS.

Subdivision 1. **Definitions.** (a) For the purposes of this section, the following terms have the meanings given.

(b) "Chronically homeless" means an individual who:

(1) is homeless and lives or resides in a place not meant for human habitation, a safe haven, or in an emergency shelter;

(2) has been homeless and living or residing in a place not meant for human habitation, a safe haven, or in an emergency shelter continuously for at least one year or on at least four separate occasions in the last three years; and

(3) has an adult head of household, or a minor head-of-household if no adult is present in the household, with a diagnosable substance use disorder, serious mental illness, developmental disability, post-traumatic stress disorder, cognitive impairments resulting from a brain injury, or chronic physical illness or disability, including the co-occurrence of two or more of those conditions.

(c) "Designated volunteers" means persons who have not experienced homelessness and have been approved by the religious institution to live in a sacred community as their sole form of housing.

(d) "Extremely low income" means an income that is equal to or less than 30 percent of the area median income, adjusted for family size, as estimated by the Department of Housing and Urban Development.

(e) "Micro unit" means a mobile residential dwelling providing permanent housing within a sacred community that meets the requirements of subdivision 4.

(f) "Religious institution" means a church, synagogue, mosque, or other religious organization organized under chapter 315.

(g) "Sacred community" means a residential settlement established on or contiguous to the grounds of a religious institution's primary worship location primarily for the purpose of providing permanent housing for chronically homeless persons, extremely low-income persons, and designated volunteers that meets the requirements of subdivision 3.

Subd. 2. **Dwelling in micro units in sacred communities authorized.** Religious institutions are authorized to provide permanent housing to people who are chronically homeless, extremely low-income, or designated volunteers, in sacred communities composed of micro units subject to the provisions of this section. Each religious institution that has sited a sacred community must annually certify to the local unit of government that it has complied with the eligibility requirements for residents of a sacred community in this section.

Subd. 3. **Sacred community requirements.** (a) A sacred community must provide residents of micro units access to water and electric utilities either by connecting the micro units to the utilities that are serving the principal building on the lot or by other comparable means, or by providing the residents access to permanent common kitchen facilities and common facilities for toilet, bathing, and laundry with the number and type of fixtures required for an R-2 boarding house under Minnesota Rules, part 1305.2902. Any units that are plumbed shall not be included in determining the minimum number of fixtures required for the common facilities.

(b) A sacred community under this section must:

(1) be appropriately insured;

(2) have between one-third and 40 percent of the micro units occupied by designated volunteers; and

(3) provide the municipality with a written plan approved by the religious institution's governing board that outlines:

(i) disposal of water and sewage from micro units if not plumbed;

(ii) septic tank drainage if plumbed units are not hooked up to the primary worship location's system;

(iii) adequate parking, lighting, and access to units by emergency vehicles;

(iv) protocols for security and addressing conduct within the settlement; and

(v) safety protocols for severe weather.

(c) Unless the municipality has designated sacred communities meeting the requirements of this section as permitted uses, a sacred community meeting the requirements of this section shall be approved and regulated as a conditional use without the application of additional standards not included in this section. When approved, additional permitting is not required for individual micro units.

(d) Sacred communities are subject to the laws governing landlords and tenants under chapter 504B.

Subd. 4. **Micro unit requirements.** (a) In order to be eligible to be placed within a sacred community, a micro unit must be built to the requirements of the American National Standards Institute (ANSI) Code 119.5, which includes standards for heating, electrical systems, and fire and life safety. A micro unit must also meet the following technical requirements:

(1) be no more than 400 gross square feet;

(2) be built on a permanent chassis and anchored to pin foundations with engineered fasteners;

(3) have exterior materials that are compatible in composition, appearance, and durability to the exterior materials used in standard residential construction;

(4) have a minimum insulation rating of R-20 in walls, R-30 in floors, and R-38 in ceilings, as well as residential grade insulated doors and windows;

(5) have a dry, compostable, or plumbed toilet or other system meeting the requirements of the Minnesota Pollution Control Agency, Chapters 7035, 7040, 7049, and 7080, or other applicable rules;

(6) have either an electrical system that meets NFPA 70 NEC, section 551 or 552 as applicable or a low voltage electrical system that meets ANSI/RVIA Low Voltage Standard, current edition;

(7) have minimum wall framing with two inch by four inch wood or metal studs with framing of 16 inches to 24 inches on center, or the equivalent in structural insulated panels, with a floor load of 40 pounds per square foot and a roof live load of 42 pounds per square foot; and

(8) have smoke and carbon monoxide detectors installed.

(b) All micro units, including their anchoring, must be inspected and certified for compliance with these requirements by a licensed Minnesota professional engineer or qualified third-party inspector for ANSI compliance accredited pursuant to either the American Society for Testing and Materials Appendix E541 or ISO/IEC 17020.

(c) Micro units that connect to utilities such as water, sewer, gas, or electric, must obtain any permits or inspections required by the municipality or utility company for that connection.

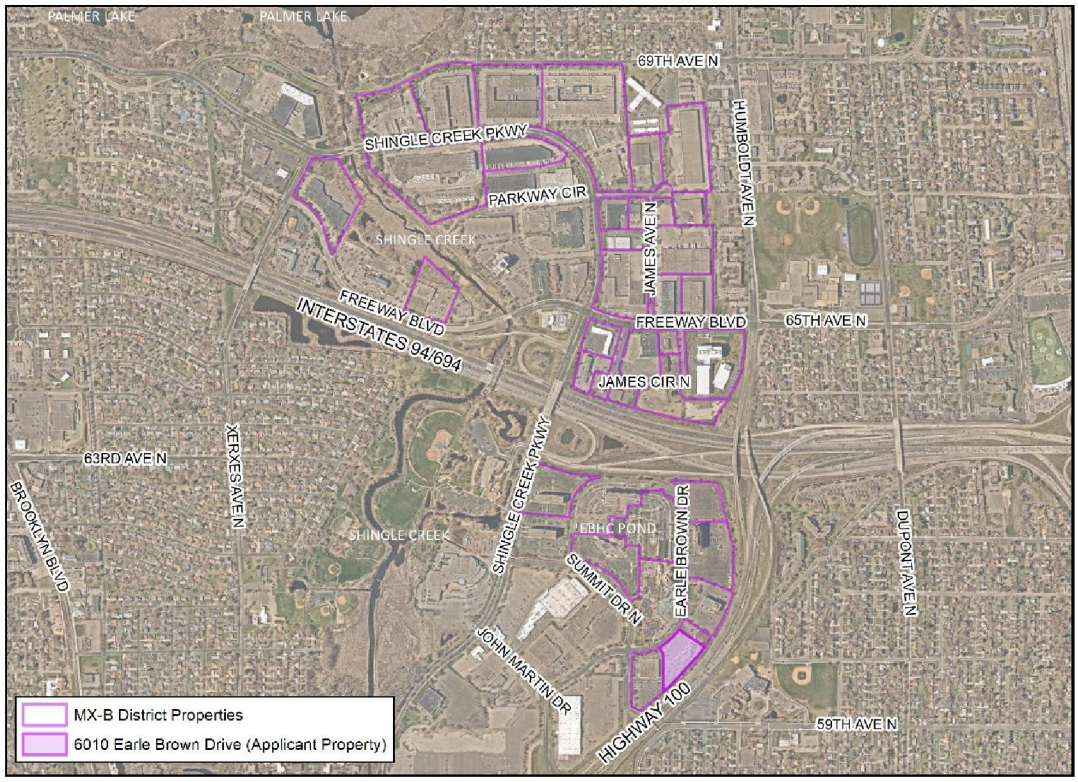
(d) Micro units must comply with municipal setback requirements established by ordinance for manufactured homes. If a municipality does not have such an ordinance, micro units must be set back on all sides by at least ten feet.

History: *2023 c 53 art 11 s 57*

Planning Commission Report
Meeting Date: September 12, 2024

- Application Filed: 08/13/2024
- Review Period (60-day) Deadline:
- Extension Declared:
- Extended Review Period Deadline: N/A

Application No.	2024-011
Applicant | Property Owner:	Trinity International Fellowship | MINMOR LLC
Requests:	Ordinance Amendment (Text)



Map 1. Business Mixed-Use (MX-B) District Properties.

REQUESTED ACTION

Trinity International Fellowship ("the Applicant") is a non-denominational Liberian ministry that is requesting a text amendment to Chapter 35 of the City Code to allow for "places for religious assembly" as a conditional use within the City's Business Mixed-Use (MX-B) zoning district. In August 2023, City Council held a work session with the Applicant and at that time, City Council expressed a general openness to exploring an opportunity for religious assembly uses within the MX-B zoning district—refer to Exhibit A.

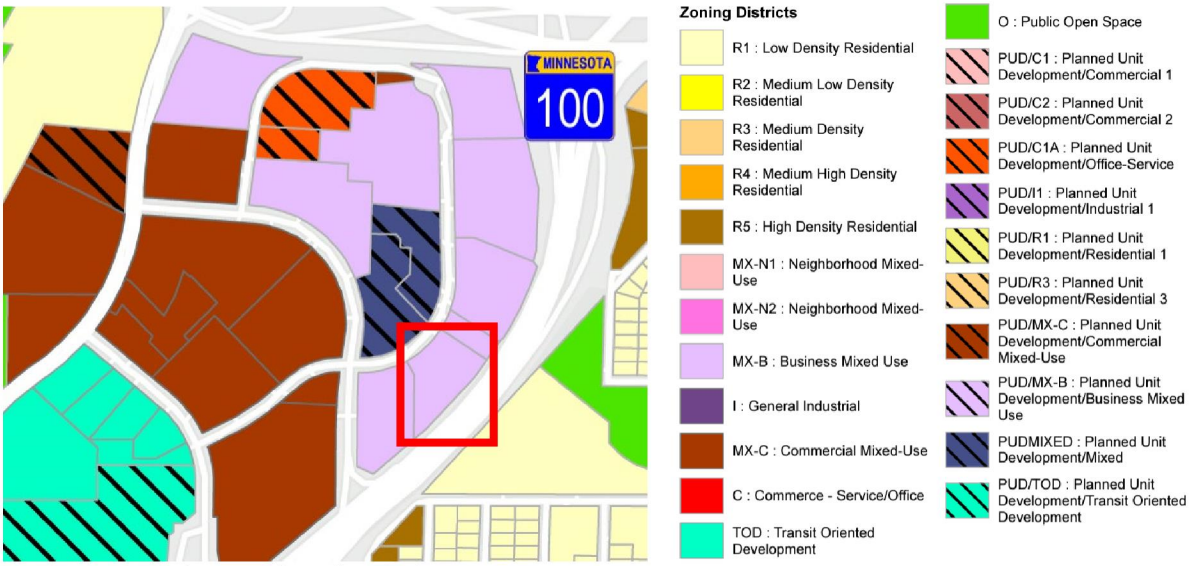
Due to the nature of the request, a public hearing notice was published in the Brooklyn Center *Sun Post* on August 29, 2024. Mail notifications were sent to all 36 property owners and physical addresses located within the City's Business Mixed-Use (MX-B) District—refer to Exhibit B. A public hearing notice was also uploaded to the City's website.

ORDINANCE AMENDMENT (TEXT)

Background

In August 2023, City Council held a concept review of a proposal to allow for places for religious assembly in the Business Mixed-Use (MX-B) District. City staff presented the proposal to City Council, identifying points to consider regarding a proposed conversion of 6010 Earle Brown Drive from an office use to a place for religious assembly, and potential impacts to other properties located within the MX-B District, of which in part included parking and traffic concerns and considerations for the greater MX-B District—refer to Exhibit C.

It should be noted that, prior to discussions on amending the City's Code, City staff reviewed the property of interest (6010 Earle Brown Drive) for opportunities to perhaps re-zone the property, as this would result in *lesser* impacts to the greater Business Mixed-Use (MX-B) zoning district; however, the surrounding properties are either similarly zoned (MX-B District), Commercial Mixed-Use (which do not allow for "Places for Religious Assembly"), or a Planned Unit Development (i.e. the Lux Apartments and Ecumen Prairie Lodge).



Map 2. Property of Interest (in red) and Adjacent Property Zoning.

P = PERMITTED USE, C = CONDITIONAL USE, I = INTERIM USE, A = ACCESSORY USE														
	Residential					Commercial/ Mixed Use				Nonresidential				
	R1	R2	R3	R4	R5	MX-N1	MX-N2	MX-C	TOD	C	MX-B	I	O	Use-Specific Standards
PUBLIC, INSTITUTIONAL, AND CIVIC USES														
COMMUNITY AND CULTURAL FACILITIES														
Places for religious assembly	C	C								C		C		

Table 1. Current District Allowances for Places for Religious Assembly.

City staff also looked at similar uses in the MX-B District as the Religious Land Use and Institutionalized Persons Act (RLUIPA) protects religious institutions against discrimination in zoning; however, the most

similar public assembly type uses, such as event centers (accessory use only), movie theaters, amusement centers, and fraternal lodges, etc. are not permitted in the MX-B District as a permitted or conditional use.

Rezoning the property of interest (6010 Earle Brown Drive) from its current zoning designation of MX-B to one of the above zoning districts that allow for places for religious assembly (i.e. R1, R2, C, and I Districts) would likely constitute "spot zoning," which is prohibited within the state of Minnesota. Although the definition of the term "spot zoning" can vary from state to state, Anderson's American Law of Zoning, 4th Edition cites spot zoning as, "the process of singling out a small parcel of land for a use classification totally different from that of the surrounding area for the benefit of the owner of such property and to the detriment of other owners." As the above-mentioned districts are not in close proximity or adjacent to the property of interest, it was determined that an ordinance amendment to the entire Business Mixed-Use (MX-B) District would be the only path forward for the Applicant.

