# A GUIDE TO DEVELOPING

# TORNADO EMERGENCY PLAN

# FOR SCHOOLS

Also includes information for
Instruction of Tornado Safety

The Michigan Committee for
Severe Weather Awareness

Updated: December 2005

TABLE OF CONTENTS: A GUIDE TO DEVELOPING A TORNADO EMERGENCY PLAN FOR SCHOOLS IN MICHIGAN

## I. INTRODUCTION

### A. Purpose of guide

The purpose of this guide is to help school administrators and teachers design a tornado emergency plan for their school. While not every possible situation is covered by the guide, it will provide enough information to serve as a starting point and a general outline of actions to take. Remember, safety is always the top priority. The ultimate goal is to **quickly inform teachers and students on the school grounds to the threat of a tornado and move them as quickly as possible to a pre-designated shelter. Tornadoes occur with rapid onset and, perhaps, no warning. Decisions must be made fast and actions taken immediately. One cannot wait for the storms to strike to plan what must be done to save lives. Prepare now and develop an emergency action plan for your school.**

### B. Who will develop your plan?

Before you begin, it is recommended that one person be designated as the "Severe Weather Coordinator". A backup should also be identified should the "Severe Weather Coordinator" not be available. Such a person may be a teacher or administrator with an interest in weather who is willing to attend local National Weather Service (NWS) spotter training programs (no fees). The coordinator would also be responsible for developing the plan and working with the local school board, administrators and teachers to implement the plan. The local emergency management coordinator can assist in the development of a plan. For any plan to work efficiently, it must be practiced. *State law now requires that all public schools conduct a minimum of two tornado safety drills per school year. Tornado safety instruction should be a part of these drills*. It is important to understand why certain actions are being taken, to know the weather terms that are being used, and to know what visual clues can signal you to potential dangers ahead.

## II. SEVERE WEATHER THREATS IN MICHIGAN

Tornadoes are not the only threat from severe thunderstorms. "Straight-line" winds, hail and lightning also pose their own dangers. Severe thunderstorms produce damaging winds 58 mph or greater, and/or hail ¾ of an inch in diameter or greater. In the most dangerous severe thunderstorms, the straight-line winds can exceed 100 mph! These winds not only uproot trees, but can cause significant structural damage to mobile buildings, homes and even schools. More people have died in Michigan from 1993 to 2004 from straight line winds (24) than tornadoes (2). These dangerous severe storms can also have hail up to 3 inches in diameter falling at 100 mph!

**All** thunderstorms produce lightning and therefore, are potentially life threatening. In most thunderstorms, lightning can arc from the thunderstorm clouds and strike an area 5 to 10 miles away. And in rare cases, lightning can arc up to 30 miles away from the thunderstorm.

No place is absolutely safe from lightning; however, some places are much safer than others. The safest location during lightning activity is an enclosed building. The second safest location is an enclosed metal vehicle, car, truck, van, etc., but NOT a convertible, bike or other topless or soft top vehicle. A safe building is one that is fully enclosed with a roof, walls and floor, such as a home, school, office building or a shopping center. Even inside, you should take precautions. Picnic shelters, dugouts and other partially open structures are **NOT** safe. Enclosed buildings are safe because of wiring and plumbing. If lightning strikes these types of buildings, or an outside telephone pole, the electrical current from the flash will typically travel through the wiring or the plumbing into the ground. This is why you should stay away from showers, sinks, hot tubs, etc., and electronic equipment such as TVs, radios, and computers. Phone use is the leading cause of indoor lightning injuries in the United States. Lightning can travel long distances in both phone and electrical wires, particularly in rural areas. Stay away from windows and doors as these can provide the path for a direct strike to enter a home. Do not lie on the concrete floor of a garage as it likely contains a wire mesh. Avoid contact with concrete walls which may contain metal reinforcing bars. Additional lightning safety can be found at http://www.lightningsafety.noaa.gov/ .

