

TOWARDS A MORE DISASTER RESILIENT MINNESOTA

Re-engineering the Division of Homeland Security and Emergency Management



Creating a Self-Sufficient Minnesota

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About This Report

This report is one of three reports produced as part of a semester-long, innovative problem solving engagement between the Minnesota Division of Homeland Security and Emergency Management (HSEM) and North Dakota State University's Disaster Resilience and Emergency Management Academic Program (NDSU). Each report in this series addresses the following problem statement presented by HSEM: Re-engineer MN HSEM to better meet demands created by the interaction of four primary disaster contexts (economic, hazardscape, political, and social) and support enhanced community-based disaster resilience for 2025-2050. Addressing this challenge required students to consider the entire emergency management spectrum.

NDSU offered the model interdisciplinary course focused on innovative problem solving for MN HSEM in partnership with Kevin Reed, Deputy Director, and Brian Olson, Director of Preparedness and Recovery, both of MN HSEM. The goal was to bring the perspectives and insights of next generation leaders to current (and future) challenges facing emergency practice from a state-level perspective. Students began their problem-solving process assigned to one of the primary disaster contexts (economic, hazardscape, political, and social). Working with their problem sponsors and subject matter experts to better understand and contextualize the challenge. Solution teams including one student representing each context then collaborated to create feasible solutions. The data collected from interviews, coupled with an understanding of the existing literature, allowed the teams to develop and test solutions within a systems thinking framework, and offer specific insights and recommendations. The teams approached problem solving from a research and development approach, similar to the approach used by the Pentagon's Defense Advanced Research Projects Agency (DARPA). Using a Pasteur's Quadrant perspective (a use-inspired basic research approach) allowed teams to seek a fundamental understanding of the problem with a focus on dynamic solutions. This approach




required a grounded understanding of the problem, and the context and systems within which it exists. The solutions offered often pushed beyond existing programs and workflows.

NDSU's evaluation of this model course's development and delivery is supported, in part, by a service-learning instructional grant award through the NDSU College of Arts and Sciences. NDSU faculty, Dr. Caroline Hackerott, will supply all modified materials to the Emergency Management Higher Education Network to encourage other DREM higher education programs to engage in similar partnerships. It is envisioned that this model course can be used with partners at all government levels and across multiple sectors to bring new perspectives to enduring challenges.

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Executive Summary


This report identifies current issues affecting Minnesota and the Division of Homeland Security and Emergency Management (HSEM), as well as present actionable recommendations to create a resilient and self-sufficient Minnesota. The first section of the report reviews the research process the NDSU team employed to determine the primary drivers of disaster management for the next 25 years and develop the associated recommendations to address these challenges. The Literature Review section provides an overview of the current body of knowledge within disaster management and disaster resilience to provide context for both the drivers and recommendations. The key drivers are presented and discussed in the Findings section and include issues related to the economic, political, social, and environmental contexts of disaster management and resilience. These drivers include an increased demand for in-state funding and resources, the need for a state-level coalition, the need to empower local communities, the demand for interagency collaboration, increased individual and household vulnerability, increased risk of climate disruption, and the need for pro-active mitigation and adaptation. To address the identified challenges, the NDSU team provides a series of recommendations presented in the Recommendations section. Proposed actions include creating an in-state individual and household disaster fund, supporting and expanding carbon free energy production in Minnesota, a participating in a multi-state hazard compact, establishing an insurance cooperative, mitigating the uncertainty of federal support, creating further opportunities for local emergency managers to work together with the state, supporting socially vulnerable communities, fostering public trust, and adapting to the environment. Through implementation of these recommendations, HSEM can facilitate self-sufficiency and expanded disaster resilience over the next 25 years.

Challenge Overview

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Introduction

Minnesota's Division of Homeland Security and Emergency Management, or HSEM, is a division of Minnesota's Department of Public Safety. HSEM helps communities in Minnesota respond, prepare, mitigate, and recover from emergencies and disasters. This report examines the challenges the agency will need to address over the next 25 years related to the social, political, economic, and hazardscape contexts of disaster management and community-based resilience.

These challenges are coupled with structural changes impacting the support and resource provision from the federal government. Therefore, the need for Minnesota to become self-sufficient becomes paramount. This report is organized into several sections. The research processes employed by the NDSU team are described in the next section. Following the research process discussion, a comprehensive review of the disaster management and disaster resilience body of knowledge is presented. This literature review reflects the way the NDSU team contextualized the challenge of re-engineering HSEM to meet the needs of the next 25 years. The Findings and Key Drivers section outlines and discusses the five key drivers that HSEM needs to confront for effective and efficient disaster management and expand community-based resilience across Minnesota.

Practical recommendations for system or process changes to facilitate addressing the identified drivers are presented in the Recommendation section. All nine recommendations are discussed in terms of their contribution to supporting effective and efficient disaster management, enhancing community-based disaster resilience, and increasing Minnesota's overall self-sufficiency. The relationship between each recommendation and its associated driver(s) is defined fully. The impact of implementing each recommendation is explained. Any modification in the HSEM organizational structure or process is reflected in the "Proposed Organizational Chart" found in Appendix B.

Literature Review

This literature review is intended to provide information regarding foundational concepts, definitions and models utilized to create a framework for both disaster management and disaster resilience. The information reviewed in this section provided support for the team's perspective as they considered the course challenge. Finally, this review provides grounding for the feasibility and accuracy of driver identification and recommendation development.

Comprehensive Emergency Management

Considerable attention is given to studying and actions taken to minimize the negative impacts of emergencies and disasters on individuals, organizations, and communities. Comprehensive emergency management encompasses all phases of disaster management: preparedness, response, recovery, and mitigation. State-level emergency management organizations are charged with facilitating the tasks and activities associated with all phases. As a result, the organization may be active in multiple phases simultaneously. As the frequency and intensity of extreme events is increasing, the need for communities to participate fully in disaster management and improve their levels of coping capacity becomes critical (International Association of Emergency Managers (IAEM), 2007; Mukhopadhyay et. al, 2020). Emergency management should be comprehensive, progressive, risk-driven, integrated, collaborative, flexible, and professional. An emergency manager needs to keep these factors in mind as they deal with disasters, whether man-made or natural, to keep communities safe (IAEM, 2007).