Per Section 35-71301 (*Applicability*), an amendment of the City's Unified Development Ordinance may be initiated by the City Council, Planning Commission, or a City property owner. In this particular case, the Applicant has an interest in purchasing 6010 Earle Brown Drive, which is located within the City's Business Mixed-Use (MX-B) District, and obtained permission from Property Owner MINMOR LLC to apply for a text amendment that would allow for "Places for Religious Assembly" as a conditional use within the aforementioned MX-B District. It should be noted that "conditional uses" are generally *permitted uses* so long as certain conditions are met with respect to the mitigating of potentially negative impacts on neighboring properties for uses already permitted within a district.

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 4013 ALLOWED USE TABLE OF THE CITY CODE OF ORDINANCES REGARDING PLACES OF RELIGIOUS ASSEMBLY IN THE BUSINESS MIXED-USE ZONING DISTRICT

THE CITY COUNCIL OF THE CITY OF BROOKLYN CENTER DOES ORDAIN AS FOLLOWS:

Article I. Brooklyn Center City Code, Chapter 35, Section 35-4103 Allowed Use Table is amended by adding the following double-underlined language:

P = PERMITTED USE, C = CONDITIONAL USE, I = INTERIM USE, A = ACCESSORY USE														
	Residential					Commercial/ Mixed Use				Nonresidential				Use-Specific Standards
	R1	R2	R3	R4	R5	MX-N1	MX-N2	MX-C	TOD	C	MX-B	I	O	
PUBLIC, INSTITUTIONAL, AND CIVIC USES														
COMMUNITY AND CULTURAL FACILITIES														
Places for religious assembly	C	C								C	C	C		

(~~Strikeout~~ indicates matter to be deleted, double-underline indicates new matter.)

Per discussions with the Applicant and Property Owner, there is no current purchase agreement in place. Although a work session was held in August 2023 with the City Council to discuss the proposal, the Applicant has spent the past year fundraising and working on plans for a potential buildout of 6010 Earle Brown Drive. The Applicant would need to enter into a purchase agreement with the Property Owner

pending approval of the requested ordinance amendment to the MX-B District and receive separate approval of a conditional use permit (CUP) for 6010 Earle Brown Drive in order to proceed.

The approximately 20,000-square foot building of interest was originally approved as a City-County Federal Credit Union location and drive-thru under the then C2 (Commerce) District in 1988. The current owners, MINMOR LLC (Minmor Industries), purchased the property of interest in 2008 for their business, which primarily works in the printing, packaging, and promotions industries under its numerous companies (i.e. Mello Smello, OlymPak, Kidcentives, Mission Nutrition, and Safety Stop). Given shifts in the locations of their employees and operations, the building has been underutilized for a number of years and has been for sale or lease off and on for the last few years.

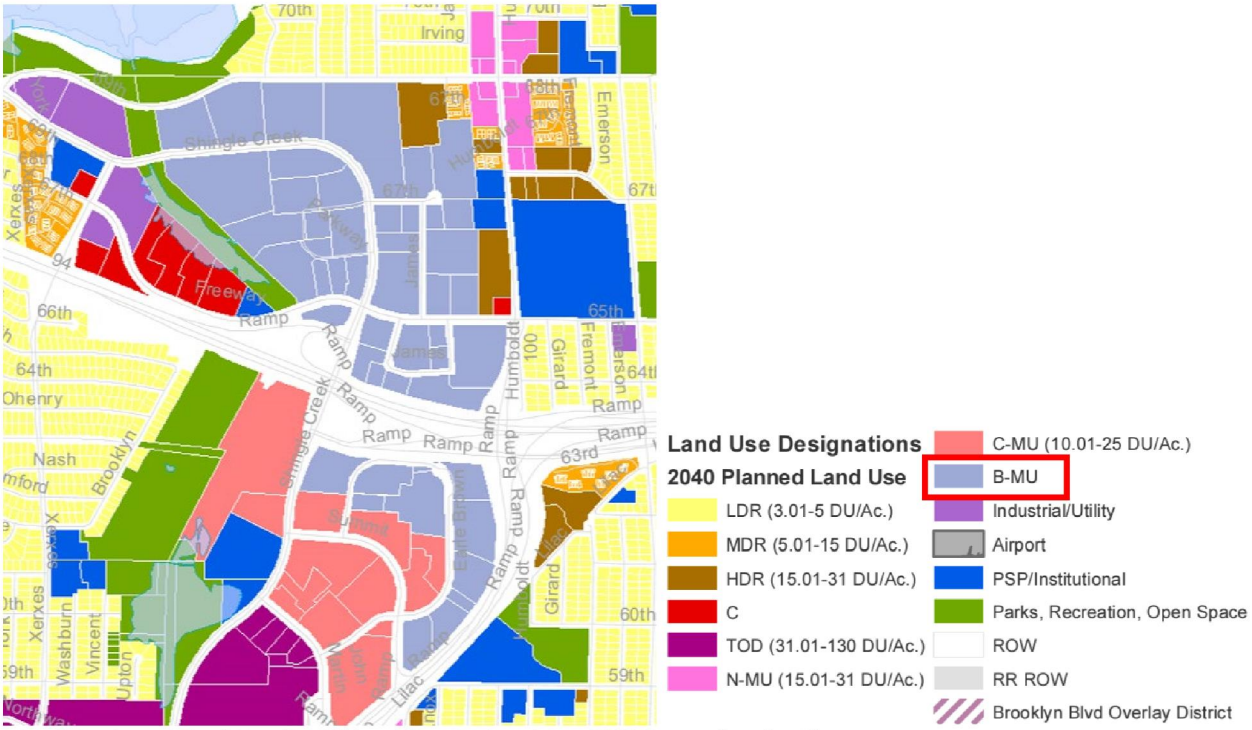
In reviewing requests for ordinance amendments, certain amendment criteria shall be considered as outlined under Section 35-71304 (*Amendment Criteria*). The Planning Commission and City Council shall review the necessary submittal requirements, facts, circumstances of the proposed amendment, and make a recommendation and decision on the amendment based on, but not limited to, consideration of the following criteria and policies:

a. Whether there is a clear and public need or benefit;
b. Whether the proposed amendment is consistent with and compatible with surrounding land use classifications;
c. Whether all permitted uses in the proposed zoning district can be contemplated for development of the subject property;
d. Whether there have been substantial physical or zoning classification changes in the area since the subject property was zoned;
e. Whether there is an evident, broad public purpose in the case of City-initiated rezoning proposals;
f. Whether the subject property will bear fully the UDO development restrictions for the proposed zoning districts;
g. Whether the subject property is generally unsuited for uses permitted in the present zoning district, with respect to size, configuration, topography, or location;
h. Whether the rezoning will result in the expansion of a zoning district, warranted by:
    1) Comprehensive Planning;
    2) The lack of developable land in the proposed zoning district; or
    3) The best interests of the community.
i. Whether the proposal demonstrates merit beyond the interests of an owner or owners of an individual parcel.
j. The specific policies and recommendations of the Comprehensive Plan and other City plans;
k. The purpose and intent of this UDO, or in the case of a map amendment, whether it meets the purpose and intent of the individual district; and
l. If applicable, the adequacy to buffer or transition between potentially incompatible districts.

2040 Comprehensive Plan

The City's Business Mixed-Use (B-MU) land use designation, which is in alignment with the City's defined MX-B zoning district, is brand new under the City's 2040 Comprehensive Plan, and is geographically located along a portion of Earle Brown Drive, and north of Interstate 694 off Freeway Boulevard and Shingle Creek Parkway. A Planned Unit Development zoned PUD/I1 and located off Parkway Circle is also included within the B-MU designation. This designation, "guides for a mix of businesses, light industrial, and supporting retail/service uses. This designation encourages redevelopment or development of commercial, office, general business, and light industrial uses in coordination with supporting

retail/commercial uses to encourage a more dynamic and connected experience for workers. This land use does not plan for residential uses but may include limited live-work opportunities as established through supporting official controls."



Map 3. Business Mixed-Use (B-MU) Land Use Designation – 2040 Comprehensive Plan.

The Business Mixed-Use (B-MU) future land use designation is one of the five (5) land uses that are identified for places of new or expected additional employment within the City of Brooklyn Center, with the Business Mixed-Use (B-MU) land use designation anticipated to account for the **greatest added employment intensity (1,303) and 100% expected commercial or industrial usage** across its 269 acres of the City. Further, almost the entire B-MU land use designation is identified as a "potential area for change." As the City is predominantly a, "bedroom community," with the overwhelming majority of lands reserved for low density residential (e.g. R1 District), there are limited opportunities to add any major employment opportunities with the exception of the following land use designations: Transit-Oriented Development, Neighborhood Mixed-Use, Commercial Mixed-Use, Commercial, and Business Mixed-Use.

With that said, the City's Commercial Mixed-Use (C-MU) and Business Mixed-Use (B-MU) land use designations are identified within the 2040 Plan as "vibrant business centers" that are focused more heavily on commercial, retail, office, and light industrial uses while continuing to emphasize the concept of creating "experiences for the users." The purpose is to promote and encourage businesses, commercial users, retailers, etc. to plan for interconnected systems that result in a more active vibrant employment center, and shift away from the traditional isolated campuses and strip mall concepts.

A key focus of the 2040 Comprehensive Plan is Chapter 5 (*Community Image, Economic Competitiveness, and Stability*), which reinforces the City's vision to commit to redefining, reimagining, and redeveloping key areas of the community with plans to elevate Brooklyn Center to an economically competitive City within the greater region. This is defined as the, "City's ability to compete effectively for economic development that creates jobs, brings and retains corporations, successfully incubates new businesses

and services on a local, regional, national, and international scale." It also references the ability of the City to attract jobs and employment that serves its residents, and emphasizes opportunities to access education, job skills matching, and an improved quality of life for all of its residents.

It is recognized that the City of Brooklyn Center contains a great number of entrepreneurs, with residents who would like the opportunity to work where they live and with others who are passionate about making the City a great place to build and grow a business. Much of the City's identified Business Mixed-Use (B-MU) land use designation is comprised of older stock light industrial type buildings constructed between the 1960s and 1970s that may not initially generate the interest of today's typical industrial user, who requires higher clear heights, more square footage, and larger truck courts. While this may be viewed as a disadvantage to the City with respect to its overall economic competitiveness, it also presents an opportunity to re-envision and perhaps redevelop.

Unlike the broader region, in which the population continues to age rapidly, Brooklyn Center's population grew younger between 2000 and 2010, due to an increase in the number of persons aged 25 to 34. Although the 2040 Comprehensive Plan noted a median age of residents as 32.8 (2016), the 2020 census identified a median age of 32.**4** in Brooklyn Center. Increases in the number of young families ultimately place demands on schools, housing affordability, and the types of retail goods and services needed.

The American Community Survey (2018-2022) data on record identifies an employment rate of 68.6% for residents of Brooklyn Center as opposed to a Minnesota-wide employment rate of 65.7%. Of those civilians employed and aged 16 or older: 23.3% worked in educational services, health care, and social assistance; 18.4% worked in manufacturing; and 11.6% worked in professional, scientific, and management, administrative, and waste management services. The average commute of a Brooklyn Center resident is 23.3 minutes, which is just slightly longer than the average commute of a Minnesota worker. The 2040 Plan notes **more than four (4) times as many residents work in Minneapolis than Brooklyn Center**. This is an important consideration in identifying the potential to capitalize on more local residents returning to the City for work and accessing our younger labor pool and offering a greater work-life balance by allowing more residents to live and work in Brooklyn Center.

While many residents and policy-makers may have historically pointed to "retail" as a prevalent industry and job provider in the City of Brooklyn Center, the "production, distribution, and repair" (PDR) industry sector provides the most employment opportunities in the community, and accounts for over 3,100 jobs in the City. The 2040 Plan notes that this is an important industry to maintain in the community now and into the future, and that the Future Land Use Plan specifically identifies, supports, and plans for land uses that will continue to promote and maintain light industrial and manufacturing, and other similar businesses.

The PDR industry in Brooklyn Center is trailed slightly by the "Educational and Medical Services" (Eds/Meds) industry, which has been booming across the Twin Cities region. This is presented in the more recent investments made by Medtronic, who employs over 1,200 people in Brooklyn Center. Their property has occupied nearly 19 acres of land under the B-MU land use designation since the early 1970s and recently went through expansions at each of its buildings in 2018 (dry room addition) and 2019 (chiller plant addition). Their facilities at 6700 and 6800 Shingle Creek Parkway have since been re-branded as Medtronic's Energy and Component Center (MECC), and as they forward their vision as a med-tech campus.

Unified Development Ordinance | Mixed-Use (MX-B) Zoning District

MX-B Uses

Adoption of the City's Unified Development Ordinance in January 2023 resulted in the retirement of the City's long-standing I1 (Industrial Park) District, and it was, for the most part, replaced with the City's Business Mixed-Use District. This new zoning district reflects the 2040 Comprehensive Plan in that the purpose of the MX-B District is to, "accommodate land for a mix of business and light industrial uses, with allowances for supporting retail/service uses. This designation encourages redevelopment or development of commercial, office, general business, and light industrial uses in coordination with supportive retail/commercial uses towards encouraging a more dynamic and connected experience for workers."

