



All-Hazard Mitigation Plan

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Appendix A: Blue Earth County

Hazards/ Priority Hazards/ Mitigation Steps

Appendix B: Amboy

Survey/ Potential Hazards/ Priority Hazards

Appendix C: Eagle Lake

Survey/ Potential Hazards/ Priority Hazards

Appendix D: Good Thunder

Survey/ Potential Hazards/ Priority Hazards

Appendix E: Lake Crystal

Survey/ Potential Hazards/ Priority Hazards

Appendix F: Madison Lake

Survey/ Potential Hazards/ Priority Hazards

Appendix G: Mankato

Survey/ Potential Hazards/ Priority Hazards

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Survey

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Survey/ Potential Hazards/ Priority Hazards

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Appendix M: Blue Earth County

Blue Earth County Critical Facilities

Active Hazardous Material Sites Index

Note: The areas of Willow Creek and Sterling Center are unincorporated (County information)

Appendix N (Attached): Blue Earth County and Cities

Resolutions to Participate in the All-Hazard Mitigation Plan

Part One: The Planning Process

Blue Earth County, Minnesota is subject to natural hazards as well as hazards imposed by humans. These hazards are capable of threatening life, health, property, and the environment. History has taught us that some emergencies cannot be avoided. For example, notable floods were recorded in Blue Earth County in 1965, 1968, 1969, 1993, 1996, 1997, and 1998. Events involving tornados (and subsequent, compounding hazards) were recorded in 1993, 1997, and 1998. Other hazards, however, are created by men and must be monitored by county and city law enforcement agencies. In Blue Earth County, one of the most predominant man-made hazards to contend with is the theft of anhydrous ammonia fertilizer and its use in the production of the highly addictive nerve stimulant methamphetamine.

Completely eliminating the risk of future emergencies and hazards capable of endangering the public welfare is neither technologically possible nor economically feasible. However, substantially reducing the negative impacts of future disasters is achievable through the development and implementation of a pragmatic hazard mitigation plan.

The Purpose of Our Program

The purpose of hazard mitigation in Blue Earth County is two-fold. The primary purpose of the program is to reduce loss of life and property due to natural disasters by encouraging the implementation of mitigation measures. Secondly, it is our goal to fully satisfy the requirements set forth in Section 104 of the Disaster Mitigation Act of 2000 (42 USC 5165.) Under the aforementioned act, it is the responsibility of counties such as ours to compile an effective and approved hazard mitigation plan should we desire to access post-disaster mitigation funds through the Hazard Mitigation Grant Program. Upon receiving a passing score from FEMA, this plan can be adopted by Blue Earth County and all cities and townships within the county. Supporting documentation (i.e. resolutions) for each jurisdiction adopting this plan will be included in the appendices after such adoption has taken place.

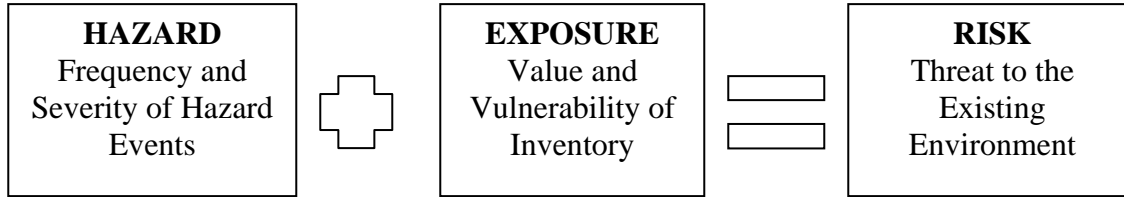
Planning For Disaster: Key Concepts and Definitions

Careful planning is an important aspect of a successful mitigation program. Hazard mitigation planning is a collaborative process whereby hazards affecting the community are identified, vulnerability to the hazards is assessed, and consensus is reached on how to minimize or eliminate the effects of these hazards.

The key concept of mitigation planning is that mitigation reduces risk, and risk is defined as potential threat to the existing environment posed by all of the hazards being considered. The potential for damages, losses, and casualties must all be taken into consideration when assessing risk.