An average of 16 tornadoes touch down in Michigan every year. Tornadoes occur with rapid onset and, perhaps, no warning. *Prepare now and develop an emergency action plan for your school.*

## III. DESIGNING YOUR PLAN

### A. How to receive Emergency Weather Information:

Because tornadoes can occur with little, if any, warning, minutes and even seconds can mean saving lives! In just five minutes, a tornado may travel two to four miles on the ground. From the time the NWS issues a warning, to the time you receive that warning, critical minutes may have elapsed. You must be listening when the initial warning is announced to prevent an even greater amount of time elapsing!

The fastest, most accurate and reliable means of receiving critical weather information at your school is through the National Oceanic and Atmospheric Administration (NOAA) Weather Radio-All Hazards. Any NOAA Weather Radio-All Hazards (NWR) should be equipped with battery backup, a "tone alert" feature, and programmable capabilities (SAME-Specific Area Message Encoding). The NWR is operated directly from NWS Offices and is part of our country's National Warning System. The NWR is an all hazards radio which will alert for weather, technological, chemical and other man made hazards. When the NWS issues a tornado warning, the "tone alert" (1050 Hertz) is instantly sounded followed by warning information.

The NWR "tone alert" is activated when weather warnings as well as severe thunderstorm, flash flood, and tornado watches are issued (See appendix A for Watch/Warning definitions). NWR broadcasts 24 hours a day, seven days a week with current weather and

forecast information, and also provides special updates about sudden weather changes and potentially hazardous weather. For more approximate NWR coverage information in Michigan see appendix B.

If your school is not in a reliable NWR listening area, then below are some suggested alternatives -

1. If you have cable television access, the Weather Channel uses NWS products and broadcasts warnings immediately upon receipt from NWS via a satellite link. Some cable companies include a channel with a local NWS radar display and use NWR as a voice-over.

2. Monitor your local news station.

3. NWS web sites. See appendix C.

*Phone call-down systems used in some school districts are not advised for receipt of warning information due to 1) substantial delays in receipt of emergency information, 2) chance of incorrect or incomplete information being passed, 3) lack of reliability of phone systems during storms, and 4) the NWS advises people not to use corded telephones during an electrical storm.*

Your source(s) for emergency weather information should be located in the main office or near the person(s) responsible for enacting the plan. Main offices are good because generally there are people around who could hear the alert, and it is close to the public address (PA) system. If using a NWR, the radio should be set at all times in "Alert" mode. Some radios will automatically turn on when an alert sounds while others must be manually turned on. It is probably better to have the type that automatically turns on in case you are out of the room when the tone is activated. If using NWR, the information cycles every few minutes, so if you don't get all the information you need the first time through, it will repeat shortly. While waiting for the NWR cycle to repeat, warning information can also be gathered on the NWS web sites.

Listen for three things: 1) the type of watch or warning, 2) where it is in effect, and 3) how long it is in effect for. The person(s) monitoring must know what action they should take based on this information. It is suggested you have a map nearby for easy reference to counties and towns to locate storms and their movement in reference to your school. There is no need to take emergency action if the warning is not for your location. However, keep in mind that even if the warning is not for the school's immediate location, weather may change rapidly, and activation of the school's designated, trained spotters is advised. Any watch or warning issued in an adjacent county should heighten your awareness to the potential for severe weather to affect your school district, especially for example, if the warning is for a county northwest of you and the storms are moving southeast!

B. How will the School Administration Alert Teachers and Students to Take Action?

Most schools utilize a public address (PA) system to talk directly to students and teachers. In some cases, electricity may be lost during a storm before you have activated your plan. Therefore, it is critical to have a back-up alerting device such as a compressed air horn, megaphone, or battery powered walkie-talkies.

If your school has mobile classrooms or detached gymnasiums that are not part of a PA or intercom system, then special arrangements should be made to notify these areas and to direct the occupants to evacuate to a main building *before* the storm arrives. Sending "runners" outside to mobile classrooms is not advisable due to the danger posed by lightning and the approaching storm. Wireless communication devices are an effective means for such communication. The plan must also address before and after school activities, and have clear instructions for guests that may not be familiar with the building.