State Role in Disaster Management

State-level emergency management coordinates and facilitates resource allocation between the federal and local emergency management agencies throughout the disaster cycle. To be effective in this role, the state agency must understand the local structure of emergency management as well as the

federal structure. It is imperative for the state government to maintain relationships with both local and federal governments, considering they are working with both levels to bridge the gap (FEMA, 2008).

Historically, the federal role in emergency management is to provide funding, guidance, and training for state and local emergency management through the Federal Emergency Management Agency (FEMA). Through grant programs like BRIC (Building Resilient Infrastructure and Communities) which was established through Disaster Recovery Reform Act of 2018 and EMPG (Emergency Management Performance Grant), FEMA administered and distributed funding for projects associated with every disaster phase including mitigation and recovery. The state plays a major part in supporting local organizations in the development of mitigation projects that could qualify for BRIC funding. The EMPG program sends funds directly to the state and the state is charged with determining how those funds are distributed (US Department of Interior, n.d.)

During disasters, the state is a critical conduit between the federal government and the local disaster management team. By definition, a disaster overwhelms local resources and systems. The state agency is the first level of support to the local emergency management team and can quickly release state-level support resources including equipment, trained personnel, and financial resources. The governor may also elect to activate the state's National Guard to provide additional human resources. During events that demand more resources than the state can provide, the governor can request a Presidential Disaster Declaration (PDD). The PDD process is outlined in the Stafford Act, initially adopted in 1988, and provides the mechanism for the release of federal response and recovery assistance. It is this process that activates the individual and public assistance funding systems. The state and local emergency management teams work together to create the required Preliminary Damage Assessment. For an efficient response effort, the state and local organizations must coordinate and collaborate effectively. The ease with which this cooperation and coordination occurs is highly dependent on close pre-existing relationships (Dynes, 1970; Weick et al., 2001). It is critical that this relationship is established through other key disaster management activities including planning, preparedness activities including training and exercise development and delivery, and grant development (Berke & Campanella, 2006). The value of incorporating local knowledge and the potential role of the state in facilitating the creation of local community networks is discussed later in this literature review.

Both local and state disaster management organizations may enter into mutual aid agreements with other communities and states to increase access to resources during extreme events. The agreement is legally binding and requires that all parties agree to provide resources to the others in times of need (National Incident Management System, 2024). The importance of mutual aid agreements has been widely recognized as scale and complexity of disasters continue to grow, the ability to quickly receive resources from partners allows communities to make significant impacts in the outcome of disaster response and resilience (Sharp, 2024).

While reviewing, revising, and developing mutual aid agreements, a full assessment of resources, capacity, and capabilities across the community or state is essential (National Incident Management System, 2024). Mutual aid agreements provide an opportunity to increase disaster resilience at the local and state level as disaster risk is shared more broadly and potential resource levels are increased. (Metzger 2021).

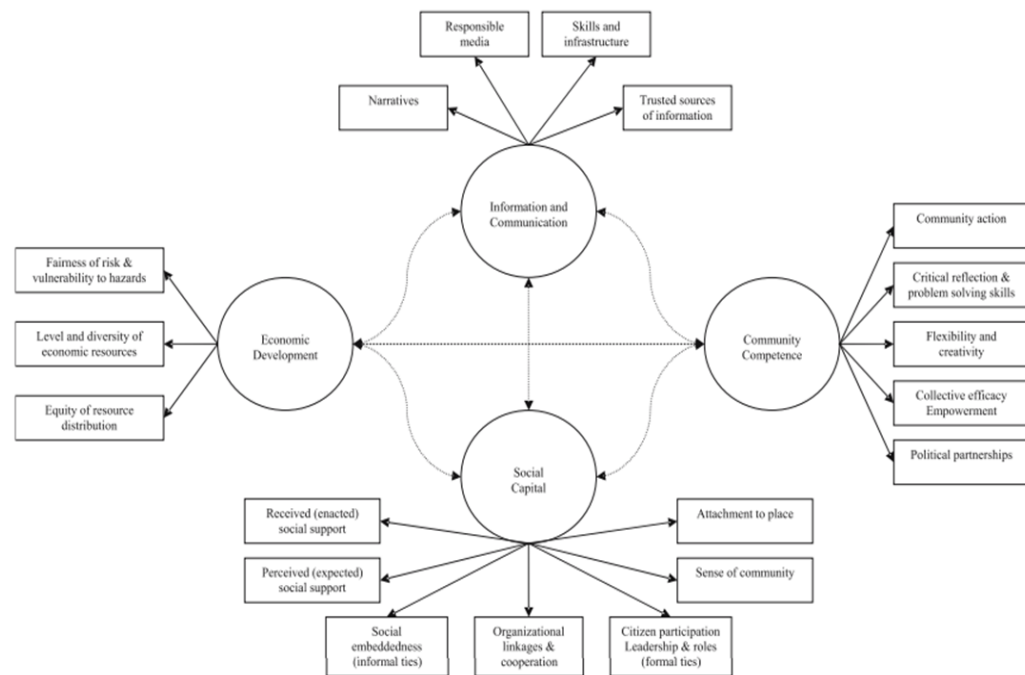
Disaster Resilience, Social Vulnerability, and Social Capital

Disaster resilience is complex and is considered at both the individual or household level and the community level. The concepts of social vulnerability and social capital are closely related to disaster resilience and are included in this section of the literature review. Individual levels of social vulnerability and social capital are considered as aggregate factors as this project considers community-based disaster resilience. collectively for purposes of this report community-based disaster resilience is linked to improved outcomes throughout the disaster cycle (Hackerott, 2020). Given the close relationship between local - and state-level emergency management, a community's level of resilience is a significant factor in the state's conduct of effective disaster management (Dynes, 1970; Morley, 2024).

