

**Appendix B**  
**Draft**

Dane County/Madison Metropolitan Area  
Evacuation Plan  
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Hazard Analysis

Draft

Version 2.0

## Evacuation Plan – Hazard Analysis

### Evacuation Scale

There are no precise parameters regarding the scale of an evacuation. For planning purposes, four scales of evacuation are identified:

- a. A small-scale localized Site Evacuation may be needed as a result of a severe weather event, hazardous material incident, major fire, bomb threat or civil disturbance. Site evacuation involves a small number of people. This typically includes workers at the site and people from adjacent occupancies or areas. The people are easily evacuated and collected upwind at the perimeter area. Evacuation holding times are typically short, generally less than an hour or two, and citizens are permitted to return to their businesses or homes.
- b. An Intermediate Level Evacuation involving a larger number of citizens and a larger area may be necessary if the event impacts a larger geographic area. The Intermediate Level involves larger numbers of people and/or affects a larger area. This level affects off-site homes and businesses and normally affects fewer than 100 people. People may remain out of the area for two to four hours or more. Evacuation completion times will be somewhat longer than a site evacuation, but generally rapid. Collecting, documenting and controlling the evacuees becomes more difficult. Off-site collection sites or shelter areas will need to be determined and managed. Some evacuees will leave the area on their own or be sent home by employers. Site perimeters become larger and perimeter security requires more resources.
- c. A Large Scale Evacuation could be required in the event of a significant natural or technological disaster or a local terrorist threat or attack. Thousands of people could be evacuated. Rapid initiation of the evacuation process may be required. Evacuees may be out of their homes and businesses for many hours if not days. Evacuation completion time frames will be extended. Evacuation shelters will need to be located, opened and managed. Documentation and tracking of evacuees becomes more important as well as more difficult. Site and evacuation perimeters become extended and require much more resources to maintain. Security of the evacuated area will be a significant concern.
- d. A Mass Evacuation could be required due to an event that may cause or has caused a major disaster in the local jurisdiction. The situation may require the implementation of a regional, multi-jurisdictional evacuation and sheltering operations. Hundreds of thousands of people may need to be evacuated for an extended period of time. Large-scale reception operations would be required and sheltering needs would be regional in nature. Local resources would most likely be exhausted and significant state and federal assistance would be required to support the evacuation and sheltering operation.

## Evacuation Timing

There are four broad categories of situations where an evacuation would be an acceptable method of protecting the public. These categories are based on the development and the timing of the incident and each will present a different set of circumstances and considerations to be addressed. The evacuation types are described as a guideline for planning purposes:

- a. A Precautionary Evacuation would be conducted prior to the development of a threat. While time may be a factor, life safety is not an immediate consideration and the evacuation can be planned in advance. A precautionary evacuation would allow for a systematic warning process and people would have time to leave in an orderly fashion. Most evacuees would avoid a congregate care shelter and would seek temporary shelter with friends or family. Once the threat is over, the re-entry process would be orderly and the community would return to its normal routine with little disruption.

An example of a precautionary evacuation would be the derailment of a train hauling hazardous materials, where the cars are intact, but damaged such that product recovery is not possible. In this case, a decision may be made to vent and burn the cargo in the derailed cars. While there is no immediate risk to the community, there could be an increased risk during the vent and burn operations. A precautionary evacuation could be conducted to protect the public while this operation takes place. While time would be a factor in the evacuation response, the vent and burn operation can be delayed until the population has been safely relocated.

- b. A Hazard Threat Evacuation would be conducted when a known hazard is approaching the community. In a hazard threat evacuation, the public is moved prior to the arrival or development of the threat. While time may be a critical factor, the response can still be conducted in an orderly fashion. Public warning becomes more of an issue in order to keep a hazard threat evacuation from becoming a crisis response. Since there is only a limited time to respond before the arrival of the hazard, the warning must be credible and timely to allow people enough time to respond appropriately. Depending on the scale, other support needs might include traffic control, public transportation, scene security, congregate care, and specialized health care. Reentry considerations could vary widely, depending on the extent of the damage caused by the event. If damage is minimal, reentry may be relatively straightforward. However, if the event caused severe damage, the evacuation may evolve into a long-term relocation.

The most common example of a hazard threat evacuation is a hurricane warning. Other triggers may include a flash flood warning or other severe weather warnings where people have enough time to safely relocate before the event occurs. A local example would be a tornado warning where residents of a mobile home park leave their homes and seek shelter out of harms way or in a more secure building.

- c. A Crisis Response Evacuation is the next level, where there is little or no warning time before the threat affects the community. Crisis response evacuations usually occur under difficult conditions where time factors are critical and extremely short. Crisis response

evacuations are often spontaneously planned while the crisis is developing. In some cases, the evacuation may be used in conjunction with other protective measures such as sheltering-in-place to provide safe alternatives. Because the preparation time is so short, people will require greater levels of support. Again, depending on the scale, support needs may include public transportations, congregate care, medical care, family tracking and unification, and crisis counseling. Re-entry issues can also be complicated and must be carefully evaluated before allowing people to return home.