Handicapped or learning-disabled students may also require special attention. You may want a teacher to be assigned to each student requiring special attention to see that the student moves to the appropriate place of safety. Your emergency action plan should also provide for hearing impaired students, who may not hear warnings or special announcements.

To ensure appropriate action and understanding of your "Call to Action," you must rehearse (See part H of this section on drills and the need for tornado instruction).

C. Tornado and High Wind Safety Zones in Your School:

This may be the most time consuming and complex phase of designing your plan. Schools are sufficiently complex and diverse in design that it is impossible to describe an exact plan here that will apply to every school. Due to this complexity, it is recommended that this phase of the plan be accomplished with the help of an engineer or architect familiar with the school's design. We recommend that you also contact your local emergency manager. Here are a few general guidelines and basic concepts that can be discussed.

The greatest dangers from high winds (tornado, thunderstorm downburst, etc.) are -

1. flying debris (airborne missiles)
2. breaking glass, and
3. roof failure.

*The most dangerous locations are generally large rooms with big expansive roofs such as cafeterias, gymnasiums, and auditoriums*. The collapse of the room's load-bearing wall may lead to the failure of the entire roof. *Rooms with large windows that may shatter from being struck by airborne missiles or from severe winds are also extremely dangerous*. While windows on the side of the school facing the storm are most susceptible, as the storm passes, any windows could potentially shatter. This is one of the reasons that IT IS NO LONGER ADVISED THAT YOU OPEN ANY WINDOWS! Greater damage may occur from this action, and valuable time

that should be used getting to safety is often lost.

*Small interior rooms, bathrooms, and windowless, interior hallways that are away from exterior doors offer the best protection. Interior load-bearing walls (with short roof spans) provide better protection than temporary or non-load-bearing walls and structures. If your school has more than one story, evacuate the upper level of your school. The lowest level is always the safest*.

You may not be able to find enough "ideal" space to occupy your whole student body. It may be a matter of determining the lesser of evils. Below is a list beginning with THE MOST DANGEROUS AREAS:

1. Windows on exterior walls
2. Rooms with large roof spans; mobile classrooms
3. Exterior walls of upper level;
4. Interior walls of upper level; exterior walls of lower level and interior glass.
5. Interior, lower level, non-load-bearing walls.

Fortunately, the majority of tornadoes will not destroy well constructed buildings, and damage in about 70% of cases should not go beyond damage to mobile classrooms, rooms with large roof spans, and windows on exterior walls. Using these considerations, you may want to rank areas according to safety. Then begin by filling the safest areas first with students and continue until you have found space for the entire student body.

*Again, it is best to have an engineer or architect advise your school on the safest areas since schools are built with varied designs and purposes. The priorities listed above are based on broad generalities*.

D. <u>When to Activate Your Plan and When it is Safe to Return to Normal Activities:</u>

Your severe weather safety plan may work best with phases of activation. Start the day by reviewing the Hazardous Weather Outlook (see Appendix A) to understand the possible threats for you area that day. In a tornado watch, weather should be monitored and the Severe Weather Coordinator and any spotters should be notified. Should storms approach, you may want to move students from the most susceptible areas such as mobile classrooms and gymnasiums as a precaution even though a warning has yet to be issued. You may want to post teachers or school personnel trained in spotting severe weather to watch the storms as they approach for the need to take special actions. Your plan should also include secondary forms of communication which would be used should power be lost. Your plan should also address the time of day. You may find it more difficult to implement your safety plan during recesses, class changes, or near the beginning or end of the school day.