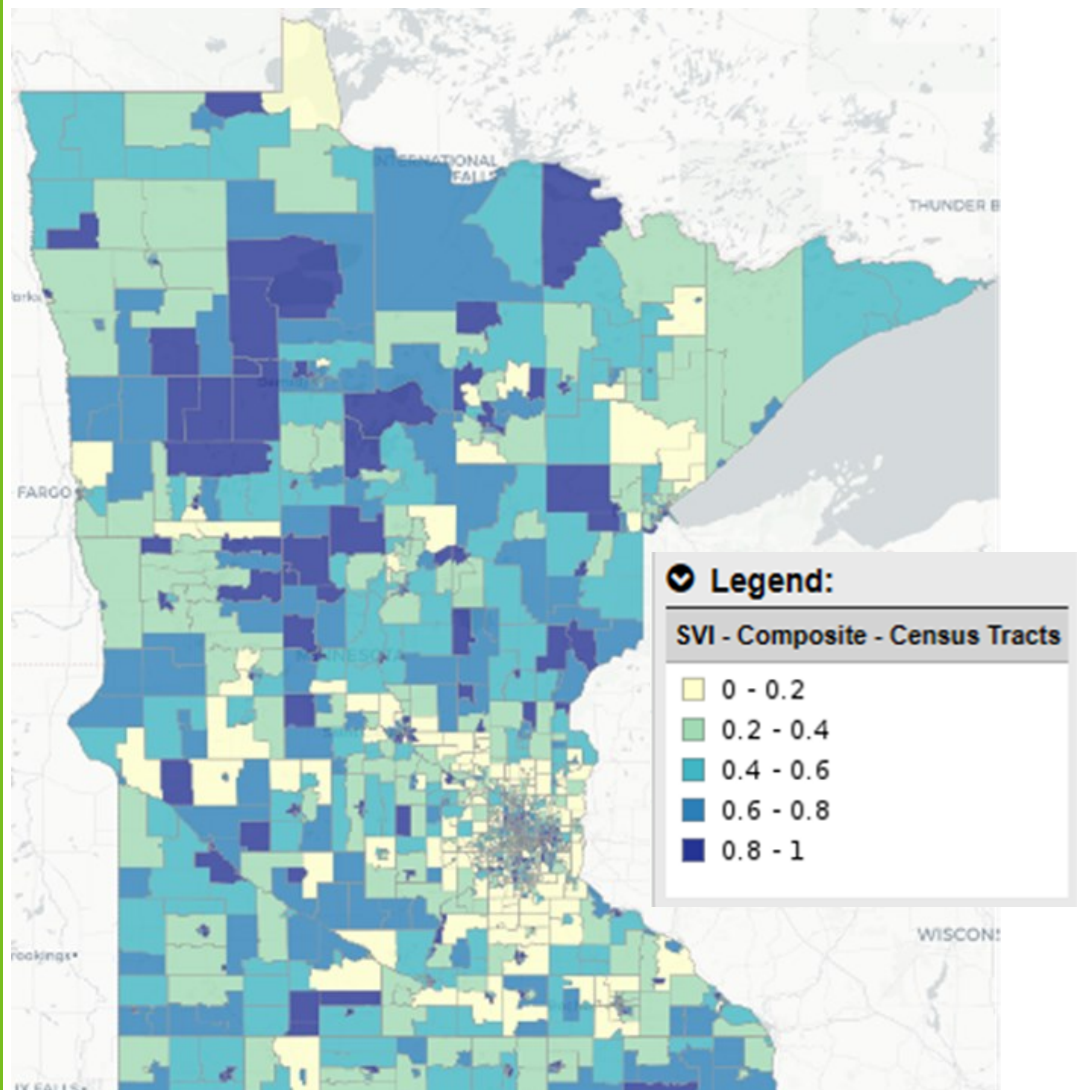
Social vulnerability is defined as the unequal exposure to risk and extreme events due to differential socioeconomic and power relationships among groups within a community (Hackerott, 2020). Factors influencing the level of social vulnerability include socio-economic status, geographical exposure, race or ethnic background, age, and disability (Cutter & Finch, 2008; Cutter et al., 2003). Identifying and acknowledging the increased risk and increased negative impacts suffered during disaster is essential to effective planning (Berke & Campanella, 2006). Inclusion of socially vulnerable communities and their

advocates is noted as a critical method of reducing overall vulnerability and enhancing social capital. Social capital is based in the strength of networks and connections among members of a community (Hackerott, 2020). Social capital may alleviate the impact of vulnerability by maintaining social networks that facilitate access to resources and structures of power.

Using Norris et al.'s (2008) model of Community Resilience as a Set of Networked Capacities (Figure 1), the role of social connection becomes clear. The role of social capital is obvious as one of four clusters of adaptive capacities. However, the other three clusters include social factors associated with social vulnerability, social capital, and social network formation and maintenance through inclusive community processes. Applying this model to the systems and processes involved in disaster management indicates the connection and inclusion increases resilience through lowering levels of social vulnerability and the building of social capital throughout a community (Guibert et al., 2023; Roberts, 2019). All community members and organizations become networked and empowered throughout planning and decision-making throughout the disaster cycle (Rohe, 2004).



In Minnesota, social vulnerability appears to be concentrated in rural counties (Figure 2). This is not uncommon within the US but demands that state-level disaster resilience activities include a focus on rural communities (Rupasingha et al., 2006). Cwiak and Butterfass (2024) report that rural areas have much lower capacity and capabilities than more urban areas. Rural emergency management organizations are often underserved and understaffed, leading to a lower capacity for resilience. Rural communities tend to be under-resourced, under-supported, and under-funded limiting both their capacity and capability to perform comprehensive emergency management effectively. However, rural communities typically exhibit higher levels of social connection due to familial ties and interdependent economic and social activities. This suggests that HSEM could leverage greater social capital to reduce vulnerability and expand disaster resilience by creating close ties in rural areas.