The mitigation planning approach used in this plan is based upon quantitative assessment of risk. Rational prioritization and implementation of mitigation measures can be achieved only by evaluating the level of risk for both pre-mitigation conditions and post-mitigation conditions. That is, the effectiveness of mitigation measures in reducing risk must be evaluated. The extent of the risk depends on the combination of hazard and exposure:

Use of Key Concepts in Hazard Mitigation Planning



Definition of Key Concepts in Hazard Mitigation Planning

Term	Definition
Hazard	A natural or technological event that may cause damage, losses, or casualties. Included in the definition are floods, winter storms, tornadoes, hazardous material spills, etc. Hazards are characterized by their frequency and severity as well as by the geographical area affected.
Exposure	The quantity, value, and vulnerability of the built environment (inventory of buildings and infrastructure) in a particular location subject to one or more hazards. Inventory is determined by the number, size, shape, type, use, and occupancy of buildings, and by the infrastructure present.
Risk	The threat to the built environment- the potential for damages, losses, and casualties arising from hazards. When a hazard and exposure are combined, risk is the result.
Mitigation	An action designed to reduce the risk due to hazards. Mitigation projects may be “hard” projects, or construction that physically reduces risk, or “soft” projects, namely planning activities that reduce the negative impacts of hazard events.

The following cities participated by resolution in the Blue Earth County All-Hazard Mitigation Plan:

Amboy	Eagle Lake	Good Thunder	Lake Crystal
Madison Lake	Mankato	Mapleton	Pemberton
Skyline	St. Clair	Vernon Center	

Planning for townships is included in the planning done by Blue Earth County.

Organizing Resources

The first step in creating a mitigation plan is to understand what resources are available and from what authorities to draw information. In Blue Earth County, our first step was to assign the project to the Region Nine Development Commission. In this manner, the information from each county could be compared with information provided in as many as eight other counties, allowing interplay of thoughts and ideas across neighborhoods throughout South Central Minnesota. It also created the possibility of centralized communication and organization through a third party.

Another resource of value was the existing handbook, *State and Local Mitigation Planning*, published by the Federal Emergency Management Agency (FEMA) in September of 2002. Many local jurisdictions commented on their own unique Emergency Response Plans, effectively providing a gauge indicating which hazards are currently being monitored and prioritized by localities within the county.

The public was also of value in the initial phase of the plan's creation. Individuals involved were encouraged to read drafts of the plan and submit information about hazards that have occurred in the past in Blue Earth County, whether in written or anecdotal form. As was mentioned in the opening of this plan, citizens of Blue Earth County have been involved in emergency situations and have unique perspectives to offer on hazard mitigation. Meetings were held also with Township Associations and Task Force committees, and presentations were made with the County Board.

Official Contributors and Jurisdictions Represented by the Blue Earth County Hazard Mitigation Plan

Name	Title	Function
Morrel, Veryl	Land Use Administrator	County Level: Final Review of Plan
Salsbury, Scott	Land Use Planner/Mapping Consultant	County Level: Critical Facilities Maps
Walker, Randy	Emergency Management Coordinator	County Level & City Level: Mankato
Mack, Gloria	City Clerk	City Level: Amboy
Wills, Philip	Chief of Police	City Level: Eagle Lake
Reinbold, Rick	Public Works Director	City Level: Eagle Lake
Barnard, Cheryl	City Clerk and Treasurer	City Level: Good Thunder
Hauge, Robert	City Administrator	City Level: Lake Crystal
Moe, Jeff	Public Works Director	City Level: Madison Lake
Woodruff, Patty	City Administrator	City Level: Mapleton
Goodrich, Sarah	City Clerk	City Level: Pemberton
Krosch, Patricia	City Clerk	City Level: Vernon Center
Hermanson, Roger	Fire Chief	City Level: Skyline
Seys, Catherine	City Clerk	City Level: St. Clair
DeVlaeminck, Debra	City Clerk and Treasurer	City Level: Madison Lake
Edwards, Reggie	Executive Director of Region Nine	Staff: Plan Coordinator
Noerenberg, Jon	Regional Development Planner, Region Nine	Staff: Final Plan Organizer
Hughes, Lisa	Former Region Nine Employee	Staff: Plan Organizer
Miller, Angela	Region Nine	Staff: Final Plan Organizer
Havely, Ryan	Minnesota State University	Staff: Editor

Huettl, Jerry	Director of Public Safety	City Level: Mankato
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To begin communication with jurisdictions in Blue Earth County, each city clerk was sent a questionnaire to complete. The document asked each jurisdiction to answer the following questions:

- Has your city adopted the Minnesota State Building Code?
- What hazards are of most concern to your community and why?
- What equipment does your city have that can be used in the event of a disaster?
- How many full and part-time police officers does your city employ?
- How many homes and businesses are located in the 100-year floodplain?
- What bridges and/ or streets are vulnerable to flooding?
- What public education and outreach programs dealing with disaster awareness, safety, and preparedness are available to your city residents? What departments and/ or agencies are responsible for the organization of these programs?
- What types or acts of terrorism most concern your city and why?

Beyond the questionnaire several steps were taken to develop the plan which included process events outlined in the chart below.