If a tornado warning is issued for your county an immediate and complete "Call to Action" is needed. If the storm has not yet reached your school, begin moving students from unsafe areas as listed above and post a trained teacher or school employee to keep an eye on the storms as they approach. As the storm nears, move all students to tornado safe areas and have students and teachers drop immediately into the protective position (see Diagram 1). Remember that winds may pick-up at the onset of the storm and may or may not drop off prior to the tornado, and that rain may or may not be occurring. Large hail is a signal that you are near the part of the storm in which the tornado would occur. Once the storm has passed, students may return to classrooms. If your school is hit, a pre-designated safety team should assess damage including identifying electric and gas hazards, and injuries. Then notify appropriate law enforcement and medical personnel. Stay alert for the potential for additional storms. One special consideration would be the complication of activating a full "Call to Action" plan during class changes, when the halls are crowded and students may not know where to go. It may be best to hold classes beyond your regular dismissal time until the severe weather threat has passed. Likewise, at the end of the school day, students may need to be held from boarding buses until the danger has passed.

**Diagram 1**

Remember also, that straight-line winds from severe thunderstorms can approach 110 mph and can cause as much damage as a moderate tornado. If a severe thunderstorm warning is issued for your county and the school is in the path of the storm or your designated spotter observes thunderstorms in the area, at minimum, move students out of mobile classrooms and away from windows.

You should have at least several people who know how to shut off the main power (electricity) and gas (if applicable). After a tornado or severe thunderstorm, it may be necessary to shut off the gas and electric supply to the building if damage has occurred to the school.

E. <u>When to Hold Departure of School Buses</u>:

You will want to consider holding the departure of students to buses whenever watches or warnings are in effect. There are three primary considerations:

1. Upon departure, how long before ALL students have been deposited safely at home? Include time for the students to walk from their bus stop to their home.

2. How much time do you have before the storms are expected to impact your district? Tornado watches are sometimes issued a couple hours in advance of thunderstorm development. Watches are generally issued for large areas, so even once storms have developed, it may be a couple hours before the storms reach you.

*On the other hand, it may be a rapidly developing situation with less than an hour before the storms arrive. If you feel that severe weather is not imminent, buses may depart....but notify the drivers about the severe weather threat*.

3. If a *warning* is in effect for your county at dismissal time, delay departure of the buses. Escort students that have been already loaded onto the buses back into the school. **Buses provide no protection from severe storms**.

If a *watch* is in effect at dismissal time, your decision becomes a bit more difficult. Watches are normally issued hours before severe weather is expected to hit but, on some occasions, it may be for rapidly developing situations with less that an hour before the storms arrive. Your decision will be based upon a judgment call. If you feel the severe weather is not imminent, then buses may depart, but drivers should be notified about the weather situation and instructed to be especially alert to the potential for dangerous weather. If you have any indication that the storm will arrive before students arrive safely at home, then bus departure should be delayed. *It is best to err on the side of caution, because school buses provide no protection from severe storms*.

Finally, it must be conveyed to parents that they should *not* pick up their children at school during severe weather. They need to understand that the child is far safer at the school with the severe weather plan in place than on the road when a severe storm strikes.

F. School Bus Actions:

All school bus drivers should be trained on how to handle severe weather situations. Your local Emergency Manager and National Weather Service office can assist in the development of severe weather training. Although tornadoes are the primary concern here, large hail, high winds and flooding also pose significant threats. Bus drivers should be able to react quickly and take charge of a severe weather situation.

NEVER ATTEMPT TO OUTRUN A TORNADO! If a bus driver has reason to believe a tornado is approaching, the following steps should be taken.

1. If you have the time to get to a designated tornado shelter or well-constructed building that you can unload students into, then certainly do so as fast as possible. In a building, move them into the interior or basement of the building away from windows and doors.

2. If no sturdy shelter is available, look for a ditch or low-lying area (preferably without water). Make sure the bus is parked well away (preferably downwind) from the location you have selected. Unload the students to the low-lying area and have them get in position with their hands over their head (See diagram 1).

G. Safety During Athletic Events

Protecting athletes and spectators once severe storms or tornadoes begin moving into an area is essentially impossible because there is so little time to act and because safe shelter is much more difficult to find for tornadoes than for other types of severe weather. Suggesting that everyone go home when there is an imminent tornado is not acceptable, because automobiles are not safe shelters under these conditions.