Increased awareness of social vulnerability factors and inclusion of those most impacted communities in planning processes likely supports a shift from a vulnerability or “special needs” mindset to one of ensuring that all members of a community are served through addressing functional-needs (Kailes & Enders, 2008). The incorporation of strategies to address broad Communication, Maintaining Health, Independence, Support and Safety, and Transportation (C-MIST) need ensures that services meet the needs of all residents not only those identified as having “special needs” (Table 1). Inclusive planning and service delivery further enhances community-based disaster resilience.

| Vulnerability | Example(s) |
|--------------------|---|
| Communication | Language barriers, inability to see or hear, or issues with comprehension |
| Maintaining Health | Access to medications or assistive devices |
| Independence | Ability to determine one’s own life |
| Support and Safety | Ability to have separation from the support system or necessary supervision |
| Transportation | Lack of personal transportation or reliable access to public transportation |

Climate Disruption

Shifts towards heavier rainfalls, growing flood risk, and soil erosion are traits of climate disruption. Climate disruption has contributed to declining water quality, and negative impacts on transportation, infrastructure, and human health (Minnesota Department of Natural Resources, 2024). Environmental hazards in relation to climate disruption has the possibility of causing monumental damage to housing and commercial property leading to great financial and social strain. Climate disruption is not limited to changes in the weather but also includes growing frequency and intensity of severe flooding, storms, and droughts (Scott et, al. 2020).

Climate disruption is regarded as disruptive because virtually all aspects of our lives are in the Goldilocks zones, in which it's too hot or cold (Woodward, A. 2019). It's important to know that climate disruption is not climate change, yet it is. Climate change is known to be more linear and gradual, while climate disruption is more diverse and drastic. (Earth-Science Reviews, n.d.) This can lead to extreme weather events and societal challenges. Climate disruption is typically driven by increased levels of greenhouse gases in the atmosphere, and its main identifying feature is extreme weather events, whether hot or cold. The actions of mitigation are linked to resilience and climate disruption. (Los Angeles Emergency Management Department, n.d.) Hazard mitigation describes actions taken to help reduce or eliminate long-term risks caused by hazards or disasters, such as flooding, earthquakes, wildfires, landslides, or tsunamis. Mitigation is an essential action that should be taken before and after a disaster. These precautions will break the repetitive cycle of disaster recovery and build stronger communities and prepare for future injuries & damage. (IPCC, 2014) Mitigation can be defined as the effort to control the human sources of climate change, their impacts, and their effects on the planet's energy balance.

Public Trust in Government

Research indicates that the trust that Americans have in their public institutions, as well as in each other, has been faltering. While this same research suggests that it is not a primary driver, it does serve to worsen already existing issues, such as hampering coordination between agencies and the public (Pew Research Center, 2019). Public trust is imperative in the function of emergency management. Public trust leads to community partnerships, collaboration, and relationship building before an event happens. These relationships, partnerships, and collaborations make disaster resilience possible. When the public trusts the government, they are more likely to be receptive to the messages they are publishing.

Key Drivers

Through the following reviews of empirical research, the team identified 5 different factors that impact disaster resilience in the state of Minnesota. These factors included findings and identified key issues which were used for the following section of recommended actions.

Demand for increased State Funding and Resources

An increased demand for state funding and resources has been identified as a driver due to the poverty rate in Minnesota being 9.3% in 2023 (U.S Census Bureau, 2025). Additionally, to be considered the top 1% of Minnesota households, you need to make \$625,000 a year, while the average income for a household is \$115,861, a \$509,139 difference (U.S Census Bureau, 2025). Often, it is the most vulnerable groups of people who are not only impacted the most by disasters but are also the ones who struggle the most to recover from the impacts of disasters, leaving them more vulnerable than they were before (Austin et al., 2024). This is seen in every disaster event but was especially true for the East Grand Forks flood of 1997. Low-income families struggled with issues of affordability and unemployment. Without affordable rentals or employment, many could not return to East Grand Forks (Federal Reserve Bank of Minneapolis, 2006).

Building Resilient Infrastructure in Communities and Emergency Management Performance Grants are federally funded programs that help state and local emergency managers pay for staffing, mitigation, and preparedness actions (FEMA, n.d). These funds overall help lessen the burden on local governments' capacity. These funds are now being eliminated, and local governments must pay back what they have been given in previous years (FEMA, 2025). EMPG and BRIC are further defined in the literature review.

Need for State-Level Coalition

The federal government is scaling back its role in emergency management; therefore, the state and local communities need to continue to fund these processes themselves (Trump, 2025). With a lesser role of the federal government, there is going to be higher responsibility for the state government to support all areas of local emergency management, including responding to, recovering from, preparing for, and mitigating disaster events. There will also be a higher responsibility for the local government to contribute to their resilience and work more closely with the state to make this possible.

The threat of eliminating FEMA means there is a need for higher responsibility for emergency management at the state and local levels. Currently, FEMA provides funding and resources to support state and local emergency management actions (Rubin et al., 2019). The state must coordinate actions with both local and federal emergency management, putting pressure on the state agency to contribute to the needs of both areas (Cwiak & Butterfass, 2024).

This includes working with both the federal and local governments to provide funding and personnel for response, preparedness, mitigation, and recovery. For these activities to happen without the support of the federal government and federal aid, there is a need for more interstate collaboration within a coalition, including insurance and disaster funding (Belblidia & Kliebert, 2022). This coalition can function like a mutual aid agreement, with members providing support for each other before, during, and after hazard events.

Lack of Local Community Empowerment and Integration in Disaster Management

Emergency management begins and ends locally. Therefore, greater focus on empowering local communities enhances disaster resilience and facilitates effective disaster management. The Division of HSEM must support this effort through funding, guidance, and training. This funding, training, and guidance will provide local communities with the ability to be self-sufficient, therefore influencing the state's sufficiency and resilience.

Until recently, FEMA has been viewed as the organization that supports local economies, individuals, and households after a disaster (Rubin et al., 2019). Without this agency and federal funding, the state must take on part of that role and create resilience before an event happens. Local communities are

an integral part of the state, taking on the role previously provided through FEMA.