While the district's predecessor, the I1 District, was very much a typical business park/light industrial district, in that the uses were limited to manufacturing activities, wholesale trade activities, service activities (e.g. veterinarian and animal hospitals, kennels, laundering, dry cleaning, and dyeing, and contract construction), public transportation terminals, foundries, and textile mills, with retail permitted via special use as an accessory use only, the new MX-B District strives to provide a wider range of uses to the benefit of employers and employees in the area, while still maintaining its origins as a light industrial district.

Section 35-4103 of the Unified Development Ordinance outlines "manufacturing, assembly, and processing of products, "wholesale trade," "foundries," and "textile mills and mills products" as uses *only* allowed or permitted by conditional use in the City's MX-B and I Districts. The new MX-B District does grant new flexibilities in use by allowing for non-residential educational uses like business and trade schools (but excluding public and private elementary and secondary schools), medical and health uses, brewpubs, micro-wineries and distilleries, restaurants, grocery stores, indoor recreational fitness (but not amusement centers), and hospitality lodging; however, these uses function differently than a place for religious assembly might in that they are oftentimes centered around service times, and oftentimes operate outside of typical business hours (e.g. Monday through Friday, 8 to 5 p.m.), although the below example provides mid-day services on Fridays.

Potential Impacts and Other Considerations

Places for Religious Assembly are currently permitted as a conditional use within the City's R1 (Low Density Residential), which comprises the greatest amount of land in the City, R2 (Medium Low Density Residential), C (Commercial), and I (Industrial) zoning districts. The majority of existing religious assembly uses are predominately located within the City's R1 District. There is only one religious assembly use located in the City's I (General Industry) District, and in what was formerly a veterinary hospital turned mosque at 4900 France Avenue North. Prior to this request, all places for religious assembly were required primary vehicular access **to be located on a collector or arterial street**. This was, in part, a means to manage traffic volumes on City streets as people arrive and leave prior to and following a service.

The aforementioned place for assembly use at 4900 France Avenue North, which City staff sees as the closest example given its location in the City's heavier industrial I District, is located on a dead-end cul-de-sac and, although a parking and traffic study was provided as part of their special use application, with plans to operate a shuttle given limited on-site parking, their conditions of approval are not being met and City staff has noted on-street parking during service times, which constrains emergency vehicle access to the property's sole access, access to neighboring industrial businesses and residential homes, as well as parking occurring off-site at the Xcel Transformer Station. As its location is not served by sidewalks, this

also forces members to walk in the City streets or across private properties (refer to Image 1 below):



Image 1. On-street parking at Location of Place for Religious Assembly in I (General Industry) District.

Assembly uses, such as religious institutions, tend to have higher parking demands than other types of uses due to the nature of their visitors. Industrial uses by contrast tend to have low parking demands relative to their square footage because these uses generally have lower employment densities, although the 2040 Comprehensive Plan seeks to add employment intensity to the B-MU land use designation.

For example, places of public assembly, such as houses of worship (e.g. churches, mosques), theatres, auditoriums (other than school auditoriums), mortuaries, stadiums, arenas, and dance halls require **one parking space for every three seats**, or attendees, per Section 35-5506 (*Required Parking Spaces*) under the City's Unified Development Ordinance. Conversely, industry and wholesale uses, as are more typically found in the City's MX-B District, require **one space for every two employees based upon maximum planned employment during any work period or one space for each 800 square feet of gross floor area, whichever requirement is greater.** In the event the latter requirement is greater, adequate land area shall be provided for the required off-street parking area, but improved space need only be provided according to the employees' ratio.

In reviewing the City's existing MX-B District properties, it was noted that the majority of properties (in terms of building square footage) are home to uses traditionally found in a business park/light industrial district. These include: Medtronic, Endurable Building Products (aluminum deck systems), Hiawatha Rubber, Reviva (remanufactured diesel engines/components), RAO Manufacturing (supplier of deep draw formings, metal stampings, sheet metal fabrication, etc.), the former Metro Transit Reuter Bus Garage, and the City's Public Works Garage. The majority of these properties are located on minor roadways that are intended to provide access for employees, trucking, and logistics, with loading docks, gated access, or outside storage present. Although there are some properties that do not fit this description (e.g. multi-tenant buildings off Earle Brown Drive, hotels and former Earle Brown Lanes bowling alley, which is currently being converted to a Los Campeones Gym off James Circle North), these are the existing conditions for many of the 36 properties within the MX-B District.


Medtronic
SHIPPING
RECEIVING




SHIPPING & RECEIVING




MILE FOUR





Image 2. Existing Parking Conditions at Different MX-B District Properties.



Image 3. Example Conditions of Road Access within MX-B District.

There are certain barriers that would also require consideration in retrofitting industrial or office type buildings or tenant spaces for "assembly" type uses as they require higher fire suppression standards than other types of uses due to the congregation of people that occurs within buildings and the potential need for exiting in case of an emergency. Conversion of a standalone building or tenant space would likely constitute a change of use from the perspective of Building and Fire Code, and thus would trigger a change of use from the perspective of the Building and Fire Code.

In the case of the few multi-tenant office buildings located off Earle Brown Drive and within the MX-B District, their building type could restrict the location of a proposed place for religious assembly type use. For example, on a 2B construction type building, an assembly use could not be located higher than the third (3rd) floor.

In reviewing the standards for approving an ordinance amendment, the proposed amendment shall be consistent with and compatible with surrounding land use classifications; whether the proposal demonstrates merit beyond the interests of an owner or, in this case, interested party, for an individual parcel; and the specific policies and recommendations as outlined within the City's Comprehensive Plan or other City plans.

Although this is not contemplated within this application, any applicant pursuing a conditional use permit (CUP) for a "Places for Religious Assembly" use would further need to satisfactorily demonstrate that all conditional use permit criteria as outlined under Section 35-7703 (*Conditional Use Permit Criteria*) has

been meet. These criteria include, but are not limited to whether: the establishment of the conditional use will impede the normal and orderly development and improvement of surrounding property for uses permitted in the district; that adequate measures have been or will be taken so as to provide ingress, egress, and parking so designed as to minimize traffic congestion in the public streets; be in accordance with the general objectives, or with any specific objective, of the City's Comprehensive Plan and Unified Development Ordinance; and not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish and impair property values within the neighborhood.

RECOMMENDATION

*Based on the above-noted findings, and in response to Section 35-71304 (Amendment Criteria) of the City Code, City staff recommends the Planning Commission recommend City Council **denial** of Planning Commission Application No. 2024-011, which would amend Section 35-4103 (Allowed Use Table) of the City Code of Ordinances regarding places for religious assembly as a conditional use within the City of Brooklyn Center's Business Mixed-Use (MX-B) zoning district.*

If City Council were to grant an approval of the above-requested amendment to Chapter 35 (Unified Development Ordinance), it would require any applicant, including the Applicant for Planning Commission Application No. 2024-011, to submit a separate application for review and consideration of a conditional use permit (CUP).

ATTACHMENTS

Exhibit A – Planning Commission Application No. 2024-011 plans and documents, submitted August 13, 2024.

Exhibit B – Public Hearing Notice, submitted for publication in the Brooklyn Center *Sun Post*, and dated August 29, 2024

Exhibit C – Council/EDA Work Session Memo for Concept Review of 6010 Earle Brown Drive and Discussion on Potential Changes to MX-B District to Allow for Places of Religious Assembly with Select Exhibits, dated August 28, 2023.

Exhibit D – Map of City MX-B District Properties and Table of Property Information.

a. Whether there is a clear and public need or benefit;
Trinity International Fellowship stands as a beacon of light, radiating passion and purpose. Its teachings encompass all aspects of life, empowering believers to apply the principles of the Gospel and effect societal change. With a deep-rooted desire to witness transformation and impact, the ministry equips its members with the necessary tools to delve into the Word of God, fostering profound understanding.

Trinity International conducts community outreach such as food assistance programs (at no-cost), counseling, and youth programing, with the intent to support the community of Brooklyn Center at large.

b. Whether the proposed amendment is consistent and compatible with surrounding land use classifications.
While not a Permitted Use, Places for Religious Assembly provide community care, guidance and connectivity. Trinity International Fellowship believes this support should not be limited to specific areas in the community.

c. Whether all permitted uses in the proposed zoning district can be contemplated for development of the subject property;
The proposed amendment is less restrictive. Therefore, all existing permitted uses in the proposed zoning district will remain eligible on the subject property.

d. Whether there have been substantial physical or zoning classification changes in the area since the subject property was zoned;
Planning for the project started in 2021. Since then, there has been a substantial zoning classification change when the City of Brooklyn Center updated its Comprehensive Plan. Under the previous city code, Places for Religious Assembly were permitted uses on this site.

f. Whether the subject property will bear fully the UDO development restrictions for the proposed zoning districts;
If the Text Amendment is accepted by the City of Brooklyn Center, the subject property will be in full compliance.

g. Whether the subject property is generally unsuited for uses permitted in the present zoning district, with respect to size, configuration, topography or location;
While this property could be developed for permitted uses, per the UDO, Places for Religious Assembly are not Permitted Uses in any zoning district and are only permitted as Conditional Uses in R1, R2, C, and I Zoning Districts. Trinity International believes the City of Brooklyn would benefit from allowing Places for Religious Assembly to be located amongst a diverse group of sites.

h. Whether the rezoning will result in the expansion of a zoning district, warranted by:
1) Comprehensive Planning;
2) The lack of developable land in the proposed zoning district; or
3) The best interests of the community.
Places for Religious Assembly provide spiritual guidance and support for the community. Trinity International conducts outreach programs such as food assistance programs, counseling, youth

programs with the intent to support anyone in the larger community regardless of religious belief. Thus, the rezoning will result in strengthening support for the community.

i. Whether the proposal demonstrates merit beyond the interests of an owner or owners of an individual parcel.
Trinity International Fellowship plans to invest millions of dollars in constructing a facility that has a Sanctuary for services, gathering and meeting spaces for community use, spaces for youth ministry, a food shelf to assist those in need, and offices for ministry staff and community outreach. With this, With the goal of aiding the poor, assisting the homeless, and promoting community development, Trinity International Fellowship aims to be a pillar in the community for many years to come.

k. The purpose and intent of this UDO, or in the case of a map amendment, whether it meets the purpose and intent of the individual district; and
While not a Permitted Use, a Place for Religious Assembly will provide support to the neighboring sites such as the residential district and hospital.

l. If applicable, the adequacy of a buffer or transition provided between potentially incompatible districts.
The proposed Amendment should not produce any incompatible districts.

From: Holly Burley <holly@vanmanab.com>
Sent: Friday, September 6, 2024 9:46 AM
To: Krystin Eldridge
Cc: Ginny McIntosh
Subject: RE: Trinity International - 6010 Earle Brown Additional Documents

Hi Ginny and Krystin,

A – Clear and Public need or benefit –
Beyond the benefits of fostering a religious community, Trinity International seeks to support the Brooklyn Center community as a whole. We hear a lot about our communities facing significant challenges such as food insecurity, mental health issues, and a lack of opportunities for youth. These challenges disproportionately affect vulnerable populations, including low-income families, individuals with disabilities, and the elderly. According to Metcouncil, Brooklyn Center has a higher unemployment rate than the Hennepin County average with those numbers on the rise. Metcouncil has also defined Brooklyn Center as an area of concentrated poverty with over 50% are residents of color and having significant income inequality in the past 10 years of reporting. Based on these data backed needs of the public, Trinity International seeks to utilize their already established ministries of food assistance programs, counseling, and youth programming as well as establish new ministries based on specific needs and feedback of the Brooklyn Center community to help meet that need.

B – Whether the proposed amendment is consistent and compatible with surrounding land use classifications
The proposed amendment for the building location is within the MX-B district and adjacent to PUDMIXED, C, R1, R3, R5. While Places of Religious Assembly is not a permitted use in any of the zoning districts, it is a conditional use in all surrounding zones. In addition, many of the uses in the proposed Trinity International building align with MX-B permitted, conditional, or accessory uses. The building would have features of permitted uses including non-commercial recreation, as well as food bank related services that may be similar to grocery establishments. Conditional uses for MX-B that would be similar include library and indoor recreation uses – especially for children and youth. Allowable accessory uses of eating establishment, and banquet and conference spaces would also be accessory uses within Trinity International with potlucks, community gatherings, and space for special event including weddings, funerals, and similar services.

Thank you,
Holly



Holly Burley
Senior Architect, Vanman Architects and Builders

P 763.541.9552 | M 507.621.2192 | E holly@vanmanab.com
W vanmanab.com | A 6701 W 23rd St, Minneapolis, MN 55426

From: Krystin Eldridge <keldridge@brooklyncentermn.gov>
Sent: Friday, August 30, 2024 12:34 PM
To: Holly Burley <holly@vanmanab.com>
Cc: Ginny McIntosh <gmcintosh@brooklyncentermn.gov>
Subject: RE: Trinity International - 6010 Earle Brown Additional Documents

Hi Holly,
I am unsure how familiar you are with the project. We were looking through your submitted materials for Planning Commission Meeting on September 12. For rezoning questions in particular (attached), we are looking at a broader impact for the City and the Business Mixed Use districts. Can you expound on how this use benefits the MX-B district, specifically A and B of the statement.

All the light purple areas are MXB. Let me or Ginny know if you need something else to help you with these questions. Maybe you can add some examples of how it worked for other proposals?
I will not be in next week, but Ginny can help answer any questions you have.