Administrators, teachers, and coaches need to adopt a "zero tolerance" attitude toward lightning, which kills more people in America each year than tornadoes. If you see lightning, the activity should be suspended immediately. If you hear thunder, you are close enough to be hit by lightning. Remember the 30-30 rule: conditions are considered safe for activities to resume 30 minutes after the last thunder is heard, or if more than 30 seconds elapses between seeing the lightning and hearing the thunder.

The single most effective tornado precaution an athletic program can take is to obtain accurate, current weather information and shut down athletic events when violent weather threatens.

For tornado safety, athletic programs should:

1. Designate a chain of command for making the decision to remove individuals from an athletic site.

2. Designate an individual who will monitor weather forecasts constantly when there is any threat of severe storms or tornadoes.

3. Athletes and coaching staff should know where the closest "safe shelter" is. If no safe building is nearby, individuals should seek shelter in a ditch, ravine, or other place below ground level and stay as low as possible.

4. Tornado watch or severe thunderstorm watch: If a watch is issued during either a practice or game, athletic activity can continue, as long as coaching staff and athletes know how to get to nearby safe shelter and Weather Radio is being continually monitored.

5. Tornado warning, severe thunderstorm warning, thunder is heard, or lightning is seen: During either a practice or game, athletic activity should be suspended and all participants moved as rapidly as possible to safe shelter.

Extreme weather conditions threaten the health of athletes, staff and spectators. Before any athletic season begins, policies should be defined for modifying or canceling practices and games under conditions of lightning, severe storms, tornado watch and warning, extreme heat and

extreme cold. There are no national standards for such policies.

Each athletic program should work with medical advisors, athletic trainers and administrators to develop a policy that is scientifically valid and acceptable in the community.

H. Need for Periodic Drills and Tornado Safety Instruction:

In order to have an effective severe weather emergency plan, you must have periodic severe weather drills and severe weather safety training. **State of Michigan law now requires all public schools to conduct a minimum of two tornado safety drills per school year**. Drills not only teach students and instructors the actions they need to take, but will allow you to evaluate your plan's effectiveness. Did everyone hear the message, did they understand what to do, and were they able to get to the designated areas of safety in a reasonable amount of time? It is suggested that you conduct such drills in conjunction with a tornado education and awareness program so that students and teachers understand the dangers of tornadoes and better comprehend the actions that they are asked to take.

In Michigan, the NWS runs an annual statewide "Severe Weather Awareness Week" campaign in late March or early April before the onset of the severe weather season. This campaign is coordinated through the state and local government emergency management agencies and the news media and includes a proclamation from the governor. This may be an opportune time for your school to conduct a drill and program. You can contact a member of the Michigan Committee for Severe Weather Awareness (See appendix E) or your local emergency manager (See appendix D) if you would like a speaker to visit to your school and discuss tornado safety. The committee also recommends that a drill be conducted as close to the beginning of the school year as possible. This will familiarize new students with your procedures and act as a refresher for returning students. While tornadoes are often advertised as a "springtime" event, it is not uncommon in Michigan to have tornadoes in September and October.

APPENDIX A: NATIONAL WEATHER SERVICE PRODUCTS FOR HAZARDS
(What to listen for)

1. *WARNINGS* - The hazard (tornado, flash flood, etc) is imminent. The probability of occurrence is extremely high. Warnings are issued based on eyewitness reports or clear signatures from remote sensing devices such as radar and satellite. Lead-time for thunderstorm type events is generally 30 minutes or less. Lead-time for river floods and winter storms can be 6 to 18 hours.