When local communities support and buy into emergency management, the state government can create resilience by centering and working with them on their needs (Fothergill & Peek, 2017). When local communities do not have their needs met, this also influences the state government and its resilience. Minnesota is made up of urban and rural communities that support each other and the state in self-sufficiency and resilience (US Census Bureau, 2025).

Need for Interagency Collaboration

HSEM needs to foster interagency collaboration among other state agencies and itself to maximize and leverage state resources to enhance holistic resilience. Emergency management needs to be approached from a whole-community perspective (Fan, Liu, Huang, & Zhu, 2019). On a state level, this means utilizing all available agencies to create resilience.

The role of HSEM in interagency collaboration is to bring these organizations together to foster communication and relationships before a hazard event happens. HSEM could also purposefully integrate key partners into planning structures and processes. When organizations work together before an event, they have pre-existing relationships. These partnerships will create better opportunities during an event to share information and fix issues that have been seen in many disaster response and recovery efforts, such as duplication of efforts, lack of coordination, lack of information sharing, and skipped areas (Austin et al., 2024).

Currently, state interagency collaboration across the United States is not as robust as it should be (Fan, Liu, Huang, & Zhu, 2019). Without collaboration among agencies, it is impossible to be fully prepared for a hazard event. Interagency collaboration needs to be fostered and utilized in standard operating times so that it is well practiced and thought out in a disaster situation.

Increased Risk Associated with Climate Disruption

Climate and weather patterns are rapidly becoming increasingly unpredictable. As a catalyst for intensifying extreme events, climate change impacts damage to people, property, and the environment. Predictions indicate that Minnesota will experience increased risks from precipitation, heat, and fire (Liess et al., 2022). **Currently, Minnesota ranks 18 on flood risk and is estimated to**

experience growing amounts of precipitation for the next 30 years negatively impacting living conditions and the quality of life of Minnesotans (Minnesota Pollution Control Agency, n.d.)

In addition to precipitation concerns, mean temperatures are rising in Minnesota. Minnesota is getting warmer, daily temperatures have increased by 5 degrees across the entire state (Minnesota Pollution Control Agency, n.d.). These massive heat changes affect health, governments, and business owners.

As the impacts of climate disruption accumulate, Minnesota will begin to face more and more challenges in the aforementioned areas.

Climate disruptions impact on communities, governments, and individuals/ households are attributed to these slowly yet surely growing changes to the atmospheric environment conditions, creating disasters, or impacting the weather. Climate disruption continues to strike communities with loss of life, destroyed ecosystems, and is the cause of massive amounts of property damage (Earth-Science Reviews, n.d.). Climate disruption has profound implications for global health. Changing weather patterns can have the effect of spreading disease, and access to clean water is affected. These aspects have created a counter influence within emergency management (FEMA, 2024). The hazard mitigation plan reduces loss of life and property by minimizing the impact of disasters (FEMA). Mitigation plans are the key to long-term strategies to protect people and property. Adaptation differs from mitigation as it centers human adjustment to the effects of climate change whether those effects are actualized or expected (Currie-Alder et al, 2021). An example would be placing houses on stilts to stay above water despite sea level rise instead of relocating. As a critical component of the global response to climate change, adaptation can include other activities like building flood defenses, early warning systems, and redesigning community systems. Enacting an active program of both mitigation and adaptation can reduce climate disruption's short- and long-term effects.

See findings table on next page.

| | Key Driver | Definition | Reference(s) |
|--|---|--|---|
| | Demand for Increased State Funding and Resources | FEMA is taking a step back in emergency management at a local level, leaving this responsibility to the state. | (Austin et al., 2024) (FEMA, 2025) |
| | Need for State-Level Coalition | To share risk, States need to partner together to continue emergency management. | (Belblidia & Kliebert, 2022) (Cwiak & Butterfass, 2024). |
| | Lack of Local Community Empowerment and Integration in Disaster | To create resilience, local communities need to be supported. | (Fothergill & Peek, 2017) |
| | Need for Interagency Collaboration | State resilience relies on agencies working together. HSEM will need to facilitate this collaboration. | (Fan, Liu, Huang, & Zhu, 2019) (Austin et al., 2024) |
| | Increased Risk Associated with Climate Disruption | The climate is changing, and this risk is increasing through worse impacts and more severe hazard events. | (Minnesota Pollution Control Agency, n.d.) (Liess et al., 2022) (FEMA, 2024) (Currie-Alder., Rosenzwei, Chen, Nalau, Patwardhan, & Wang, 2021) (United Nations Climate Change, n.d.) (Earth-Science Reviews, n.d.) |

Recommended Actions

Drawing upon the previous findings and key drivers a list of nine recommended actions were developed. Including but not limited to a discussion of how these recommendations can be implemented, their effect on HSEM's organizational chart, and HSEM's organizational structure.

Create an In-State Individual and Household Disaster Fund

To empower and protect the average Minnesotan and local economies from disaster impacts, the state needs to be prepared for the elimination of the Federal Emergency Management Agency (FEMA) and, therefore, its individual and household assistance program (Weissert & Megerian, 2025). FEMA is often the organization that is counted on to help individuals, households, and local economies after a disaster occurs. There is a culture of relying on the federal government; however, the federal government does not have the capacity for this. The state needs to take on some of this responsibility. Minnesota needs to rely on itself to continue protecting individuals, households, and local economies. Having a state individual and household disaster fund is a way to protect individuals in poverty and individuals who suffer from income inequality. Not only can this fund be utilized to replace the FEMA individual and household program, but it can be used in conjunction with it if the program is kept supporting the gap that we see when recovering from a disaster.