Thank you,
Krystin Eldridge | Associate Planner
City of Brooklyn Center
6301 Shingle Creek Parkway | Brooklyn Center, MN 55430-219
Direct: 763.569.3316 | General: 763.569.3330
General Email: communitydevelopment@ci.brooklyn-center.mn.us
www.brooklyncentermn.gov | keldridge@brooklyncentermn.gov

From: Julian Akogyeram <julian@vanmanab.com>
Sent: Tuesday, August 13, 2024 2:02 PM
To: Krystin Eldridge keldridge@brooklyncentermn.gov
Cc: Ginny McIntosh <gmcintosh@brooklyncentermn.gov>
Subject: Re: Trinity International - 6010 Earle Brown Additional Documents

Krystin,

Any updates on the process?

Thanks,
Julian

From: Julian Akogyeram
Sent: Monday, July 22, 2024 4:12 PM
To: keldridge@brooklyncentermn.gov <keldridge@brooklyncentermn.gov>
Cc: Ginny McIntosh <gmcintosh@ci.brooklyn-center.mn.us>
Subject: Trinity International - 6010 Earle Brown Additional Documents

Krystin,

Please see the attached.

The document called “Rezoning Statement” has the answers to the questions we discussed earlier. I’ve also attached the Site and Grading Plans. The Plans and Elevations are too large to add to this email, so I’ll send those separately.

Please let me know if you need anything else.

Thanks,

This email has been scanned for spam and viruses by Proofpoint Essentials. Click here to report this email as spam.

Exhibit B

CITY OF BROOKLYN CENTER

Please take notice that the Planning Commission of the City of Brooklyn Center will hold a public hearing on Thursday, September 12, 2024 at 7:00 p.m. at Brooklyn Center City Hall, located at 6301 Shingle Creek Parkway, Brooklyn Center, MN 55430 to hear from the public, discuss, and make a recommendation upon an ordinance amending Chapter 35 of the City Code to allow places of religious assembly as a conditional use in the City's Business Mixed-Use (MX-B) zoning district. Public hearing materials can be accessed and will be available in advance of the meeting by visiting the City of Brooklyn Center's website at: https://www.brooklyncentermn.gov/ Interested persons are welcome to attend the hearing and be heard regarding this matter.

Comments and questions may be forwarded to Ginny McIntosh, Planning Manager, at gmcintosh@brooklyncentermn.gov or by phone at (763) 569-3319 up until 4:30 pm on the day of the hearing.

Auxiliary aids for persons with disabilities are available upon request at least 96 hours in advance.

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 35-4103 ALLOWED USE TABLE OF THE CITY CODE OF ORDINANCES REGARDING PLACES OF RELIGIOUS ASSEMBLY IN THE BUSINESS MIXED-USE ZONING DISTRICT

THE CITY COUNCIL OF THE CITY OF BROOKLYN CENTER DOES ORDAIN AS FOLLOWS:

Article I. Brooklyn Center City Code, Chapter 35, Section 35-4103 Allowed Use Table is amended by adding the following underlined language:

P = PERMITTED USE, C = CONDITIONAL USE, I = INTERIM USE, A = ACCESSORY USE														
	Residential					Commercial/ Mixed Use				Nonresidential				
	R1	R2	R3	R4	R5	MX-N1	MX-N2	MX-C	TOD	C	MX-B	I	O	Use-Specific Standards
PUBLIC, INSTITUTIONAL, AND CIVIC USES														
COMMUNITY AND CULTURAL FACILITIES														
Community Center						C	C	C	C	C				
Funeral and crematory services								C		C				
Cemetery	C													
Libraries and art galleries	C	C	C	C	C	C	C	C	C	C	C	C	C	
Places for religious assembly	C	C								C	C	C		

Article II. Severability. Should any section or part of this ordinance be declared by a court of competent jurisdiction to be invalid, such decision will not affect the validity of the ordinance as a whole or any part other than the part declared invalid.

Article III. Effective Date. This ordinance shall become effective after adoption and upon thirty days following its legal publication.

Adopted this ____ day of _____, 2024.

April Graves, Mayor
ATTEST: Barb Suciu, City Clerk

Date of Publication
Effective Date

(~~Strikeout~~ indicates matter to be deleted, underline indicates new matter.)

Published in the
Sun Post
August 29, 2024
1417580

Exhibit C

Council/EDA Work Session

DATE: 8/28/2023

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Jesse Anderson, Community Development Director
BY: Ginny McIntosh, City Planner and Zoning Administrator

SUBJECT: Concept Review for 6010 Earle Brown Drive and Discussion on Potential Changes to MX-B District to Allow for Places of Religious Assembly.

Requested Council Action:

- Consider a concept proposal for 6010 Earle Brown Drive, which would ultimately require an ordinance amendment to the MX-B (Business Mixed-Use) District to allow for places of religious assembly, and provide feedback.

Background:

Trinity International Fellowship, a non-denominational ministry based out of Liberia, has expressed interest in purchasing 6010 Earle Brown Drive, which has long been home to MinMor Industries. The Subject Property was originally approved for use as a bank and drive-thru in 1988, but was purchased by Minmor LLC in 2008. The Subject Property has been marketed on and off for sale or lease for a few years now.

City staff and the architect working with Trinity International Fellowship held numerous conversations surrounding the intended use of the Subject Property and potential impacts to the overarching MX-B District. City staff outlined numerous concerns and considerations as part of these discussions. As City staff determined there was no path forward for the use at the Subject Property under current City Code provisions, the architect, in conversation with Trinity International Fellowship, requested City Council weigh in on the proposal in the form of a concept review work session.

Concept Review for 6010 Earle Brown Drive

The concept review process is an opportunity for the City Council to review a development concept prior to a formal proposal from an applicant, and provide comments, ask questions, and indicate whether or not the City would generally be open to the project. Concept reviews also provide insight to City staff and the applicant as to the City Council's level of interest, and any specific concerns related to a project.

A concept review is considered advisory and is non-binding to the City and the applicant. No formal action can be taken at a work session, and the Council is not being asked to vote on the proposal. If the applicant chooses to submit a formal application to the City to proceed, it would be subject to the full City review process, as with any other application.

The Subject Property located at 6010 Earle Brown Drive was originally approved under Planning Commission Application No. 88019 as an approximately 20,000-square foot City-County Federal Credit Union location and drive-thru. At the time of approval, the Subject Property was zoned C2 (Commerce) District—"financial institutions" and "office buildings" were considered permitted uses within this District.

The staff report on file contemplated the parking requirements under this application assuming a mix of retail and office use for a total of 118 on-site parking spaces.

In 2008, MinMor Industries purchased the Subject Property. MinMor Industries provides print, design, and manufacturing services and primarily works in the printing, packaging, and promotions industries under its numerous companies (i.e. Mello Smello, OlymPak, Kidcentives, Mission Nutrition, and Safety Stop). Given MinMor's reduced office presence at this location, the Subject Property has been for sale or lease off and on for a few years now.

Trinity International Fellowship provided a narrative (attached), which notes an existing membership of between 180 to 250 members since opening their local chapter in 2018. The narrative further indicates plans to purchase the Subject Property for use as a, "sanctuary for services, gathering and meeting spaces, spaces for youth ministry, a food shelf to assist those in need, and offices for ministry staff and community outreach." Although there were conversations about providing on-site daycare, no formal request was outlined in the narrative. Further discussions with City staff outline plans to expand the existing building towards Highway 100 to allow for future membership growth. A multi-phase expansion plan is included with the memo as reference and further breaks down the potential usage of the building.

City staff reviewed the narrative and provided plans, which would accommodate an approximately 1,200 square foot sanctuary, bookstore, food shelf, office space, and group meeting rooms as part of an initial Phase I remodel. As noted, the Subject Property was approved in 1988 with 118 on-site parking spaces. Assuming an assembly use (1 parking space for every 3 seats/persons), the Subject Property would only accommodate an additional growth of likely less than 100 new members before minimum parking needs would no longer be met on-site.

Assuming an existing membership of 250, a minimum of 84 parking spaces would be required—this does not account for parking needs for church staff (e.g. bookstore, office spaces, food shelf), other visitors, and those receiving potential services. The total building occupant load outlined for the ***existing*** building today is noted as 426 occupants. If City staff calculated parking needs purely off occupant load and assumed 100% assembly use (which is not the case), a minimum of 142 on-site parking spaces would be required to serve the existing building, which is 24 more parking spaces than are currently available.

The proposed full Phase II expansion as presented would more than double the building occupancy load from 426 occupants to 928 occupants. Again, if City staff calculated off building occupant load and assumed 100% assembly use (again, which is not the case), a minimum of 310 on-site parking spaces would be required if the building were expanded. The submitted Phase II expansion plans again contemplate a dedicated food shelf, book store, pastoral offices, group meeting rooms, a further expanded approximately 5,300-square foot sanctuary with stage, classrooms, and a basement dedicated for a children's play area, nursery, and classrooms (e.g. young children, pre-school, toddlers).

These parking concerns were relayed by City staff who noted constraints to the future use of the property as envisioned. City staff further inquired on the Northern States Power (NSP) powerline that appears to run along the Subject Property and noted that any proposed plans to expand would require additional review depending on the width of the easement and any restrictions. Although there are two existing curb cut access points off Earle Brown Drive, City staff addressed concerns surrounding ingress and egress as the Subject Property is located off the intersection of Earle Brown Drive and Summit Drive (4-way stop) and it is assumed all traffic would be concentrated at this intersection given Earle Brown Drive is a loop road.

Amendments to MX-B (Business Mixed-Use) District | Other Considerations

"Places for Religious Assembly" are permitted through approval of a Conditional Use Permit (CUP) in the

City's R1 (Low Density Residential), R2 (Medium Low Density Residential), C (Commerce—Service/Office), and I (General Industry) Districts. The majority of existing religious assembly uses are predominantly located within the City's R1 Districts. Only one religious assembly use is located within the I District.

City staff reviewed the City's Unified Development Ordinance (Chapter 35) and the only perceived path forward for Trinity International Fellowship to purchase the Subject Property and occupy the space for religious assembly would be for the City Council to amend the Unified Development Ordinance to allow for "places for religious assembly," as it is currently prohibited as a use in the MX-B District. In keeping with the other districts, City staff assumes the path would be via approval of a Conditional Use Permit.

City staff reviewed other potential options, such as re-zoning the Subject Property; however, the property is entirely surrounded by other MX-B District-zoned properties. The MX-C (Commercial Mixed-Use) District is located to the south of the Subject Property, off Summit Drive; however, this District also prohibits "places for religious assembly" as a use. The only other alternately zoned properties are located across Earle Brown Drive (i.e. Lux Apartments, Ecumen Memory Care); however, these properties are zoned PUD/Mixed (Planned Unit Development/Mixed Use) District and were specifically approved for multi-family/senior housing uses. "Spot zoning" a property is generally prohibited.

The majority of the City's MX-B District is located just north of Interstates 94/694 and off the intersection of Shingle Creek Parkway and Freeway Boulevard, although there are also MX-B zoned properties off Earle Brown Drive. City staff counted a total of 38 properties across the City that are zoned with the MX-B District designation. Although some properties feature multi-tenant type buildings, other properties have standalone buildings. Many of the MX-B properties appear to be located off either loop roads (e.g. Earle Brown Drive, James Circle North), or cul-de-sacs (67th Avenue North).

The MX-B District's purpose, as outlined in the City's Unified Development Ordinance, is to, "accommodate land for a mix of business and light industrial uses, with allowances for supporting retail/service uses. This designation encourages redevelopment or development of commercial, office, general business, and light industrial uses in coordination with supportive retail/commercial uses towards encouraging a more dynamic and connected experience for workers. This land does not plan for residential uses, but may include limited live-work opportunities as established through supporting official controls."

Permitted uses within the MX-B District include uses like: medical and health uses, animal hospitals, commercial animal establishments, brewpubs, micro-wineries, and micro-distilleries, office uses, automobile and truck repair and service stations, manufacturing, assembly, and processing of products, artisan production and sales, wholesale trade, and business/trade/post-secondary schools, but *not* public and private elementary and secondary schools.

Assembly uses, such as places of religious assembly, tend to have higher parking demands than other types of uses, such as industrial, which typically have lower parking demands relative to the overall square footage of building, due in part to lower employment densities. For example, "places of religious assembly," and other assembly type uses (e.g. theatres, stadiums, arenas, and dance halls) require, "1 parking space for every three seats/persons." Industry and wholesales uses require a minimum of one (1) space for every two (2) employees based on maximum shift or one (1) space for every 800 square feet of gross floor area. Medical and dental clinics, which are permitted in the MX-B District, require a minimum of three (3) spaces for each doctor or dentist, plus one (1) space for every two (2) employees or one space for each 150 square feet of gross floor area. Office buildings require a minimum of three (3) parking spaces for every 1,000 square feet of gross floor area.

Depending on the existing use, the conversion of a building could also trigger a "change of use" under the Building Code, which requires additional considerations, including but not limited to: installation of panic hardware, fire separation/protection measures, or installation of an elevator/lift (dependent on occupancies).

Policy Considerations

The City Council is being asked to consider a concept proposal for 6010 Earle Brown Drive, which would ultimately require an amendment to the MX-B (Business Mixed-Use) District to allow for "places for religious assembly," which is currently prohibited within this District.

Issues for the City Council to consider:

- Are there aspects of the site layout, architecture, or form of the presented site plan for 6010 Earle Brown Drive (Subject Property) that are concerning to the Council?