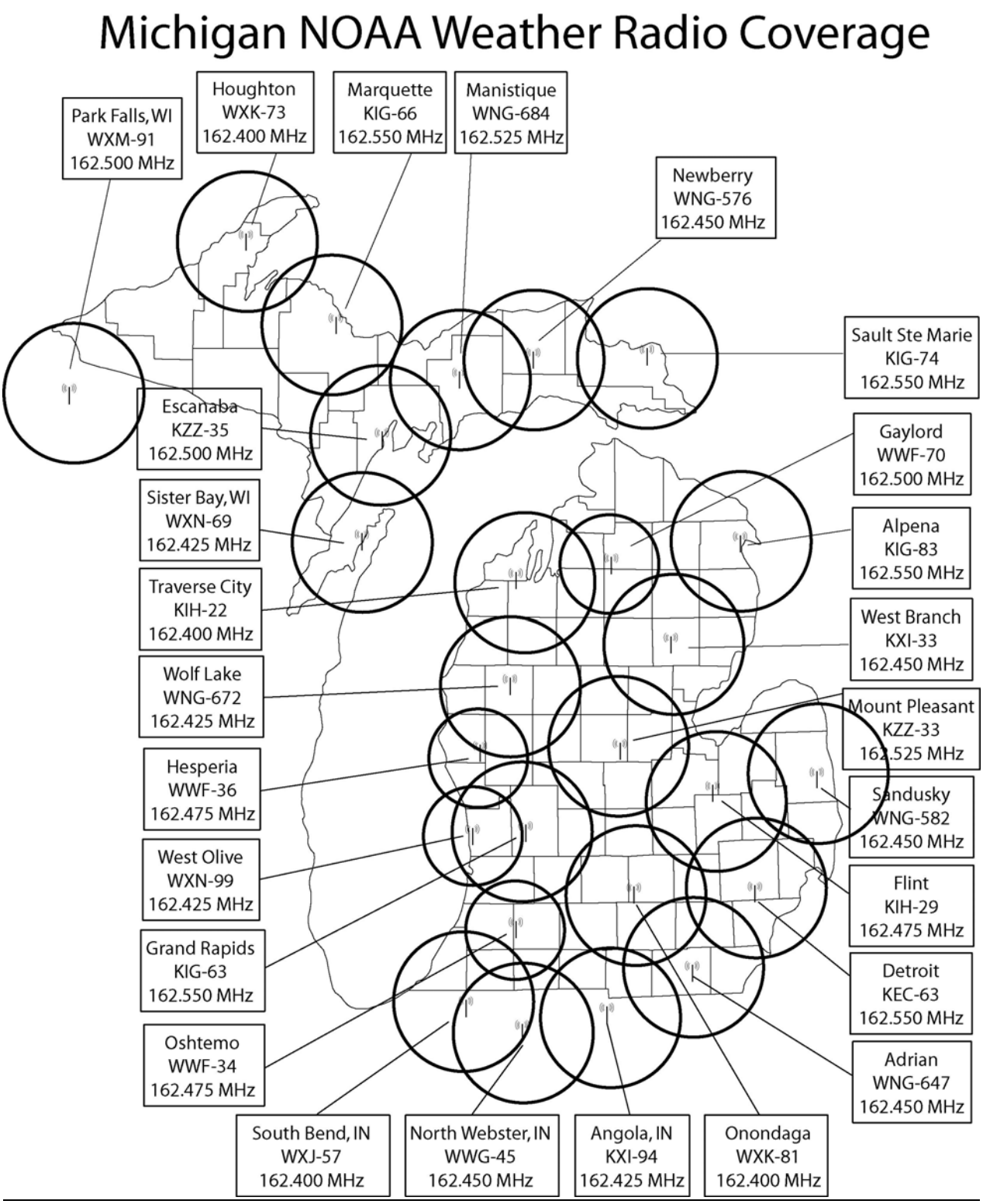
2. *WATCHES* - Meteorologists have determined that conditions appear right for the development of the hazard. Probability of occurrence is greater than 50% in the watch area. Watches generally cover larger areas than warnings. In the case of thunderstorms, less than 30% of the watch area may experience the hazard. However, with larger storms such as hurricanes and winter storms, the entire watch area may be affected. Severe thunderstorm and tornado watches are usually issued 1 to 4 hours before the event begins. With flash floods, it can be 3 to 12 hours. For flood and winter storm watches, lead-times are usually 12 to 36 hours.

3. *ADVISORIES* - An advisory is issued for weather that is expected to be a disruption to the normal routine and an inconvenience, but it is not expected to be life-threatening. Advisories are issued for 3 to 6 inches of snow in the Lower Peninsula, 3 to 8 inches of snow in the Upper Peninsula, dense fog, minor street flooding, etc. The time frame is similar to that of a warning.