To make this possible, part of the funding for this fund can come from the current budget surplus. This surplus must be used wisely to maintain a surplus. This can be done in many ways, such as investing this surplus (Levy Economics Institute, 2020). It is also immensely important for Minnesota at a state level to address the rural and urban divide through a disaster fund that is not based on what town or county someone lives in. It has been found that the most disaster-ridden counties are often the most rural. Minnesotans in those places deserve individual assistance, as do those living in the most populated counties

(Czajkowski & Mueller, 2023). This fund will need heavy support from the Minnesota State government because it requires legislation and must be built into the government budget. HSEM will have to alter the way that their organizational structure works as this fund will need a group to implement an individual and household disaster fund will need a diverse group of people to implement it. The way that the individual disaster fund will change the organization structure is further discussed in Appendix B.

All in State Carbon-Free Power

To be self-sufficient by 2050, Minnesota needs to generate all the power that is used locally across the state. Currently, Minnesotans use more power than the state generates, meaning power has to be bought from other places to provide enough power to the state (Xcel, n.d.). If Minnesota is self-reliant on in-state power generation, it will save the state money and create jobs.

Minnesota does not have any reserves of fossil fuels, although fossil fuels account for 46% of all power used (US Energy Information Administration, n.d.). To be economically efficient, Minnesota needs to utilize the resources they do have, which includes a vast amount of renewable energy. Minnesota has ample wind resources, bodies of water for hydropower, and open spaces for solar farms (US Energy Information Administration, n.d.). In addition to renewable resources, Minnesota also already has three nuclear reactors that are being utilized to generate power: one located at the Monticello nuclear power plant and two at the Prairie Island nuclear power plant (Minnesota Environmental Quality Board, n.d.). Solar, Wind, and Hydro sources of energy are being utilized in Minnesota, generating 33% of all electricity. Nuclear power generates 21% of power in Minnesota (US Energy Information Administration, n.d.). The generation of power in Minnesota requires the support of the state government. The pledge to be carbon-free by 2035 will also support the goal of having all power used in Minnesota generated in Minnesota, and in turn, this will create an economically positive environment. Carbon-free energy will also create a positive environmental benefit (Minnesota Environmental Quality Board, n.d.). Building more carbon-free energy will also continue to create new jobs in the state (US Energy Information Administration, n.d.). This may create more job opportunities for rural Minnesotans and create lower energy costs for the average Minnesotan.

Multi-State Hazard Compact

In 1996, a new type of mutual aid agreement was approved by Congress. EMAC, also known as Emergency Management Assistance Compact (Emergency Management Assistance Compact, 2021). EMAC is designed for a quick and easy way for states to send personnel and equipment to help disaster relief efforts in impacted states (Minnesota Department of Public Safety n.d.)

The state director or the director of each local organization for emergency management may, subject to the approval of the governor, enter into mutual aid agreements with emergency management agencies or organizations in other states for reciprocal emergency management agencies or organizations in other states for reciprocal emergency management aid and assistance in case of disaster too great to be dealt with unassisted.’ (Minn. Stat. §12.27, 2024). On multiple occasions, Minnesota has needed to receive help through mutual aid agreements, and cooperation between local and state agencies has saved lives, property, and/or the environment.

Insurance Cooperative Among States

Across the country, states prone to natural disasters, such as Florida and California, are seeing insurance companies withdraw rapidly, ceasing to accept new clients and even dropping existing ones altogether. As individuals and households face this reality, it's important to recognize that insurance companies are businesses that are privately owned and generate profits for their shareholders. Insurance companies are now having to prioritize either policyholders or shareholders and it is becoming increasingly difficult to do both. Unfortunately, this issue has nationwide implications. A report from the National Bureau of Economic Research indicates that homeowners across the U.S. have experienced insurance premium increases of up to 33% (2025). However, in Minnesota, certain preventive measures help mitigate these challenges. Despite the state's property insurance rates being among the highest outside of coastal regions, state law allows regulators to request a public hearing whenever an insurer raises premiums by 25% or more within a year. This often discourages companies from surpassing that threshold (Ramstad, 2024). While these safeguards offer some protection, the broader issues observed across the country highlight the need for fair risk-sharing between

consumers and the insurance industry.

Building Public Trust

The American public is losing trust in its public agencies and institutions. As such, the information that these agencies publicize, especially those in emergency management, may ignore or mistrust information from HSEM. Additionally, American citizens' trust in one another has also been faltering (Kent 2024). While this erosion of trust may not be the most concerning factor, it catalyzes the other drivers, making them much worse.

To remedy this, Minnesota, and not just HSEM, needs to ensure that all information that is released by the state is as accurate as possible. Additionally, should there ever be a mistake if agencies release incorrect information, or once correct information becomes incorrect, public agencies need to correct this information as quickly as possible while also owning the failure in communication. By doing this, the American and Minnesotan people will see that agencies are doing the best they can to be transparent, and while they may not always be correct, they are doing the best they can to keep the public safe and informed.

For HSEM to achieve this goal, HSEM must have its own public affairs team, with which to reach out to the public, and liaison with other organizations. This team should be made up of the following;

| Position | Guidelines |
|------------------------------|--|
| Public Affairs Team | Guides the public affairs team to accomplish |
| Rural Outreach Officer | Conducts outreach activities in Minnesota's rural areas. |
| Urban Outreach Officer | Conducts outreach activities in Minnesota's urban areas. |
| Public Information Officer | Professionally trained to give information to the public. |
| Interagency Coordination | Responsible for helping other agencies work with |
| Social Vulnerability Officer | Conducts outreach in the most vulnerable communities of Minnesota. |

Having this team in place will ensure both prompt communication with the public and public involvement in the emergency management process. A complete proposed organizational chart is available in Appendix B. All the solutions following this one will utilize the members of the team outlined here will be utilizing the public affairs team explained in this section.

Mitigate Loss of Federal Support Through Empowering Local Communities

Recent executive orders have demonstrated an increased emphasis on resilience at the state and local levels while also deemphasizing federal support in emergency management activities. A potential consequence of this deemphasis is the loss of federal training facilities such as the national fire academy and FEMA independent study courses, as well as the loss of guidance such as the national preparedness goal, is a document that highlights activities the nation should be focused on to maximize the preparedness and resilience of the entire nation.