- Is the development plan in keeping with the City's 2040 future land use plan and long-range vision for the area?
    - Approximately 5.02% of the City of Brooklyn Center has a 2040 future land use designation of "Business Mixed-Use." This does not include approximately 15 acres of land located at 1297 Shingle Creek Crossing (Former Sears property) that was recommended last year for a recommended comprehensive plan amendment re-designation to Business Mixed-Use, which would bring the total acreage under this designation to approximately 5.3%.

- Does the proposed amendment to the MX-B (Business Mixed-Use) District forward the City's strategic priorities?
    - The City's priority of "Resident Economic Stability" notes that the, "economic stability of residents is essential to vibrant neighborhoods and to retail, restaurant, and business growth. We will lead by supporting collaborative efforts of education, business, and government sectors to improve income opportunities for residents." Further, the City's values statement of "Operational Excellence," notes that the City will, "commit ourselves to deliver quality services in a cost effective and efficient manner. We will be good stewards of the limited resources made available to use by the citizens we serve."
        - Certain classes of property are considered "exempt" and are therefore not subject to property taxes. These typically include, but are not limited to: religious uses (e.g. churches/houses of worship), certain institutions of public charity (e.g. 501(c)(3) organizations), schools (e.g. public, charter schools), cemeteries/burial grounds, and property used for public purposes (e.g. City Hall, Fire Station). It is important to note that while a property may become "tax exempt," the burden does not disappear—rather, it is shifted to other tax payers within the City.

          Although there are other factors to consider and the potential impacts unknown at this time, in reviewing the City's MX-B properties, it was determined that the majority of MX-B District properties appear to be classified for tax rate purposes as "Industrial Preferred" or "Commercial Preferred," which tax at a higher rate than other property types. Dependent on interest, there could be implications to the overall tax base that would need to be accounted for in future City budget years.

Budget Issues:

None to consider at this time; however, as noted above, there may be future implications to the overall tax base in the future.

Antiracist/Equity Policy Effect:

Strategic Priorities and Values:

Resident Economic Stability, Operational Excellence

ATTACHMENTS:

Description	Upload Date	Type
City of Brooklyn Center Zoning Map - MX-B District	8/22/2023	Backup Material
Narrative_Trinity International Fellowship	8/22/2023	Backup Material
Site Floor Plans_6010 Earle Brown Drive	8/22/2023	Backup Material
presentation	8/28/2023	Presentation

Brooklyn Center Zoning Map

Brooklyn Center, MN

Shoreland and MRCCA Areas

March 2023

BOLTON & MENK

BROOKLYN PARK

CRYSTAL

ROBBINSDALE

FRIDLEY

MINNEAPOLIS

94

694

252

100

130 COUNTY

10 COUNTY

8 COUNTY

9 COUNTY

81 COUNTY

57 COUNTY

152 COUNTY

1 COUNTY

Legend

City Boundaries

Shoreland Areas

Mississippi River Corridor Critical Area (MRCCA) Districts

District Description (District Code)

River Neighborhood District (CA-RN)

Separated from River District (CA-SR)

Water

Zoning Districts

R1 : Low Density Residential

R2 : Medium Low Density Residential

R3 : Medium Density Residential

R4 : Medium High Density Residential

R5 : High Density Residential

MX-N1 : Neighborhood Mixed-Use

MX-N2 : Neighborhood Mixed-Use

MX-B : Business Mixed Use

I : General Industrial

MX-C : Commercial Mixed-Use

C : Commerce - Service/Office

TOD : Transit Oriented Development

O : Public Open Space

PUD/C1 : Planned Unit Development/Commercial 1

PUD/C2 : Planned Unit Development/Commercial 2

PUD/C1A : Planned Unit Development/Office-Service

PUD/I1 : Planned Unit Development/Industrial 1

PUD/R1 : Planned Unit Development/Residential 1

PUD/R3 : Planned Unit Development/Residential 3

PUD/MX-C : Planned Unit Development/Commercial Mixed-Use

PUD/MX-B : Planned Unit Development/Business Mixed Use

PUDMIXED : Planned Unit Development/Mixed

PUD/TOD : Planned Unit Development/Transit Oriented Development

0 1 Miles

Source: MnGeo, Hennepin County

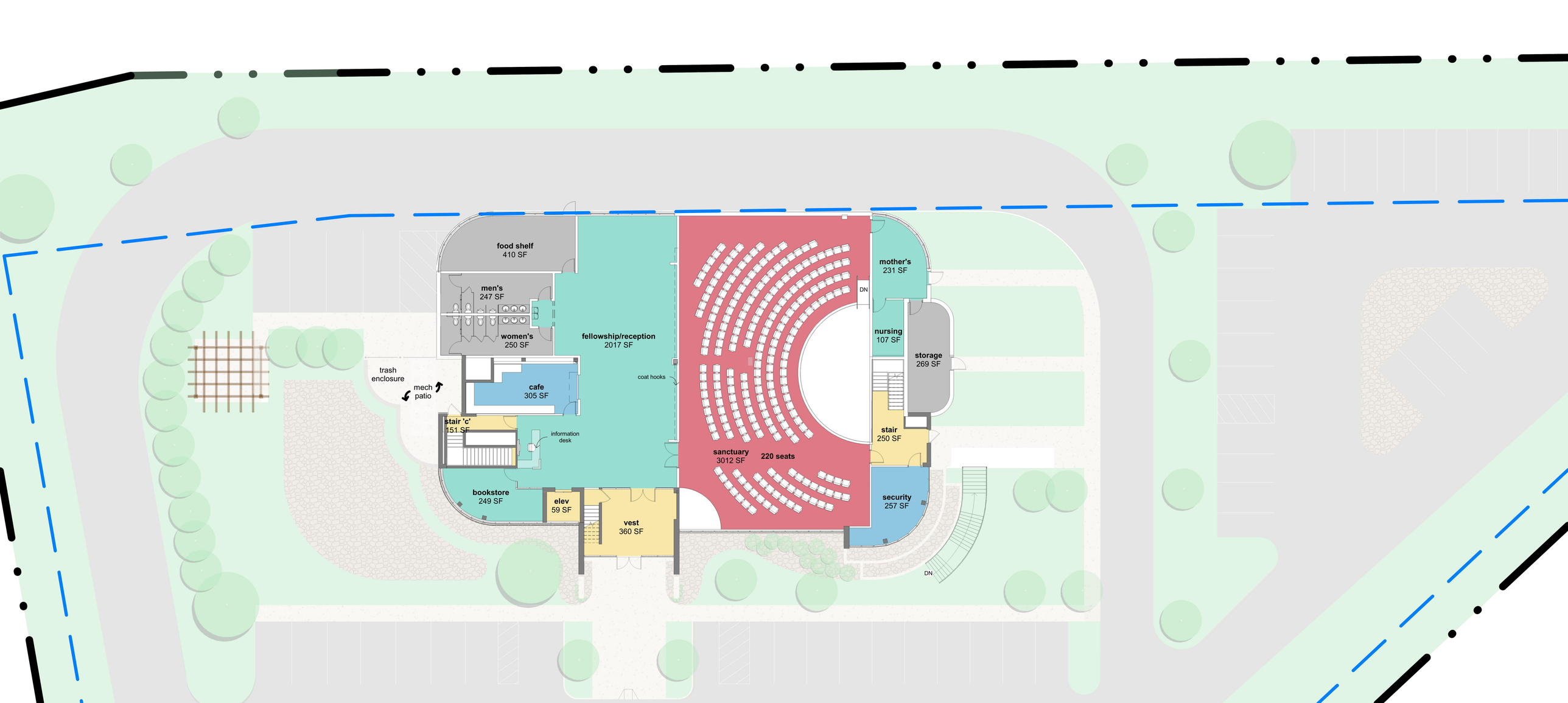
Map Document: \\arcserver1\GIS\BRCN_Basemap\ESRI\Pro\Zoning\ZoningMap\ZoningMap.aprx | Username: davidsa | Date Saved: 3/16/2023 4:44 PM

Trinity International Fellowship, a non-denominational ministry, has made a remarkable impact since its establishment in 1999. With its mega central headquarters in Monrovia, Liberia, and branches spanning across three different nations, the ministry has witnessed continuous growth, boasting an impressive membership of over 12,000 active individuals. In 2018, a new chapter began as Trinity International Fellowship planted its roots in Brooklyn Center, Minnesota, where it quickly gained traction and now serves a thriving community of 180 to 250 members.

The ministry's commitment to serving the community is evident as it seeks to expand its reach by purchasing the property located at 6010 Earle Brown Drive. This campus will consist of a Sanctuary for services, gathering and meeting spaces, spaces for youth ministry, a food shelf to assist those in need, and offices for ministry staff and community outreach. With the goal of aiding the poor, assisting the homeless, and promoting community development, Trinity International Fellowship aims to make a lasting impact through the teachings of Jesus Christ. Plans are underway to invest millions of dollars in constructing a facility that aligns with the architectural vision and gains approval from the city council, further solidifying the ministry's commitment to their mission.

One of the driving factors behind choosing Brooklyn Center as the ministry's location is its vibrant diversity. Trinity International Fellowship thrives in the multi-cultural atmosphere, embracing the richness that comes from various backgrounds and traditions. Since their arrival in 2018, the congregants have been actively involved in fellowship, helping those in need and distributing food and clothing. Led by the dedicated Senior Pastor, Nyenatee S. Davis, who is not only a minister but also a doctorate student at the University of Minnesota and a successful entrepreneur, the ministry's impact extends beyond the Sunday sermons.

Trinity International Fellowship stands as a beacon of light, radiating passion and purpose. Their teachings encompass all aspects of life, empowering believers to apply the principles of the Gospel and effect societal change. With a deep-rooted desire to witness transformation and impact, the ministry equips its members with the necessary tools to delve into the Word of God, fostering profound understanding. Their success is not measured solely by numbers, but by the countless souls won through their unwavering dedication. Trinity International Fellowship humbly acknowledges that all the glory belongs to God alone, as it continues to shine brightly in its pursuit of sharing the Gospel.



TRINITY INTERNATIONAL

PHASE 2 - SITE - OPTION 'B'

VANMAN
architects and builders

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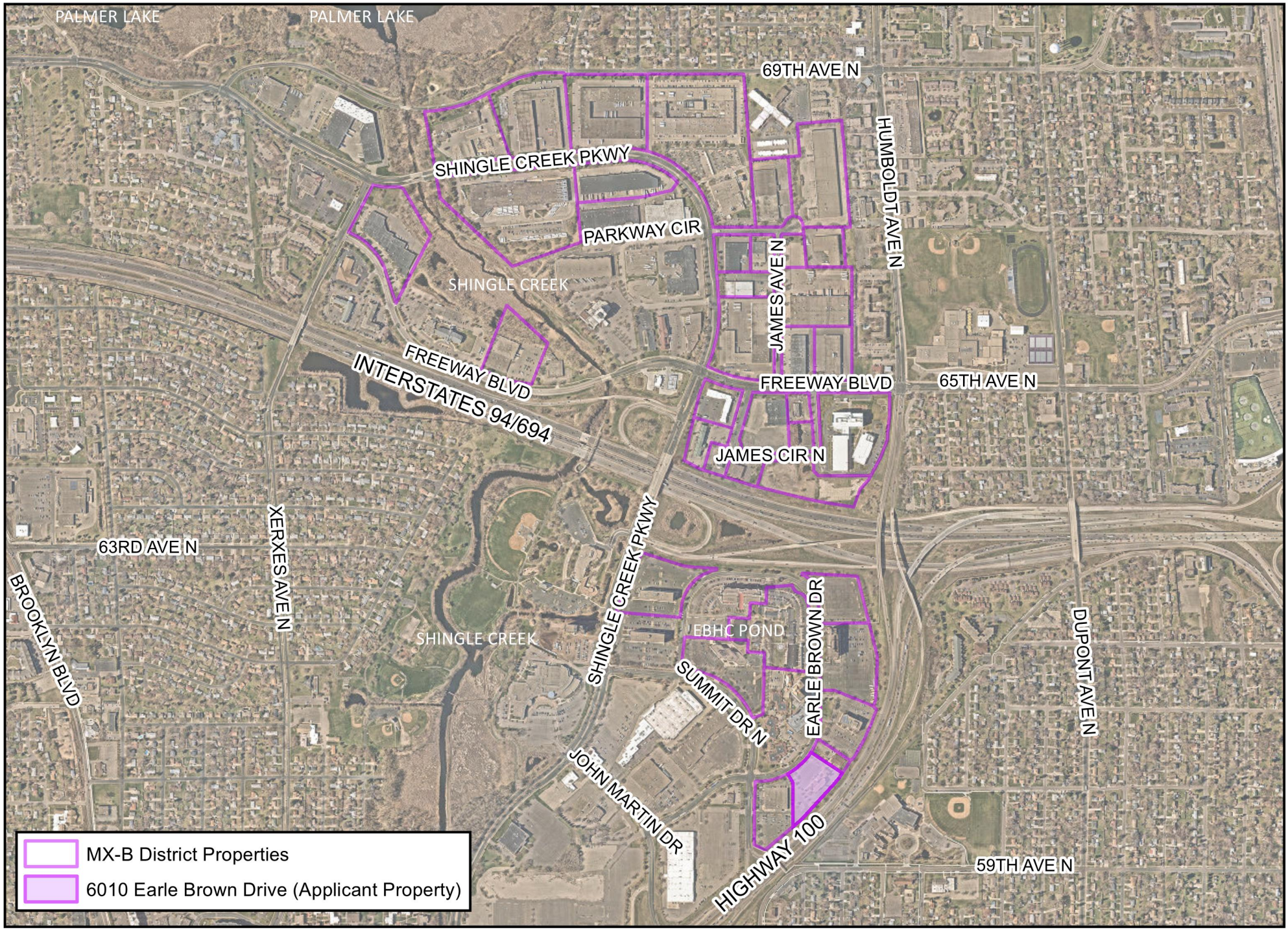
Exhibit D