An example of a crisis response evacuation would be the response to an industrial accident where hazardous materials are released. An evacuation would be an appropriate protective action if the release is not or cannot be contained and people downwind are in immediate danger.

- d. A Relocation Evacuation generally takes place after the disaster or crisis has occurred. Since the event has already occurred, warning time is generally not an issue. However, while the other evacuation types tend to be short-term, a relocation is often long-term or even permanent. Depending on the nature of the relocation, planning needs are highly variable. In some cases, the relocation planning is an extension of the incident response and in other cases, an entirely new planning program is needed. There may be high support needs for a relocated population, including schooling, day care, medical care, disaster assistance, housing, and increased support for day-to-day living. If the relocation is permanent, there can be significant ramifications on the community as a whole.

The response to the August 18, 2005 tornado in southeastern Dane County is an example of a relocation evacuation. After the tornado struck, the residents were evacuated from the area for about 24 hours for safety considerations. For scene safety and security reasons, it was then several days more before residents were allowed to stay in the affected area after dark. Even after people were allowed to reenter the area, it was months before the damaged homes were rebuilt or repaired and residents were able to return permanently.

### Hazards Identification

Dane County's Hazard and Vulnerability Analysis and other documents identify the following hazard potential:

- Civil Disorder
- Drought
- Earthquake
- Energy Emergency
- Fire
- Flood
- Hazardous Materials
- Heat Wave
- Major Transportations Incidents
- Nuclear Attack
- Outbreak/Pandemic
- Severe Thunderstorm/Tornado
- Terrorism
- Winter Storms

Many, but not all of these hazards have evacuation as potential component of the response to an incident.

Dane County Hazard Analysis

Hazards	Warning Time	Area of Impact	Past History/Probability of Future Occurrence	Severity of Impacts	Evacuation Potential			
					Yes/No	Scale	Timing	
<b>Natural Hazards</b>								
Drought	Not rated	Not rated	Not rated	Not rated	No	--	--	
Extreme Heat	1	5	3	3	Yes	S	P	
Flood	3	2	3	2	Yes	I	P, C	
Tornado/Severe Thunderstorm	2	4	5	2	Yes	L	R	
Winter Storm/Ice	2	5	5	2	No			
Earthquake	Not rated	Not rated	Not rated	Not rated	No			
<b>Hazardous Materials</b>								
Rail	5	4	1	5	Yes	L	C	
Highway	5	4	3	5	Yes	L	C	
Fixed Facility	5	4	2	5	Yes	L	C	
Agriculture	} Grouped as fixed facilities							
Bulk Fuel								
Propane Storage								
Pipeline								
<b>Dam Failure</b>								
Prairie du Sac	Not rated	Not rated	Not rated	Not rated	Yes			
Tenney	3	4	1	3	Yes	I	C, R	
<b>Fire</b>								
Wild land	Not rated	Not rated	Not rated	Not rated	No	--	--	
Structural	4	4	5	3	Yes	S	C	
<b>Major Transportation Incident</b>								
Aviation (plane crash)	3	2	1	2	Yes	I	C, R	
Highway (no HazMat)					No	--	--	

Hazards	Warning Time	Area of Impact	Past History/Probability of Future Occurrence	Severity of Impacts	Evacuation Potential		
Intentional/Criminal							
Civil Disorder	3	2	5	2	Yes	S/I	P/C
Radiological	5	2	3	5	Yes	I/L	C
Biological					Yes		
Chemical					Yes		
Explosive					Yes		
Other							
Natural gas	5	2	4	4	Yes	I	
Energy Emergency	1	5	2	3	Yes	I	R
Outbreak/Pandemic	Not rated	Not rated	Not rated	Not rated	No	--	--
Nuclear Attack	Not rated	Not rated	Not rated	Not rated			
Evacuation scale = (S) small, (I) intermediate, (L) large, (M) mass							
Evacuation timing = (P) precautionary, (T) hazard threat, (C) crisis response, (R) relocation							

Rank on a scale of 1-5 for level of concern, in the context of evacuation planning:

Warning time: After the protective action decision is made, how much time is there to plan the evacuation and to tell people to leave? (This is different from the hazard on-set timing, which framed as a question would be, once the threat is detected, how long will it be before it occurs?)

1 = there is enough time to systematically reach everyone

5 = there is no time at all; people could be affected before we have time to warn them

Area of Impact: How large of a geographic area could be affected?

1 = a single location

5 = very broad; potentially covering many square miles

Past History/Probability: How likely is a significant occurrence of this hazard?

1 = very unlikely

5 = It is only a matter of time; it has happened and will happen again - in Dane County.

Severity of impacts: What are the consequences if people don't evacuate? How will people be affected by the hazard?

1 = minimal life safety concerns, perhaps some economic losses

5 = people who are directly affected could/would probably die