To mitigate the loss of the national preparedness goal, should it happen, Minnesota HSEM must work with the governor's office to create its own preparedness goal. The benefit to doing so is that HSEM will be able to tailor this goal to fit the needs of Minnesota, rather than utilizing a goal meant for an entire nation that has items that are less applicable to Minnesota. This will ensure that even if the National Preparedness goal does not go away, there is still use in having a state-specific preparedness goal. This goal can then be communicated via the newly minted public affairs team.

Mitigating the loss of the training facilities, such as the National Fire Academy, will require more effort, however, it is manageable. Minnesota HSEM should work with the wider Department of Public Safety to create an in-house fire academy. This academy can replace the courses lost in the national academy, while also allowing for more, Minnesota-specific classes to be taught. Should money become an issue, as this will be no cheap endeavor, Minnesota can work with other states, either in the same FEMA region, states that have hazard profiles like Minnesota's, or states within a hazard or insurance cooperative. Another option available to Minnesota, that may not be as disruptive as creating its fire academy, is to partner with local high schools, colleges, and universities to more heavily support emergency management education. In high schools, this can be as simple as talking about what Minnesota HSEM

is and what they do for the state, while colleges and universities can focus more heavily on training and research.

If trends continue, Minnesota will lose the Emergency Management Performance Grant, or EMPG. The FEMA website for the grant states that the grant is meant to provide state, local, tribal, and territorial agencies with the necessary resources to work toward the national preparedness goal. Without these funding resources will have to identify new funding sources or shift funding to what is deemed necessary for HSEM to function as effectively as possible. Additionally, local communities will need extra support in the facilitation and maintenance of mitigation, preparedness, response, and recovery.

This solution will utilize the public affairs team created in the previous recommendation, as this team can reach out to schools, universities, and other institutions to help spread the word of emergency management, as well as help bring local concerns to the table.

Create Collaborative Opportunities for State and Local Emergency Managers

The state of Minnesota has 87 counties and 11 federally recognized tribal communities. In counties, cities, tribal nations, and elsewhere throughout Minnesota, there are varying degrees of disparities, to the extremes from relying on a single emergency manager for a whole county. Each level of emergency management, city, town, county, tribal, and state, has different duties and responsibilities; they also have different experiences, considering a city/town wouldn't have the same experience as a county or even the state. How are such disparities in capabilities and capacity to act in the effort to save lives, property, and the environment? Minnesota's HSEM currently has an optional training portal, a method to train Emergency Managers around the state without them having to leave their jurisdiction (Homeland Security and Emergency Management, 2023). This training helps standardize emergency management across Minnesota. Standardization across the state benefits all of Minnesota and makes the state more resilient.

Unfortunately, Emergency Managers, especially those in areas that don't have enough manpower, and may not be prepared for a scenario, are in situations that online training courses can't predict. On the other hand, state level Emergency Managers are not only more in number, but their experience or specific expertise of the situations that local, city, town, or county emergency

managers could experience and struggle to deal with. Joint actions between the different levels would have many advantages that would benefit both sides, stronger communication, more expansive experiences for the emergency managers, an extensive in-depth view on the situations around the states, and a greater relationship between the different levels would support mutual aid agreements, empower local communities, and gather more data towards predicting climate disruption and mitigation. As well as further supporting the standardization of emergency management across the state.

The outreach officers, as well as the interagency collaboration officer created in the public trust recommendation, will help ensure that emergency management agencies cooperate and coordinate well with one another.

Identify and Address Social Vulnerabilities in the State

Hazard events do not affect every individual, household, or business in the same way. It is the unfortunate reality that in every disaster, there are going to be both winners (ones who better adapt to and survive) and losers (those who are more vulnerable to those changes and less able to adapt) (SPET). To help those who are more vulnerable, it is critical to address their needs. The C-MIST model creates an excellent guideline for Minnesota HSEM to follow by categorizing various needs.

Following C-MIST framework will allow for the needs of those who are most vulnerable to be quickly identified, categorized, and assisted (whether directly by the Minnesota government or by nongovernmental organizations). Additionally, this will assist in helping those who have just recently migrated to Minnesota have their needs met, as well as help them attain necessary communal ties and knowledge of the hazards in the state to help them better adapt to Minnesota. Special attention will need to be place on maintaining a migrant's agency and ability for self-determination, as that will have a major impact on their social capital.

The social vulnerability officer will be an essential asset in ensuring vulnerabilities are discovered, and that the people who are vulnerable have a voice at the table. Additionally, the officer can investigate the differences in SVI highlighted in figure 1 and find ways to reduce vulnerability in the higher SVI areas.

Proactively Predict and Adapt to a Changing Environment

Mitigating, predicting, and adapting to the rapidly changing environment is becoming more urgent as climate disruption begins to take further hold on Minnesota and its surroundings. Ongoing climate disruption is outpacing global mitigation efforts, we have entered a climate beyond the range any human has experienced (Currie-Alder, Rosenzweig, Chen, Nalau, Patwardhan, & Wang, 2021). In the coming decades, Climate Mitigation will go on and affect the lives of billions. It has become progressively more important to react and attempt to slow or, hopefully, even stop the effect of the brisk speed climate disruption has on the environment and human society. Successful adaptation not only depends on governments but also on local communities, national, regional, and international organizations. This is a global challenge recognized by all (United Nations Climate Change, n.d.). Adaptation is a critical component of the long-term global response to climate disruption. The monumental need to predict and adapt to the impact communities, governments, and individuals will receive from the future effects of the environment is beginning to show its importance as it generates new hazards and intensifies the old.

To accomplish this, HSEM needs to place a larger emphasis on the role of mitigation at the state and local level. HSEM can achieve this through requiring mitigation plans at a county level, as well as providing support in helping communities create a mitigation plan and update them every five years. To do this, HSEM needs to create a position for a state and county liaison whose role is to support county emergency managers not only in mitigation planning but in all areas of emergency management. This can be connecting local emergency managers to resources, training, and having consistent communication with them about the issues they are facing. Supporting local emergency management will translate into a resilient Minnesota as a whole. This will utilize both the rural and urban outreach officers, who can reach out to their respective areas of responsibility and ensure that consistent communication and collaboration is needed.