MX-B District Properties

PID	Acres	County Address	ZIP	Property Owner	Associated Business | Use
211821110005	3.67	6000 Earle Brown Drive	55430	B R Romine Et Al Trustees	Park Nicollet Brookdale Clinic
211821110011	3.05	6010 Earle Brown Drive	55430	MINMOR LLC	Minmor Industries (printing, design, and manufacturing services under Mello Smello, OlymPak, Kidcentives, Mission Nutrition, and Safety Stop companies)
211821110002	4.22	6040 Earle Brown Drive	55430	Heccl LLC	Multi-tenant office building
3511921110012	8.49	1600 67th Avenue North	55430	Bradley Fam Dynasty Trust	Endurable Building Products (Aluminum deck systems and products)
3511921110013	3.9	1700 67th Avenue North	55430	Popehn Limited Partnshp Lllp	Hiawatha Rubber (Rubber Assembly/Components)| Reviva (Remanufactured Diesel Engines/Components)
3511921120002	9.28	6820 Shingle Creek Parkway	55430	Gki Industrial Mpls Llc	Shingle Creek Commerce Center (Multi-tenant)
3511921120008	5.2	6801 Shingle Creek Parkway	55430	Breit Henn Ind Owner Llc	Lallak's Delivery Services Inc | C&D Granite & Quartz | North Star Warehousing and Distribution
3511921140003	6.42	6530 James Avenue North	55430	Rao Manufacturing Co Hldgs Llc	RAO Manufacturing (supplier of deep draw formings, metal stampings, sheet metal fabrications, welded assemblies, and tank heads for use in air compressor tanks, cryogenic tanks, paint sprayers, floor clearning equipment, small engines & generators, filter housings, fireplaces, etc.)
3511921140017	3.14	1600 Freeway Boulevard	55430	Zaina Properties Llc	Quality Inn
3511921230001	7.53	2700 Freeway Boulevard	55430	Freeway Blvd Investors Llc	Multi-tenant building (Bizzy Coffee Headquarters, Revolution Screen Works, B& R Drapery and Home Furnishings, Firenet Systems, Inc.)
3511921420006	2.43	6445 James Circle North	55430	Kaswa Hospitality Inc	Super 8
3511921430007	5.53	6300 Shingle Creek Parkway	55430	Tks Brooklyn Center Hldg Llc	Multi-tenant building
3511921140005	1.39	6645 James Avenue North	55430	SEWA-AIFW	SEWA-AIFW (non-profit)
3511921140006	2.08	6660 Shingle Creek Parkway	55430	Hrrj Properties LLC	Interscapes, Inc. (architectural woodwork), Glass Specialists, and Global African Foods
3511921410020	8.57	1501 Freeway Boulevard	55430	Ph Minneapolis LLC	FBI Regional Headquarters
3511921420010	1.28	1701 James Circle North	55430	CADD/Engr Supply Inc	CES Imaging (printing, scanning)
3511921420011	2.11	6415 James Circle North	55430	SIYA LLC	Travelodge
3511921420012	1.01	6405 James Circle North	55430	SRODES LLC	Denny's Restaurant
3511921430017	5.8	6160 Summit Drive	55430	Brooklyn Center Summit LLC	Multi-tenant office building
3511921440003	6.27	6120 Earle Brown Drive	55430	EARLE BROWN TOWER LLP	Multi-tenant office building
3511921140002	1.19	22 Address Unassigned	0	Rao Manufctring Co Hldgs Llc	Vacant Lot (parking)
3511921140008	7.33	1800 Freeway Boulevard	55430	St Paul Fire & Marine Ins Co	Geneva Group (Manufacturer of Hauler Racks and ProRac Systems)
3511921140014	2.46	1601 67th Avenue North	55430	G&J Steffens Ltd Partnership	Zip Scanners (police scanners), Mile Four (Organic chicken feed and coop essentials), and Sound Ceilings, Inc. (MN and Dakota's largest stocking distributor of Crane Composites and Marlite FRP)
3511921140016	2.78	1700 Freeway Boulevard	55430	J M Grundtner Fam Rev Trust	Precision Inc. (manufacturer of custom magnetic components and assemblies for the electronics industry), and Climate Makers, Inc. (Building automation systems for temperature control)

3511921410008	4.03	6440 James Circle North	55430	Beans And Juice Llc	Los Campeones Gym (under construction)
3511921410015	1.12	1600 James Circle North	55430	Zaina Properties Llc	Quality Inn
211821110010	0.88	6020 Earle Brown Drive	55430	2269 Ford-Fs Ptnrshp Llp	Kindercare
3511921120015	18.87	6800 Shingle Creek Parkway	55430	Medtronic Inc	Medtronic (North Building)
3511921140007	2.14	6540 Shingle Creek Parkway	55430	6540 Shngle Crk Hld Llc Etal	CenturyLink
3511921210002	6.48	6844 Shingle Creek Parkway	55430	City Of Brooklyn Center	City of Brooklyn Center Public Works Garage
3511921210003	8.52	6840 Shingle Creek Parkway	55430	Gki Industrial Mpls Llc	The Academy MN (MMA, Jiu-Jitsu, Muay Thai), Tiny Footprint Coffee (World's First Carbon Neutral Coffee/training classes), and SCP Distributors (swimming pool supply)
3511921210004	15.5	6845 Shingle Creek Parkway	55430	Metropolitan Transit Area	Former Martin J. Ruter Garage (being used as office/bus rodeo/training currently)
3511921240004	4.69	2400 Freeway Boulevard	55430	Bc2400 Llc	Abco Auto Parts (recycled auto part supply)
3511921410014	1.05	1601 Freeway Boulevard	55430	Skc Holdings Llc	Jambo Africa
3511921410021	4.93	1601 James Circle North	55430	Economic Development Authority of the City of Brooklyn Center	Vacant Lot for Future Redevelopment (former Olive Garden and Cracker Barrel)
3511921440002	3.6	22 Address Unassigned	0	City of Brooklyn Center	Parking Overflow for Heritage Center
3511921440013	7.46	6155 Earle Brown Drive	55430	HRA City of Brooklyn Center	Heritage Center



Applicant | Property Owner: Trinity International Fellowship | Minmor LLC
Request: Ordinance Amendment

CITY OF BROOKLYN CENTER

Please take notice that the Planning Commission of the City of Brooklyn Center will hold a public hearing on Thursday, September 12, 2024 at 7:00 p.m. at Brooklyn Center City Hall, located at 6301 Shingle Creek Parkway, Brooklyn Center, MN 55430 to hear from the public, discuss, and make a recommendation upon an ordinance amending Chapter 35 of the City Code to allow places of religious assembly as a conditional use in the City's Business Mixed-Use (MX-B) zoning district. Public hearing materials can be accessed and will be available in advance of the meeting by visiting the City of Brooklyn Center's website at: https://www.brooklyncentermn.gov/ Interested persons are welcome to attend the hearing and be heard regarding this matter.

Comments and questions may be forwarded to Ginny McIntosh, Planning Manager, at gmcintosh@brooklyncentermn.gov or by phone at (763) 569-3319 up until 4:30 pm on the day of the hearing.

Auxiliary aids for persons with disabilities are available upon request at least 96 hours in advance.

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION 35-4103 ALLOWED USE TABLE OF THE CITY CODE OF ORDINANCES REGARDING PLACES OF RELIGIOUS ASSEMBLY IN THE BUSINESS MIXED-USE ZONING DISTRICT

THE CITY COUNCIL OF THE CITY OF BROOKLYN CENTER DOES ORDAIN AS FOLLOWS:

Article I. Brooklyn Center City Code, Chapter 35, Section 35-4103 Allowed Use Table is amended by adding the following double-underlined language:

P = PERMITTED USE, C = CONDITIONAL USE, I = INTERIM USE, A = ACCESSORY USE														
	Residential					Commercial/ Mixed Use				Nonresidential				
	R1	R2	R3	R4	R5	MX-N1	MX-N2	MX-C	TOD	C	MX-B	I	O	Use-Specific Standards
PUBLIC, INSTITUTIONAL, AND CIVIC USES														
COMMUNITY AND CULTURAL FACILITIES														
Community Center						C	C	C	C	C				
Funeral and crematory services								C		C				
Cemetery	C													
Libraries and art galleries	C	C	C	C	C	C	C	C	C	C	C	C	C	

Places for religious assembly	C	C								C	C	C		

Article II. Severability. Should any section or part of this ordinance be declared by a court of competent jurisdiction to be invalid, such decision will not affect the validity of the ordinance as a whole or any part other than the part declared invalid.

Article III. Effective Date. This ordinance shall become effective after adoption and upon thirty days following its legal publication.

Adopted this ____ day of _____, 2024.

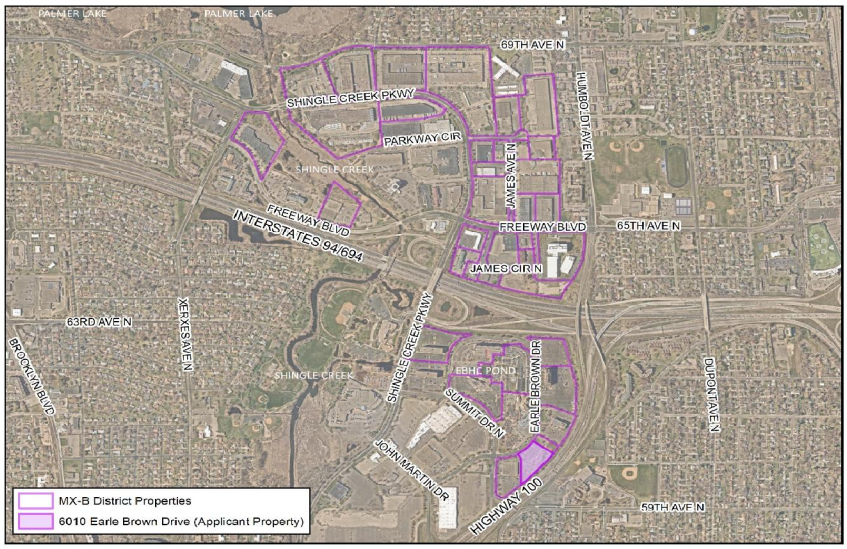
_____
April Graves, Mayor

ATTEST: _____
Barb Suciu, City Clerk

Date of Publication _____

Effective Date _____

(~~Strikeout~~ indicates matter to be deleted, double-underline indicates new matter.)



Ordinance Amendment to Chapter 35

City Council Meeting| September 23, 2024
Ginny McIntosh, Planning Manager

Background

- Trinity International Fellowship requests an amendment to Section 35-4103 (*Allowed Use Table*) of the City Code of Ordinance, which would allow for "places for religious assembly" in the Business Mixed-Use District by issuance of a **conditional use permit.**
  - Per Section 35-71301 (*Applicability)*, an amendment of the City's Unified Development Ordinance may be initiated by the City Council, Planning Commission, or a City property owner.
  - This use is currently permitted as a conditional use in the City's R1 (Low Density Residential), R2 (Medium Low Density Residential), and C (Commercial) and I (General Industry) zoning districts.
- A public hearing notice was published in the Brooklyn Center *Sun Post* on August 29, 2024.
  - Mail notifications were sent to 36 property owners and physical addresses within the Business Mixed-Use District.
  - Public hearing notice was published to the City's website.

Background

- **August 2023**: City Staff presented a concept review of a proposal to allow for places for religious assembly in the Business Mixed-Use (MX-B) District.
- City staff reviewed the property of interest (6010 Earle Brown Drive) for opportunities to perhaps re-zone the property, as this would result in lesser impacts to the greater Business Mixed-Use (MX-B) zoning district; however, ordinance amendment appeared to be only path forward.
- The Applicant has spent the past year fundraising and working on plans for a potential buildout of 6010 Earle Brown Drive.
  - If ordinance amendment is approved, the Applicant would still need to enter into a purchase agreement with the Property Owner and receive separate approval of a conditional use permit (CUP) for 6010 Earle Brown Drive.
- "Conditional uses" are generally *permitted uses* so long as certain conditions are met with respect to the mitigating of potentially negative impacts on neighboring properties for uses already permitted.

