

SEVERE WEATHER AWARENESS

The following is some severe weather guidance to assist in understanding basic weather information and tips to take when severe weather is a threat. When severe weather threatens it important to stay weather aware by listening to local news or a NOAA Weather Radio to stay updated.

County authorities will maintain weather awareness with the local National Weather Service and work with local RAGBRAI staff to keep them aware of potential hazards so that potential actions can be planned or carried out as needed to best keep participants safe.

DEFINITIONS. First, the following information is provided on the various weather notices involving advisories, watches, and warnings and areas they will cover when issued by the National Weather Service.

Advisory: Is like a warning, but not as severe of a threat is expected. It is considered a nuisance rather than life-threatening. This is normally issued for an entire county.

Watch: There is a potential for a certain type of weather. A watch does NOT mean it is expected, rather, it means the potential is there, and you should be prepared, and know what you are going to do if severe weather is spotted, or a warning is issued. This is normally issued for an entire county.

Warning: Indicates life-threatening weather is expected. A warning means you should take action and that severe storms or the conditions that produce severe storms have been observed in nearby areas and will likely reach the location being warned. Warnings typically encompass a much smaller area that may be impacted and are often called polygons. It is possible to be in the county with a warning, but not receive the warning if not within the polygon covering the specific area under the warning within that county.

TORNADO. When a Tornado Warning is issued it means a tornado has been sighted or indicated by weather radar with imminent danger to life and property. While every effort is made to warn the public of a tornado, you may not always receive an immediate official tornado alert in your area as tornadoes can appear very quickly. Also, there may or may not be a Tornado Watch in effect. Tornadoes can happen nearly any time of the year and at all times of the day and can move in any direction and suddenly change their direction of motion. Be aware of flying debris as most deaths and injuries are caused by flying debris.

Seek shelter in a sturdy building, or a pre-designated shelter. Go to the lowest level of the building, preferably in a basement, and get under a heavy desk or workbench or sit next to the wall and cover your head with your arms/hands. If an underground shelter is not available, move to an interior room/hallway, put as many walls between you and the outside of the building, and stay away from windows. Other possibilities: get into a bathtub or under a bed or sofa. Manufactured homes (mobile trailers) offer little protection, even if tied down. Leave these for a sturdy shelter before the storm approaches.

Get out of vehicles as they can easily be tossed around and do not try to outrun a tornado. If caught outside lie flat on the ground and cover your head with your hands. Remember, in tornado situations debris likes to settle in roadside ditches or other low spots. If heavy rains are falling in the area, ditches

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and low spots may quickly flood. Therefore, laying down in a ditch may not be your best choice. Do not seek shelter under a highway overpass. Wind blows stronger under the overpass due to the wind-tunnel effect. Additionally, flying debris (glass, wood, metal) can pummel you, and the tornado winds may suck you out from under the overpass anyway.

Don't waste time opening windows and doors to equalize air pressure differences and this is a waste of time and buildings have enough air leakage to equalize air pressure differences anyway. Buildings are more likely to explode after the wind gets inside. The southwest side of the basement isn't necessarily the safest place to be as vehicles can be pushed into basements and you can still be crushed no matter where you are in the basement. Even the bricks/stones of a fireplace can crash into the basement and crush you!

Remember a tornado can occur before there is a visible funnel cloud as a tornado is nothing more than a violently rotating column of air extending from the ground to the cloud base. You may not be able to see the tornado (can't see the rotating air) until enough debris and dirt get swept into the vortex, and/or the visible funnel cloud develops all the way to the ground. No place is totally safe from tornadoes (except for a safe room); if weather conditions come together properly, the tornado will go over or through mountains, lakes, rivers, swamps, marshes, bogs, and through downtown areas.

SEVERE THUNDERSTORMS. Severe Thunderstorm Watches and Warnings are issued based upon wind speeds and hail size and do not include lightning or rain amounts as reasons for issuing the alert. The effects of heavy rains would normally be seen in Flood or Flash Flood Watch or Warning. A stand-alone document may be issued by the National Weather Service reference enhanced lightning risks.

There are currently three types of Severe Thunderstorm Warnings: The first is a Base Thunderstorm Warning and is issued when storms can produce hail that is an inch (quarter-sized) or larger and/or having wind gusts over 58 mph. The next two are issued with the damage threat tag of **destructive** or **considerable** added to the warning notification. A **considerable** tag means at least 1 ¾ inch diameter (golf ball-sized) hail and/or 70 mph thunderstorm winds possible or happening. The **destructive** tag means there is at 2 ¾ inch diameter (baseball-sized) hail and/or 80 mph thunderstorm winds possible or happening.

If in a sturdy building, go to a secure room and stay away from windows. If outside go inside a sturdy building immediately as sheds and storage facilities are not safe. Taking shelter under a tree can be deadly as the tree or branches can fall on you and standing under a tree puts you at a greater risk of getting struck by lightning. A vehicle is safer than being outside; however, drive to closest shelter if able.