See table on next page.

| Recommendation | Key Driver | Justification |
|---|---|---|
| Create an In-State Individual and Household Disaster Fund | Demand for Increased State Funding and Resources | This will impact the disaster recovery, finance and grants and public assistance departments. |
| All In-State Carbon-Free Power | Increased Risk Associated with Climate Disruption | This will impact the planning and radiological emergency preparedness departments. |
| Create Collaborative Opportunities for State and Local Emergency Managers | Focus on Empowering Local Communities | This will affect all departments of HSEM. |
| Identify and Address Social Vulnerabilities in the State | Demand for Increased State Funding and Resources | This will affect the public assistance department. |
| Building Public Trust | Need for Interagency Collaboration | This will affect all departments of HSEM. |
| Predict and Adapt to a Changing Environment Proactively | Increased Need for Mitigation and Adaptation | This will affect hazard mitigation and all hazards planning departments. |
| State Hazard Compact | Need for State-Level Coalition | This will affect public assistance, finance and grants departments. |
| Insurance Cooperative Among States | Increased Risk Associated with Climate Disruption | This will affect the finance and grants department. |
| Mitigate Loss of Federal Support Through Empowering Local Communities | Focus on Empowering Local Communities | This will affect public assistance, disaster recovery, training, and readiness departments. |

Conclusion

Over the next 25 years, disaster management systems will need to address multiple new and intensified challenges. To meet this demand, HSEM needs to proactively develop processes and structures that provide flexibility and agility to mitigate and adapt to a rapidly changing risk environment. In addition to risk associated with more traditional hazards like flooding, extreme temperature swings, and winter storms, HSEM must prepare itself to address complex issues like social vulnerability, trust in government agencies, and uncertainty at the federal level. Involving the residents of Minnesota, private sector partners, and other state agencies provides an opportunity to expand the reach of HSEM and more fully engage Minnesota's distributed function for disaster management. Increasing the breadth and depth of the disaster management enterprise through integration and empowerment enhances community-based resilience. Such an increase in disaster resilience allows HSEM to become more proactive, efficient, effective, and agile.

This report identified five drivers impacting Minnesota's ability to deliver effective and efficient disaster management and improve statewide community-based disaster resilience. The identification of these drivers is supported by empirical research and a broader body of knowledge within the field of emergency management. The NDSU team developed nine practical recommendations to address the drivers within the changing risk environment over the next 25 years. Creating a greater level of self-sufficiency at the local and state levels represents the common theme of the recommendations. Such efforts must include local empowerment, broadening the integration of partners across state government, and building strong partnerships with key private sector organizations. A culture of self-sufficiency must permeate individuals, households, communities, and organizations in both the private and nonprofit sectors. Developing economic and energy independence as a state requires the involvement of all organizations, agencies, and communities. Consistent

Both local and state disaster management organizations may enter into mutual aid agreements with other communities and states to increase access to resources during extreme events. The agreement is legally binding and requires that all parties agree to provide resources to the others in times of need (National Incident Management System, 2024). The importance of mutual aid agreements has been widely recognized as scale and complexity of disasters continue to grow, the ability to quickly receive resources from partners allows communities to make significant impacts in the outcome of disaster response and resilience (Sharp, 2024).

While reviewing, revising, and developing mutual aid agreements, a full assessment of resources, capacity, and capabilities across the community or state is essential (National Incident Management System, 2024). Mutual aid agreements provide an opportunity to increase disaster resilience at the local and state level as disaster risk is shared more broadly and potential resource levels are increased. (Metzger 2021).

Disaster Resilience, Social Vulnerability, and Social Capital

Disaster resilience is complex and is considered at both the individual or household level and the community level. The concepts of social vulnerability and social capital are closely related to disaster resilience and are included in this section of the literature review. Individual levels of social vulnerability and social capital are considered as aggregate factors as this project considers community-based disaster resilience. Collectively for purposes of this report community-based disaster resilience is linked to improved outcomes throughout the disaster cycle (Hackerott, 2020). Given the close relationship between local - and state-level emergency management, a community's level of resilience is a significant factor in the state's conduct of effective disaster management (Dynes, 1970; Morley, 2024).

Social vulnerability is defined as the unequal exposure to risk and extreme events due to differential socioeconomic and power relationships among groups within a community (Hackerott, 2020). Factors influencing the level of social vulnerability include socio-economic status, geographical exposure, race or ethnic background, age, and disability (Cutter & Finch, 2008; Cutter et al., 2003). Identifying and acknowledging the increased risk and increased negative impacts suffered during disaster is essential to effective planning (Berke & Campanella, 2006). Inclusion of socially vulnerable communities and their

assessment of hazards and risk supports organizational adaptability and effectiveness. Building such capacity into HSEM requires modifications of the current organizational structure, including changes in staffing, position tasks and responsibilities, and accountability systems.

Such adaptation also requires the support of those in the political arena to enact actionable policy quickly. Changes in the federal structure and system of resource distribution create immediate challenges. Minnesota must prepare to care for its residents without traditional resources and financial streams. As Minnesota works to increase its level of self-sufficiency, partnerships with other states may provide external support necessary for immediate disaster management. Through coalition building, local community empowerment, private and nonprofit sector partnerships, and organizational integration and inclusion efforts in planning and decision-making, HSEM will be positioned to provide the essential service of disaster management and support enhanced disaster resilience across Minnesota.



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Current Organizational Chart for HSEM



Proposed Organizational Chart for HSEM





Proposed Changes and Additions

Division of Communications/Relations

- Public Affairs Team
- Public Affairs Commander
- Rural Outreach Officer
- Urban Outreach Officer
- Public Information Officer
- Interagency Liaison Office
- Social Vulnerability Officer

All Hazards Planning

- County Planning Liaison