4. *HAZARDOUS WEATHER OUTLOOKS* - The NWS Forecast Office issues the Hazardous Weather Outlooks each morning by 7 a.m. and whenever an update is warranted. The outlook will discuss if storms will develop, where and when they may develop, and how intense they may be with specific information on the types of threats to expected (i.e. tornadoes, high winds, hail, lightning or heavy rain). Outlooks may also discuss possible heavy rain, flood events, and winter storms.

5. "NOWCASTs" or "Short Term Forecasts" - These statements discuss the short-range forecasts for the next 1 to 6 hours. During active weather, these statements are issued more frequently.

APPENDIX B: NOAA WEATHER RADIO FREQUENCIES AND COVERAGE



APPENDIX C: NATIONAL WEATHER SERVICE CONTACTS

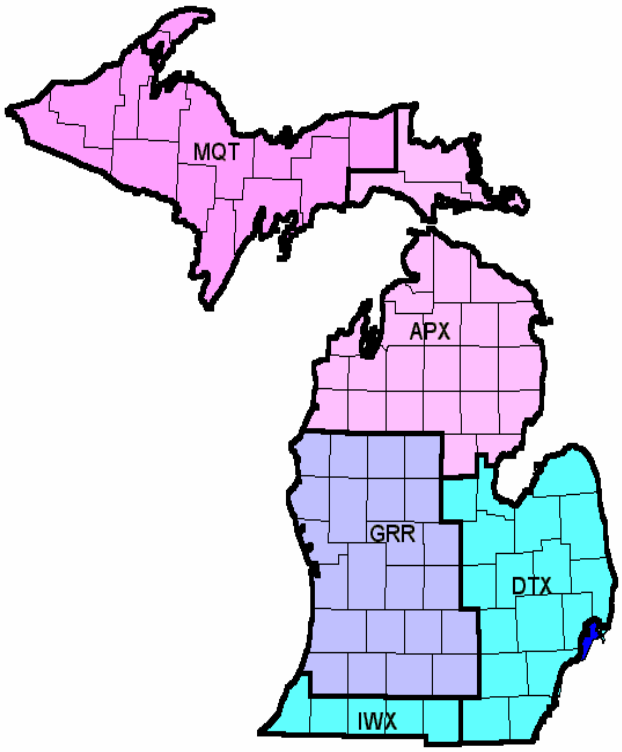
# *NATIONAL WEATHER SERVICE OFFICES*

**MARQUETTE: MQT**

**NWS Office, NOAA**
**112 Airport Dr. South**
**Negaunee, MI 49866**
**(906) 475-5782, Ext. 726**
**Contact: Matthew Zika**
**http://www.weather.gov/mqt/**

**GAYLORD: APX**

**NWS Office, NOAA**
**8800 Passenheim Rd.**
**Gaylord, MI 49735-9454**
**(989) 731-3384, Ext. 726**
**Contact: Jim Keysor**
**http://www.weather.gov/apx/**




**GRAND RAPIDS: GRR**
**NWS Office, NOAA**
**4899 South Complex Dr. SE**
**Grand Rapids, MI 49512-4034**
**(616) 949-0643, Ext. 726**
**Contact: Mike Heathfield**
**http://www.weather.gov/grr/**

**NORTHERN INDIANA: IWX**

**NWS Office, NOAA**
**7506 East 850 N.**
**Syracuse, IN 46567**
**(574) 834-1104, Ext. 726**
**Contact: Steve Eddy**
**http://www.weather.gov/iwx/**

**DETROIT/PONTIAC: DTX**

**NWS Office, NOAA**
**9200 White Lake Rd.**
**White Lake, MI 48386-1126**
**(248) 625-3309, Ext. 726**
**Contact: Rich Pollman**
**http://www.weather.gov/dtx**