Winds. Don't underestimate the power of strong thunderstorm winds known as straight-line winds as they can reach speeds of 100 mph or faster. Hurricane-force winds start at 74 mph and at this speed would generate a **considerable** damage threat tag associated with the Severe Thunderstorm Warning issued. If a Severe Thunderstorm Warning contains the **considerable** and **destructive** damage threat tags, seek shelter immediately (as you would for a tornado situation). Stay away from windows and go to the basement or interior room/hallway and do not use electrical appliances. Be aware that tall trees near a building can be uprooted by straight-line winds and that tree can come crashing through the roof

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of a home and crush a person to death. Straight-line winds can overturn a vehicle or even make a person air-borne when they get up over 100 mph!

One type of a straight-line wind event is a downburst, which is a small area of rapidly descending rain-cooled air and rain beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado! A second type of wind event is a derecho which is a widespread, long-lived windstorm. Derechos are associated with bands of rapidly moving showers or thunderstorms variously known as bow echoes, squall lines, or quasi-linear convective systems.

Although a derecho can produce destruction like that of a tornado, the damage typically occurs in one direction along a relatively straight path. As a result, the term "straight-line wind damage" is sometimes used to describe derecho damage. By definition, if the swath of wind damage extends at least 400 miles, is at least 60 miles wide, includes wind gusts of at least 58 mph along most of its length, and includes several, well-separated 75 mph or greater gusts, the event may be classified as a derecho.

Large Hail. Although it is rare, people have been killed by large hail stones after sustaining head injuries and additionally several people every year are injured. Some storms can produce large hail to the size of baseballs (2 ¾ inches) and larger to include over 5 inches in diameter. Immediately seek a sturdy shelter and stay away from windows. If in a vehicle, try and seek a sturdy shelter as large hail stones can smash glass. If you cannot get out of the vehicle, come to a complete stop, and cover your head with your arms and hands. If a Severe Thunderstorm Warning contains the **considerable** and **destructive** damage threat tags, seek shelter immediately.

LIGHTNING. Unlike other weather hazards that often involve watches and warnings from the National Weather Service, lightning can occur anywhere there is a thunderstorm to include those that are not severe and therefore do not trigger a warning to the public. While most lightning casualties occur at the beginning of an approaching storm, lightning deaths do occur after the thunderstorm has passed as people were struck because they went back outside too soon, so please stay inside a safe building or vehicle for at least 30 minutes after you hear the last thunder. Additionally, lightning can strike from up to 10 miles away to include having blue skies above you at the time.

When thunderstorms threaten, get inside a building with plumbing and electricity, or a hard-topped metal vehicle and do not touch any metal. If outdoors, sheds, picnic shelters, tents or covered porches do NOT protect you from lightning and if you cannot get indoors or at least in a vehicle, you can do the following actions to include avoiding open fields, the top of a hill or ridge and to stay away from tall, isolated trees or other tall objects. If in a wooded area stay near a lower stand of trees and if in a group, spread out and stay away from water, wet items, to include ropes, and metal objects such as fences and poles.

If you hear thunder, don't use a corded phone except in an emergency but cordless phones and cell phones are safe to use. Keep away from electrical equipment and plumbing; lightning will travel through the wiring and plumbing if your building is struck. Don't take a bath or shower, or wash dishes during a storm. Finally, if you feel your hair standing on end, get down into a baseball catcher's position and plug your ears with your fingertips so if lightning does hit it will not blow your ear drums out. DO NOT LIE FLAT!

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FLOODING. General flooding is common with local rivers and normally affects farm fields, river parks and landings, and roadways within the county, to include flooding by the Mississippi River within the City of Lansing, but generally minor in nature and normally in the spring. Flash flooding as part of heavy rains given local terrain is common within the county and is usually the most dangerous flooding threat as this event often quickly covers and crosses over local roadways and along creeks, streams, dry runs and moves down from higher terrain.

Flooding can take from minutes to hours to develop and possible to experience in areas not immediately receiving rain as the water moves downstream and towards the lowest points along its path. During a flood, water levels and the rate the water is flowing can quickly change. Avoid flood waters at all costs and evacuate immediately when water starts to rise. Don't wait until it's too late!

Avoid driving, walking, or swimming in flooded waters and stay away from high water, storm drains, ditches, ravines, or culverts. Move away from creeks and streams as these can quickly expand in size as flood waters move downstream and accumulate more water. If in a flood prone area or are camping in a low-lying area, get to higher ground immediately. If told to evacuate, do so immediately. Don't go into a basement, or any room, if water covers the electrical outlets or if cords are submerged. If you see sparks or hear buzzing, crackling, snapping, or popping noises--get out! Stay out of water that may have electricity in it!

Don't walk through flood waters as it only takes 6 inches of moving water to knock you off your feet. If you are trapped by moving water, move to the highest possible point and call 911 if possible. Do NOT drive into flooded roadways or around a barricade; Turn Around, Don't Drown! Water may be deeper than it appears and can hide hazards such as sharp objects, washed out road surfaces, electrical wires, chemicals, etc. A vehicle caught in swiftly moving water can be swept away in seconds as 12 inches of water can float a car or small SUV, while 18 inches of water can carry away large vehicles.