Process Event	Timeline	Location	Comments
Informational Meetings County Staff	Jan. 2003		This was a county-wide meeting to inform all jurisdictions.
Discussion EMS Coordinator	Jan. 2003		The purpose of this meeting was to coordinate and communicate planning efforts.
Established Web log	Feb. 2003	Mankato	This allowed officials and citizens opportunity to view plans and comments.
Established Web links	Feb. 2003	Region	Links were established to help searchers find other appropriate information.
Discussed Planning with Higher Education Planning Ctr.	Oct. 2003	Mankato	Regional expertise was sought and interns given an opportunity to participate in the process.
Planning Meetings	December 18, 2003		Met with task force to discuss man-made hazard and risk assessments.
Created Community Profile	January 2004		This background information was gathered and presented for plan development.
Memorandum to Cities	Sept. 2004		Jurisdictions were communicated with in order seek community specific information and to provide information

			to jurisdictions regarding the process.
Informational Meetings	March 2003	Mankato	This was a county-wide meeting to inform all jurisdictions.
Draft Plans	March 2005		Draft plans were developed and shared with counties for review.
County Board Presentation/ Townships	April 2003	Mankato, Blue Earth	Presented the planning process to the County board. Presentations were also made at the bi-monthly Blue Earth County Township meeting.
Multi-county Meeting	June 2003	LeSueur and Blue Earth	These were information meetings for all counties, which allow neighboring counties to know what was happening in the abutting county.
Public Information Meeting	June 18, 2003	Mankato	Hosted public information forum. Presentations by Dept. Adm./Planning
Mapping Training	July, 2003	Mankato	MN Local Planning – Administration provided Epic Planner training on mapping.
Mailed Information Surveys	Varied depending on jurisdiction	Jurisdiction specific	This instrument was sent to further gather community specific information and input. Not applicable to all communities.
Phone Interviews	Varied depending on jurisdiction	Jurisdiction specific	This instrument was conducted to further gather community specific information and input. Not applicable to all communities.
Information Meeting	Dec. 2004		This was a county-wide meeting to inform all jurisdictions.
State Plan Review	July 2005		State reviewed plan and provided feedback on plan.
Federal Plan Review	July 2005		FEMA reviewed plan and provided feedback on plan.
Local Plan Review	July 2005 June 2005		Counties received draft of plans for review and subsequently after comments by State and FEMA
County Plan Approval	Projected Summer 2007		Final comments and approval of plan sought.

Assessing Risks

To assess risks in Blue Earth County, each city clerk was asked to collaborate with city officials and respond to a more in-depth set of questions. Both natural and human-made hazards were identified. Discussions included implications of flooding, tornadoes, rail lines, building conditions, and chemical facilities. City officials and staff were asked to think about hazards facing their community and generate a list of potential hazards most in need of mitigation. Once identified, the hazards were prioritized based on the following process:

Risk Assessment Steps

Step	Description
Hazard Assessment	For each hazard listed, describe the event and determine the probability that the hazard event will impact your community. Has the hazard event occurred in the past? What geographic areas will it impact? Would you categorize the hazard as having a human impact? Environmental? Physical? How many buildings or lives might be affected?
Risk Assessment	For each hazard, indicate, using numbers one through three, how vulnerable the community is to each hazard. Using the same system, indicate how severely the community would be impacted. (One equals highest risk and highest impact; three equals lowest risk and impact.)
Prioritization	According to the quantified risk assessment, which hazards have the highest combination of probability and impact? Which hazards represent an acceptable risk? Which should be further researched?
Mitigation	Of the hazards in your community found to impose an unacceptable amount of risk, what steps should be taken to prevent the hazard or reduce the impact it has on your community?

Once each of the surveys were completed, they were compiled and researched to find any patterns that may indicate what the county as a whole should address and what gaps and deficiencies Blue Earth County currently faces. This allowed jurisdictions to generate and classify a very accurate list of priority hazards for the county. Any hazards unique to individual jurisdictions were classified as such and separated to be considered on a smaller scale.

County groups and individual jurisdictions discussed potential action steps to mitigate identified hazards. Various actions/strategies were identified for the top prioritized hazards based upon estimated effectiveness of those actions/strategies. Effectiveness was based upon local knowledge of resources, capability and practical ness of the strategy. Historical actions or mitigation steps already in place were also considered as variables when identifying actions. For example existing sirens used for tornado warning were identified, although shelter would need to be identified for citizens living in trailer courts. Therefore, actions to include a shelter could become more of priority because another portion of an overall strategy to tornado was in place, henceforth the jurisdiction's ability to more fully mitigate that hazard would be realized.