APPENDIX D: EMERGENCY MANAGEMENT CONTACTS- STATE

1. MICHIGAN

Emergency Management Division
Michigan Department of State Police
4000 Collins Road
P.O. Box 30636
Lansing, Michigan 48909-8136

Web site: www.michigan.gov/msp/0,1607,7-123-1593_3507---,00.html

(517) 336-6198

2. LOCAL EMERGENCY MANAGERS

Web site: http://www.michigan.gov/msp/0,1607,7-123-1593_3507-15509--,00.html

## APPENDIX E: THE MICHIGAN COMMITTEE FOR SEVERE WEATHER AWARENESS MEMBERS

This Committee was formed in 1991 to coordinate public information efforts regarding flood, tornado and winter safety.

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Kevin.Thomason.A18Z@StateFarm.com

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American Red Cross
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Battle Creek MI 49014
269/962-7528, ext 223
jhatch@net-link.net

APPENDIX F: TORNADO SAFETY PLAN CHECKLIST

Use the following checklist for the evaluation or design of a tornado safety plan for your school. The plan should be designed so that teachers and students anywhere on the school grounds can be quickly alerted and follow a preset plan of action to maximize safety.

1. Who is responsible for activating the plan? Is there a back-up?

2. What is/are the primary means of receiving tornado information? A Programmable (SAME) NOAA Weather Radio-All Hazards with an alert feature and battery backup is recommended (found in electronic/big box stores costing approximately $40-100).

3. What method do you employ to alert teachers and students? Is there a back-up that does not require electricity? (Electricity may be lost as the storm approaches).

4. Make provisions for the following problem areas:

   A. Students that are in mobile classrooms that may be far from the main building and that may be disconnected from an intercom system.
   B. Students that may be in the cafeteria or gymnasium during the storm.
   C. Learning-disabled students or any other students who may be in a position to not hear the warning or alert or be able to respond on their own accord. Assign a teacher to each student with special needs, ensuring that the student arrives at a place of safety.
   D. Students who are outside, including after-school activities. Remember, if you are close enough to hear thunder, then you are close enough to be struck by lightning. Also, students who are outside are at risk from the dangers of large hail and severe thunderstorm winds.
   E. Before and after school events.

5. Four main problems for schools in a tornado:

   A. Forces caused by winds and the airflow around the building.
   B. Forces caused by other objects (debris) impacting school walls.
   C. Gas leaks and electrical hazards after the storm. Have someone knowledgeable in turning off gas and electricity at the school during school hours if appropriate.
   D. "Wind Tunnel Effect" - When blown by tornado-strength winds, debris (such as fragments of glass, wood, and metal) can cause serious injury when accelerated by relatively narrow hallways in schools.

6. Safest places to be in a school: (assuming no underground shelter)

   A. Interior hallway on the lowest level.
   B. In a small room, such as a bathroom, surrounded by load-bearing walls.
   C. Away from windows.
   D. In a room without small objects that can serve as projectiles (such as tableware).

7. Some other aspects of designing a plan:

   A. Practice your plan. Have drills semi-annually (Fall and Spring).
   B. Include tornado safety instruction as part of the drill period.
   C. Encourage teachers and administrators to develop a plan for their families at home. The knowledge that their families know what to do at home will enable them to focus their attention on the students. The American Red Cross has brochures on developing a "Family Protection Plan."
   D. Educate school administrators about the structure of tornadoes and the basic sequence of events as a storm approaches. Emphasize the variability that may exist with each storm and the need to understand basic storm structure to assist in determining the degree of threat at a school. These are taught in the NWS SKYWARN program. Therefore, it is recommended that some personnel from each school attend the NWS SKYWARN severe spotter training class (no fee).
   E. For optimum planning purposes, an engineer and the local school board should participate in the design of an emergency plan. The emergency plan should respond to increasing severity of weather, beginning with the Hazardous Weather Outlook.
   F. Encourage administrators to contact the nearest National Weather Service Office or Local Emergency Services Coordinator for assistance in answering ANY questions that may arise in developing a plan.

APPENDIX G: <u>Acknowledgments</u>

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