Request for Ordinance Amendment (Text)

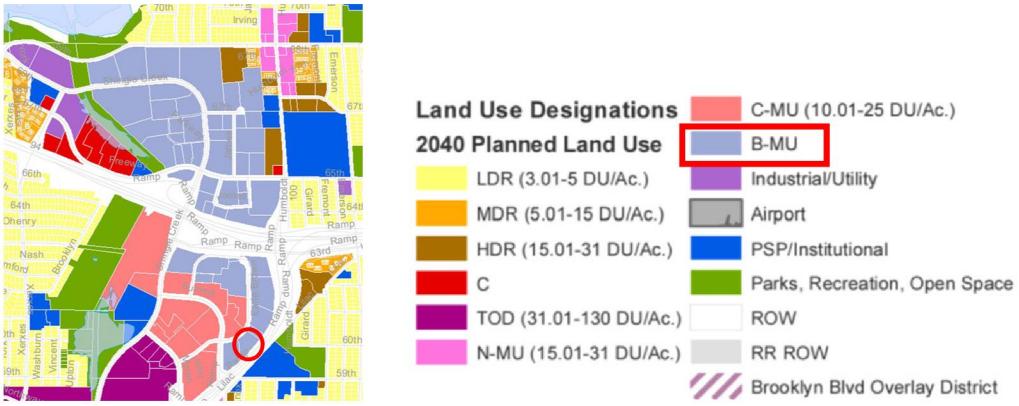
Section 35-4103 (*Allowed Use Table*)

P = PERMITTED USE, C = CONDITIONAL USE, I = INTERIM USE, A = ACCESSORY USE														
	Residential					Commercial/ Mixed Use				Nonresidential				Use-Specific Standards
	R1	R2	R3	R4	R5	MX-N1	MX-N2	MX-C	TOD	C	MX-B	I	O	
PUBLIC, INSTITUTIONAL, AND CIVIC USES														
COMMUNITY AND CULTURAL FACILITIES														
Places for religious assembly	C	C								C	C	C		

(~~Strikeout~~ indicates matter to be deleted, double-underline indicates new matter.)

Request for Ordinance Amendment (Text)

2040 Comprehensive Plan



5

Request for Ordinance Amendment (Text)

2040 Comprehensive Plan

- The City's Business Mixed-Use (B-MU) land use designation is brand new under the City's 2040 Comprehensive Plan (2019), and includes properties located along Earle Brown Drive, and north of Interstate 694 off Freeway Boulevard and Shingle Creek Parkway.

Business Mixed-Use (B-MU)	None	The B-MU is a new land use designation and guides land for a mix of business, light industrial and supporting retail/service uses. This designation encourages redevelopment or development of commercial, office, general business and light industrial uses in coordination with supporting retail/commercial uses to encourage a more dynamic and connected experience for workers. This land use does not plan for residential uses but may include limited live-work opportunities as established through supporting official controls.

6

Request for Ordinance Amendment (Text)

2040 Comprehensive Plan

- The City is predominantly reserved for low density residential (e.g. R1 District), and there are limited opportunities for an new or expected additional employment opportunities with exception of certain land use designations.

Table 3-4. Employment Intensity by Land Use

Future Land Use	2040 Acres	Developed Area (FAR)	% Commercial or Industrial	2040 S.F.	SAC Rate	Intensity
Transit Orient Development (TOD)	200.43	50%	25%	1,091,348	3,000	364
Neighborhood Mixed-Use	92.59	50%	50%	1,008,305	3,000	336
Commercial Mixed Use	88.06	50%	50%	958,943	3,000	319
Commercial (C)	109.52	50%	50%	2,385,374	3,000	795
Business Mixed Use	269.15	50%	100%	5,861,981	4,500	1,303
TOTAL						3,117

7

Request for Ordinance Amendment (Text)

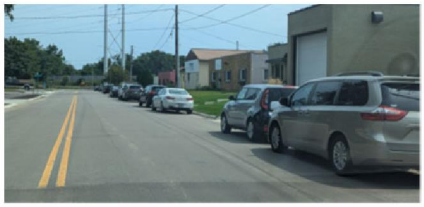
Unified Development Ordinance | MX-B District

- **January 2023:** the City's I1 (Industrial Park) District, was retired and it was replaced with the City's Business Mixed-Use (MX-B) District.
- The previous I1 District was a typical business park/light industrial district, in that the uses were limited to manufacturing, wholesale trade, and service activities (e.g. veterinarian hospitals, kennels, laundering, dry cleaning, and contract construction), public transportation terminals, foundries, and textile mills, with retail permitted via special use as an accessory use only.
- Section 35-4103 of the Unified Development Ordinance outlines "manufacturing, assembly, and processing of products, "wholesale trade," "foundries," and "textile mills and mills products" as uses **only permitted by conditional use** in the City's MX-B and I Districts.
- The new MX-B District strives to provide a wider range of uses to the benefit of employers and employees in the area, while still maintaining its origins as a light industrial district. Other MX-B uses include: medical and health uses; brewpubs; restaurants; and hospitality lodging.

8

Request for Ordinance Amendment (Text)

- **Example/Case Study:**
  - Traffic – minor streets faced with high traffic volumes
  - Parking – higher parking demands for assembly type uses, resulting in off-site parking
  - Emergency Vehicle Access – access is constrained with street parked on street


9

Request for Ordinance Amendment (Text)

Unified Development Ordinance | Potential Impacts + Considerations

- Assembly uses, such as religious institutions, tend to have higher parking demands than other types of uses due to the nature of their visitors. Industrial uses by contrast tend to have low parking demands relative to their square footage because these uses generally have lower employment densities.
- **Example:**

  Places of Public Assembly *(Houses of Worship, Theaters, Auditoriums (other than schools), Mortuaries, Stadiums, Arenas, and Dance Halls require one (1) parking space for every (3) three seats or persons*

  Industry and Wholesale Uses *require one (1) space for every two (2) employees on maximum planned employment per work period or one (1) space for every 800 SF of GFA, whichever is greater.*

- Majority of *existing* MX-B District properties are home to traditional business park/light industrial uses.

10

Request for Ordinance Amendment (Text)

Example Parking Conditions at Different MX-B District Properties



11

Request for Ordinance Amendment (Text)

Example Conditions of Road Access within MX-B District



12

Request for Ordinance Amendment (Text)

Unified Development Ordinance | Potential Impacts + Considerations

- Certain barriers in retrofitting industrial or office type buildings or tenant spaces for "assembly" type uses as they require higher fire suppression standards than other types of uses due to congregation of people and potential needs for exiting during emergency.
- Conversion of spaces may trigger change of use (Building/Fire Code).
- For certain multi-tenant office buildings in MX-B District, their building occupancy type could be limiting factor. **Example:** 2B construction type building does not allow for assembly uses to be located higher than the 3rd floor.

13

Request for Ordinance Amendment (Text)

- In reviewing requests for ordinance amendments, certain amendment criteria shall be considered as outlined under Section 35-71304 (*Amendment Criteria*). The Planning Commission and City Council shall review the necessary submittal requirements, facts, circumstances of the proposed amendment, and make a recommendation and decision on the amendment based on, but not limited to, consideration of the following criteria and policies.
  - Whether there is a clear and public need or benefit;
  - Whether the proposed amendment is consistent with and compatible with surrounding land use classifications;
  - Whether all permitted uses in the proposed zoning district can be contemplated for development of the subject property;

14

Request for Ordinance Amendment (Text)

- Whether there have been substantial physical or zoning classification changes in the area since the subject property was zoned;
- Whether there is an evident, broad public purpose in the case of City-initiated rezoning proposals;
- Whether the subject property will bear fully the UDO development restrictions for the proposed zoning districts;
- Whether the subject property is generally unsuited for uses permitted in the present zoning district, with respect to size, configuration, topography, or location;
- Whether the rezoning will result in the expansion of a zoning district, warranted by:
  - Comprehensive Planning;
  - The lack of developable land in the proposed zoning district; or
  - The best interests of the community.

15

Request for Ordinance Amendment (Text)

- Whether the proposal demonstrates merit beyond the interests of an owner or owners of an individual parcel.
- The specific policies and recommendations of the Comprehensive Plan and other City plans;
- The purpose and intent of this UDO, or in the case of a map amendment, whether it meets the purpose and intent of the individual district; and
- If applicable, the adequacy to buffer or transition between potentially incompatible districts.

16

Request for Ordinance Amendment (Text)

- In reviewing the standards for approving an ordinance amendment, the proposed amendment shall be consistent with and compatible with surrounding land use classifications; whether the proposal demonstrates merit beyond the interests of an owner or, in this case, interested party, for an individual parcel; and the specific policies and recommendations as outlined within the City's Comprehensive Plan or other City plans.

- Any applicant pursuing a conditional use permit (CUP) for a "Places for Religious Assembly" use would further need to satisfactorily demonstrate that all conditional use permit criteria as outlined under Section 35-7703 (*Conditional Use Permit Criteria*) has been meet.

Summary

- Planning Commission held a public hearing at the September 12, 2024 Planning Commission meeting – no members of the public were present, nor were any comments submitted in advance of the meeting.
  - Applicant (Trinity International Fellowship) and representation from their architect (Vanman Architects) were present.
- Commissioners held lengthy discussion on the uses allowed within the MX-B zoning district, its intended purpose, and the 2040 Comprehensive Plan land use designation of Business Mixed Use (B-MU). **Questions/Comments from the Planning Commission, included:**
  - The Heritage Center was within this district – City staff confirmed it was a non-conforming use under the 2040 Plan and UDO and was not a like-for-like comparison.
  - Questions on whether event centers would be permitted within the MX-B District if "Places for Religious Assembly" are permitted as event centers are oftentimes accessory uses.

Summary (Cont.)

Questions/Comments from the Planning Commission :

- "Places for Religious Assembly" might be beneficial to industrial businesses in that they would likely operate in the off hours in the MX-B District and that perhaps the City might allow for it and see what happens.
- Commissioner inquiry on how City staff planned to address apparent violations at 4900 France, which is only other "Place for Religious Assembly" in an industrial district (I District).
- How likely it was that other properties in the MX-B District might convert to a "Place for Religious Assembly."
- While it cannot be a reason for determination as part of a land use application and PC scope of duties, there were considerations as to how "Places for Religious Assembly" would strengthen the City's tax base and particularly as the 2040 Comprehensive Plan outlines the Business Mixed-Use (B-MU) land use designation as the City's greatest opportunity to provide employment intensity (1,303) and be competitive economically as a city.

Summary (Cont.)

Questions/Comments from the Planning Commission :

- Concerns regarding potential impacts to existing light industrial businesses here in the City (e.g. non-complementary uses, impacts to business operations), our support and protection of them, and whether introducing this use would be in keeping with providing "highest and best" uses for a given area of the City.
- Concerns of potential spot zoning to allow for use at property of interest.

- Following close of the public hearing, the Planning Commission elected to **recommend (3-2) City Council approval** of the requested ordinance amendment to Section 35-4103 (*Allowed Use Table*) to allow for Places for Religious Assembly as a conditional use in the MX-B District.

Summary (Cont.)

Sacred Settlements/Communities

- Following the September 12, 2024 Planning Commission meeting, the City Attorney informed City staff that a bill was passed during the last legislative session (in effect as of January 1, 2024) regarding "sacred settlements" or "sacred communities."
  - Requires cities to allow religious institutions to permit micro-unit dwellings on properties owned by religious institutions as a permitted or conditional use – no matter what zoning district they are located in.
    - Intended to provide additional means for faith communities to serve chronically homeless, designated volunteers, and extremely low income individuals in accordance with religious vocations.
    - Micro-units cannot exceed 400 SF in size and must be built on permanent chassis and anchored.
    - Other minimum build requirements (e.g. access to water/electric via principal building or access to common kitchen/toilet/bathing/laundry consistent with boarding house requirements under MN Rules, part 1305.2902).
  - City staff does not have enough information to determine whether these micro-unit dwellings would be of consideration or feasible on any of the properties within the MX-B District.

Summary (Cont.)



Prince of Peace Church - Roseville



Woodland Hills Church - Maplewood

Recommendation

Motion to deny the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (*Allowed Use Table*) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

Planning Commission recommended approval of the requested ordinance amendment on a 3-2 vote. City staff remains of the position that, based on the findings presented, the requested ordinance amendment should be denied; however, if City Council elects to recommend approval of the request to amend Section 35-4103 (*Allowed Use Table*), the motion language would need to be amended to approve the first reading and set the second reading.

Alternative

Motion to approve the zoning text amendment proposed by Applicant Trinity International Fellowship regarding Section 35-4103 (*Allowed Use Table*) of the City Code of Ordinances, and as outlined under Planning Commission Application No. 2024-011, that would for Places for Religious Assembly as a conditional use within the Business Mixed-Use (MX-B) District.

Council Regular Meeting

DATE: 10/14/2024

TO: City Council
FROM: Dr. Reggie Edwards, City Manager
THROUGH: Elizabeth Heyman - Director of Public Works
BY: Reggie Edwards, City Manager

SUBJECT: Brooklyn Center City Council's Official Public Comment on the Minnesota Department of Transportation's Highway 252/I-94 Over-Under Analysis Preference

Requested Council Action:

- Motion to approve a resolution declaring the Brooklyn Center City Council's official public comment on the Minnesota Department of Transportation's Highway 252/I-94 Over/Under analysis preference.

Background:

As part of the Minnesota Department of Transportation's (MnDOT) Highway 252/I-94 Environmental review, MnDOT is asking Brooklyn Center to provide comment on the Phase 1A: Over/Under Highway 252 analysis. The analysis looks at whether Highway 252 should run over or under local streets at all potential interchange locations. This decision point in the EIS process will allow MnDOT to set a vertical geometry and begin more detailed design at each potential interchange location.

Based on both technical and outreach information provided by MnDOT, Public Works staff will present the impacts of the over/under decision to the Council as well as a preference for over or under at 73rd, 70th, and 66rd Avenues. A draft letter providing comments on this decision point is also attached to this item for the Council's consideration.