A risk assessment table (next page), which describes and ranks the hazards via the use of the aforementioned scoring system and the knowledge of Region Nine staff has also been created and included for each individual hazard. These tables are different from those that are included for individual jurisdictions in that they define risk factors for the entire county based rather than the different communities. These assessments provide a summary of each hazard by gathering and presenting information about each hazard, and delineate areas of special concern among different Blue Earth County jurisdictions. The risk assessment takes different questions regarding the risk factors into consideration and attempts to quantify the level of risk by assigning numerical values to different levels of risk. This information allows the hazards to be compared to each other in order to determine which hazards carry the highest levels of risk to the county. It should be noted that the scale utilized by this tool is noticeable different from the one

utilized in the previously discussed city questionnaires in that it uses a scale of 1 through 4, 1 being low-risk, low-impact, and 4 being high-risk, high-impact.

The risk assessment is determined by the following:

- 1) **The frequency of occurrence:** This asks how often the events will happen and how likely it is that the hazard will occur. The assigned values are:
 - a. Unlikely - 1
 - b. Occasional – 2
 - c. Likely – 3
 - d. Highly Likely – 4

- 2) **Warning Time:** This asks approximately the amount of warning time prior to an event.
 - a. More than 12 hours – 1
 - b. Between 6 and 12 hours – 2
 - c. Between 3 and 6 hours – 3
 - d. Minimal or No Warning – 4

- 3) **Potential Severity:** This asks how severe the overall effects of the event would be.
 - a. Limited – 1
 - b. Minor – 2
 - c. Major – 3
 - d. Substantial – 4

- 4) **Risk Level:** This asks how severe the impacts of an event would be for the differing categories of Citizens/People, Animals/Livestock, Housing, Critical Structures, and Infrastructure. The average of all these categories makes up the numerical value of the risk.

The priority level of the hazard is then determined by adding up all the numbers and dividing by 4 (which represents the criteria explained earlier) to get the average risk level for each hazard. The risk values are as follows:

Overall Risk Priority Levels

- 1 – Very Low
- 2 – Low
- 3 – Moderate
- 4 – High

The values for this prioritized risk assessment were determined by a variety of resources throughout Blue Earth County (as explained earlier in the “Assessing Risks” section). Meetings and discussions were held with representatives of various agencies in the county, and jurisdictions were asked to fill out questionnaires regarding their levels of concern for different events. Other information from individual community profiles, such as available equipment and response personnel and facilities, was also taken into consideration.

Developing the Document

The Region Nine Development Commission created drafts of the hazard mitigation plan throughout each step of the planning process and circulated them back and forth among city and county officials. Corrections were made by representatives of the public and the plan was edited for content and grammatical errors by members of the graduate English program at Minnesota State University in Mankato. Maps were generated by Scott Salsbury, a land use planning and mapping consultant to Region Nine, while tables and figures were compiled by Lisa Hughes and Angela Miller of Region Nine, the drafters of the plan. The objective when writing this plan was to include all of the necessary information while keeping the document brief, concise, and easy to read and use as a reference guide.

Public Involvement and Participation

The public were engaged and communicated with in several ways. Some approaches provided and presented information to the public, while others made information available for review. The chart below identifies at least seven of nine methods used during the Blue Earth County planning process, which provided access for the general public during the planning process. Not only were these methods used during the planning process, but will be key to continuing public engagement in the process. Further plans utilizing all jurisdictions with websites will be created.

Number	Public Communication/Engagement Method	Comments
A.	County Website	Plans were used by some counties on their website. Blue Earth County did not have the plan on their site. However, all jurisdictions in the County will be able to have a plan on their website or link to the county or region website.
B.	Newspaper	Public notices or press releases were completed to inform the public of information sessions during the planning process.
C.	Information Meetings	Information meetings were conducted in order to provide an opportunity for the public to hear and comment on the plan/plan process.
D.	Task Force	A diverse group of professionals were coordinated in order to help develop, review and comment on the plan.
E.	Board Public Meetings	Elected officials passed resolutions to participate, which the general public were welcomed. This was another opportunity to provide information to those who might not use the website or unable to attend a specific meeting.
F.	Flyers	Information pieces were developed and

		distributed to educate the public and professionals on hazard mitigation planning and process.
G.	Brochures	Information pieces were developed and distributed to educate the public and professionals on hazard mitigation planning and process.
H.	City Websites	Plans were used by jurisdictions on their websites, but none in Blue Earth County. However, all jurisdictions in the County will be able to have a plan on their website or link to the county or region website.
I.	Region Website	Plans were made available on Region Nine's website including steps during the planning process. Therefore, public could access draft plan and gather information in planning process.