Budget Issues:

N/A

Inclusive Community Engagement:

N/A

Antiracist/Equity Policy Effect:

N/A

Strategic Priorities and Values:

Maintain and enhance public places

ATTACHMENTS:

Description	Upload Date	Type

DRAFT Council Letter to MnDOT	10/11/2024	Backup Material
Over Under Resolution	10/11/2024	Resolution Letter
May 8, 2023 Council Letter to MnDOT	10/11/2024	Backup Material

Commission Nancy Daubenberger
Minnesota Department of Transportation
395 John Ireland Blvd
St. Paul, MN 55155

October 14, 2024

Re: Brooklyn Center City Council's Official Public Comment on the Minnesota Department of Transportation's Highway 252/I-94 Over-Under Analysis Preference

Dear Commissioner Daubenberger,

On May 8, 2023, the City of Brooklyn Center sent a letter to the Minnesota Department of Transportation (MnDOT) asking that the MN 252/I-94 Environmental Impact Statement (EIS) analysis be amended to protect human health, promote regional equity, and enhance the livability and prosperity of Brooklyn Center, while also improving corridor safety (see attached letter). To the Council's and our community's dismay, MnDOT declined to adjust the process to reflect any of the Council's recommendations. The Council believes the recommendations in the May 8, 2023 letter were a small ask compared to the large impacts this project will have on the surrounding area, which is almost completely an Environmental Justice community according to the EIS process standards. The Council continues to stand firmly behind its May 8, 2023 recommendations.

While the Council's recommendations have gone unaddressed, Brooklyn Center remains committed to engaging in the EIS process and is writing to share our perspective on the project's over-under analysis (i.e. whether Highway 252 should run over or under the local street at each potential interchange location). The Council has weighed the impacts of each option carefully and offer the following preferences to MnDOT:

- Highway 252 running under the local streets at 73rd and 70th Avenues: The Council supports an 'under' alignment at these intersections. While both 'over' and 'under' alignments present challenges— including property loss, reduction in tax base, and noise pollution— running Highway 252 under the local streets at these two locations is deemed best for long-term livability and is preferred by the community, as reflected in MnDOT's outreach summary. This option minimizes noise impacts, impacts associated with long-term detrimental health impacts.[1] The City understands the 'under' alignment requires more land and higher upfront costs, but if

[1] Nina Roswall et al., "Residential Exposure to Traffic Noise and Health-Related Quality of Life—A Population-Based Study," PLoS One 10, no. 3 (2015): e0120199, https://doi.org/10.1371/journal.pone.0120199.

MnDOT is insistent on moving only freeway options forward for study in the EIS, we believe the 'under' alignment is the best way to protect our community's health and quality of life.

- Highway 252 running over the local street at 66th Avenue: The Council supports the 'over' alignment. The 'over' alignment at 66th Ave. minimizes property impacts, specifically minimizing impacts to the small businesses located at this intersection. Furthermore, no significant difference in noise mitigation exists between the 'over' and 'under' alignments at this location. Thereby, City supports MnDOT's 'over' recommendation for this potential interchange location.

Carrying only freeway options forward guarantees the City permanently loses taxable properties within the corridor. The Council's decision was guided by the desire to mitigate some impacts, particularly the quality of life issue of noise, based on community feedback.

To address the burden that this project disproportionately places on Brooklyn Center, the City Council requests MnDOT commit to the following:

- Payment in Lieu of Taxes (PILT): To mitigate the permanent loss of land and tax base, we request PILT. Brooklyn Center has one of the lowest per capita tax capacities in the Twin Cities metro region, and any reduction to our tax base will disproportionately impact our residents. Unlike wealthier neighboring communities, we cannot easily absorb these losses without increasing our per capita tax burden.
- Zero-Cost Share Participation: Given the guaranteed freeway approach, the City Council does not believe the potential benefits of the MN 252/I-94 corridor outweigh the impacts to Brooklyn Center residents or businesses, specifically in relation to air quality and noise impacts – both of which were not analyzed during the Scoping Decision process. As a minority-majority community being asked to shoulder new burdens, the Council requests zero-cost share participation to acknowledge and mitigate these impacts.

We remain committed to working with MnDOT to ensure that our community's concerns are fully addressed and that negative impacts are minimized. Brooklyn Center is willing to be a partner, but we believe MnDOT must work diligently to reduce the long-term inequitable burdens placed on our community while also ensuring any new facility is demonstrably safer than the existing condition.

Thank you for your continued committed collaboration.

Sincerely,

Mayor April Graves
Council Member Marquita Butler
Council Member Teneshia Kragness
Council Member Kris Lawrence- Anderson
Council Member Dan Jerzak

_____ introduced the following resolution and moved its adoption:

RESOLUTION NO.

RESOLUTION DECLARING THE BROOKLYN CENTER CITY COUNCIL'S OFFICIAL PUBLIC COMMENT ON THE MINNESOTA DEPARTMENT OF TRANSPORTATION'S HIGHWAY 252/I-94 OVER-UNDER ANALYSIS PREFERENCE

WHEREAS, on May 8, 2023, the City of Brooklyn Center requested amendments to the MN 252/I-94 Scoping Decision Document to protect human health, promote equity, and enhance livability, while also improving corridor safety; and

WHEREAS MnDOT declined to adjust the scoping process based on these recommendations, despite the Council's belief that these were reasonable requests for an Environmental Justice community; and

WHEREAS the Council remains committed to its recommendations, the Council's preference for the over-under alignment analysis as follows:

- **Highway 252 running under the local streets at 73rd and 70th Avenues**: The Council supports the "under" alignment, as it is preferred by the community, minimizes noise, and better protects long-term health and livability, despite higher upfront costs.

- **Highway 252 running over the local street at 66th Avenue**: The Council supports the "over" alignment given that it minimizes property impacts and given that there are minimal differences in noise impacts between the over-under options.

WHEREAS the Council acknowledges the permanent loss of taxable properties due to freeway options and requests the following to address these impacts:

- **Payment in Lieu of Taxes (PILT)**: To mitigate land and tax base losses, especially given the disproportionate impacts the project will have on Brooklyn Center's already low per capita tax capacity.

- **Zero-Cost Share Participation**: As an Environmental Justice community, as defined by the EIS process, the Council requests zero-cost share participation to mitigate impacts such as air quality and noise.

NOW, THEREFORE, BE IT RESOLVED that the City Council of Brooklyn Center remains committed to working with MnDOT and urges MnDOT to formalize these commitments in an agreement with Brooklyn Center to reduce the long-term burdens on the community. For additional details, review the attached Over-Under Letter to MnDOT, which outlines the Council's recommendations in full.

_____ _____

Date Mayor

_____

City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member:

and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

whereupon said resolution was declared duly passed and adopted.

Minnesota Department of Transportation
395 John Ireland Blvd
St. Paul, MN 55155

May 8, 2023

Re: City of Brooklyn Center Comments on the Highway 252/I-94 Scoping Document and Draft Scoping Decision Document

Dear Commissioner Daubenberger,

The City of Brooklyn Center appreciates the opportunity to review and comment on the Highway 252/I-94 Scoping Document and Draft Scoping Decision Document (SDD). The Highway 252 corridor is dangerous by design. According to the draft SDD, the full length of Highway 252 and I-94 within the project area have a demonstrated crash problem and that crossing Highway 252, on foot or by bike, can be difficult due to the number of lanes, crossing distances, and busy intersections. Brooklyn Center has long advocated that the safety issues along the corridor must be addressed. Therefore, the City is supportive of the Minnesota Department of Transportation (MnDOT) completing a holistic environmental review process to chart a course for improving safety in the corridor, while at the same time protecting human health, promoting regional equity, and enhancing the livability and prosperity of Brooklyn Center.

It is well known that while Minnesota is one of the healthiest states in the country, it also has some of the worst health disparities. All communities can experience poor health outcomes, but due to systemic inequities, they disproportionately occur in communities of color and the American Indian community. Research show that only 10 percent of health is influenced by clinical care, and another 10 percent by genetics. The remaining 80 percent is a result of the physical environment, health behaviors, and social and economic factors[1], making it exceedingly important to assess how plans for Highway 252/I-94 will impact resident health.

[1] Generations Health Care Initiative, "Connecting Health with Communities," ghci.us/community-health; and World Health Organization, "Health Impact Assessment: The Determinants of Health," https://www.who.int/health-topics/health-impact-assessment.

Furthermore, the majority of Brooklyn Center of residents are people of color and according to the first report from the Highway 252/94 project's Equity and Health Assessment,

> "**Compared to the typical Minnesotan, people living along the Hwy 252/I-94 corridor are at greater risk of disease, hospitalization, and death due to poor air quality.** Urban counties and counties with a higher proportion of people of color, such as Hennepin County, have higher rates of emergency room visits, hospitalizations, and deaths resulting from fine particle matter and ozone exposure. Environmental Protection Agency models put the lifetime risk of cancer from inhalation of air toxins at 31 parts per million for communities along the corridor. This risk is a function of air toxic concentration, exposure rates, and socioeconomic conditions.

MnDOT's three Hwy 252 Corridor Elements recommended for advancement in the draft SDD have the potential to deepen air quality related health inequities by introducing 34,400 – 54,500 more vehicles per day to the Highway 252 corridor; a corridor that already carries 57,000 to 66,000 vehicles per day. However, at this phase of the study, MnDOT is not assessing the air quality impacts of each alternative. Given that we know the physical environment greatly influences the health, and therefore safety, of a community, the Brooklyn Center City Council believes it is imperative to use a more holistic understanding of safety to truly carry out an equitable analysis of the impacts of the project. Removing all non-freeway options before air quality impacts are measured means Brooklyn Center residents, and residents in the entire region, will never have true holistic understanding of how each alternative performs from health and safety perspective.

Additionally, the Brooklyn Center City Council is concerned about the impact the recommended freeway options may have on the City's tax base. Brooklyn Center has among the lowest per capita tax capacity within the Twin Cities metro region. This places a higher per capita tax burden on Brooklyn Center residents compared to peer communities, including wealthier areas with a higher ability to pay. This is partially the result of national and regional changes in commercial trends that has shifted the tax burden from the city's declining commercial core to the city's modestly valued housing stock. Carrying only freeway options through to the next phase of study guarantees decreases to the City's tax base. The decreases will come not just from land taken off the tax rolls through eminent domain, but also from the property value decreases that will occur as properties directly adjacent to the proposed freeway interchanges are negatively impacted by increased traffic levels and traffic noise.

Therefore, the Brooklyn Center City Council is asking MnDOT to make the following changes to the draft SDD:

- Change the draft SDD to recommend the following Hwy 252 Corridor Elements for further evaluation in the Draft Environmental Impact Statement (EIS):
    - Six-Lane Expressway
    - Four-Lane Low Speed Arterial Roadway

- Include pedestrian and bicycle overpasses in the definition of the Six-Lane Expressway and Four-Lane Low Speed Arterial Roadway corridor elements.
- Revaluate how bicycle and pedestrian overpasses impact a corridor element's multimodal level of service.
    - The City Council understands that not all users will utilize bicycle and pedestrian overpasses. However, they find it unreasonable to accept no risk at ground-level intersections when freeway alternatives come with their own set of risks, including negative effects on health, safety, and property. In simpler terms, the Council believes that incorporating bicycle and pedestrian overpasses into non-freeway Highway 252 corridor elements should result in a higher overall multimodal level of service rating, meaning better accessibility and connectivity for various modes of transportation.
- Add project evaluation criteria that evaluate the project's effect on the City's tax base, including, but not limited to, the following:
    - Taxable property removed from the tax base
    - Projected changes in property values
    - Projected changes in business activity
- Update the project's purpose and need statement to state:
    - The purpose of the Hwy 252/I-94 Project is to improve the safe and reliable movement of people and goods across multiple modes on and across Hwy 252 and I-94 between Hwy 610 in Brooklyn Park and North 4th Street in Minneapolis, while protecting and promoting human health, community livability and equity.

Sincerely,

Mayor April Graves

Council Member Marquita Butler

Council Member Teneshia Kragness

Council Member Kris Lawrence- Anderson

Council Member Dan Jerzak

Member Butler introduced the following resolution and moved its adoption:

RESOLUTION NO. 2023-63

RESOLUTION DECLARING THE BROOKLYN CENTER CITY COUNCIL'S OFFICIAL PUBLIC COMMENTS ON THE MINNESOTA DEPARTMENT OF TRANSPORTATION'S HIGHWAY 252/I-94 SCOPING DOCUMENT AND DRAFT SCOPING DECISION DOCUMENT.

WHEREAS, the Minnesota Department of Transportation (MnDOT) is seeking public comment on the Highway 252/I-94 Scoping Document and Draft Scoping Decision Document; and

WHEREAS, the Council believes the Highway 252 corridor is dangerous by design.; and

WHEREAS, Brooklyn Center has long advocated that the safety issues along the corridor must be addressed, and therefore, the City Council is supportive of the MnDOT completing a holistic environmental review process to chart a course for improving safety in the corridor, while at the same time protecting human health, promoting regional equity, and enhancing the livability and prosperity of Brooklyn Center.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Brooklyn Center, Minnesota, that the attached letter serves as the Council's official public comment on the Highway 252/I-94 Scoping Document and Draft Scoping Decision Document.

May 8, 2023
Date

April Graves
Mayor

ATTEST: Barbara Suciu
City Clerk

The motion for the adoption of the foregoing resolution was duly seconded by member Jerzak
and upon vote being taken thereon, the following voted in favor thereof:
Butler, Graves, Jerzak, Kragness, Lawrence-Anderson
and the following voted against the same: None.
whereupon said resolution was declared duly passed and adopted.