

# WISCONSIN OUTDOOR WARNING SIREN BEST PRACTICES



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Recommendations for best practices

To create best practice recommendations for outdoor warning sirens to improve public safety and public warning effectiveness in Wisconsin by encouraging statewide adoption of one simple, clear, consistent and credible outdoor warning siren policy.

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# Wisconsin Outdoor Warning Siren Best Practices

## RECOMMENDATIONS FOR BEST PRACTICES

### Background

Outdoor warning sirens are just one tool used by officials to warn the public of an immediate threat to life safety from hazards and threats. Outdoor warning sirens, also known as air raid or tornado sirens, were originally designed to warn the population of large cities to seek shelter in the event of incoming enemy bombers during World War II. The siren system was later upgraded and expanded during the Cold War for warning of incoming missiles by the Federal Civil Defense Administration (FCDA) Act in 1950. During the Nixon administration, there were several significant natural disasters including Hurricane Camille in 1969 that put the Federal Government under pressure to allow the use of the outdoor warning sirens already in place to be used for more than bomber or missile attack warning. The earliest documented use of an outdoor siren to warn of a tornado is 1970. Sirens in Wisconsin have been used to warn people primarily of tornados but there are several types of dangers that the siren systems in a given area or municipality may elect to use the siren system for.

### Public Warning System

Outdoor warning sirens should be just one element in an integrated public warning system that uses many methods to provide immediate, potentially life-saving warning and actionable information to the public as quickly as possible. Other elements of this integrated public warning system include the National Oceanic and Atmospheric Administration's (NOAA) Weather Radio (NWR); Broadcast radio, Broadcast television, and Cable TV providers that participate in the Emergency Alert System (EAS), Wireless Emergency Alert (WEA) systems, Telephonic notification services (Reverse 911), and digital message boards along highways. **No single piece of public warning technology is capable of alerting all people at all times.** People engage in various activities throughout the day and these warning tools may, or may not, be effective for reaching an individual at any particular moment. Having a variety of warning tools provides redundancy and resilience against failure of key systems such as cell phone towers, the internet, or electrical service; which happens often when disaster strikes.

### Siren Organization

Outdoor warning sirens in Wisconsin are not part of a centralized statewide system. Siren site selection, equipment choice, installation, maintenance, upgrades and funding are typically the responsibility of municipalities, counties and in some cases, private ownership. In rare instances, special jurisdictions such as major airports, private corporations and nuclear power plants, own and operate sirens. Siren policies have never been coordinated in Wisconsin in part due to Wisconsin's Home Rule status. Policy scope in Wisconsin ranges from operators that own a single siren, to city-wide policies, to county-wide policies. Due to the variety of siren equipment used and differences in organization and capabilities between jurisdictions, siren activation methods vary. Some sirens must be manually activated at each location. Other siren networks are automated and can be activated from a single control point which is often a Public Safety Answering Point (PSAP) or Dispatch Center. The result has been that vital public warning signals are very different across the state and can and have created warning conflict in or near community, county and even state borders.

## Siren Capabilities

Outdoor warning sirens are tools to warn people who are outdoors to take immediate, potentially life-saving action by finding shelter from an imminent threat, then seeking further information. Though some people who are very close to an outdoor warning siren may hear it while they are inside a building, the sirens are designed and only intended to warn those people who may be outside during a potential threat. Older siren systems are mechanical while many newer varieties are electronic. Either type works well to provide outdoor warning. The planning range for hearing most outdoor sirens is ½ to 2 miles from the siren location. In addition to differences in sirens models, many other factors may increase or decrease the distance over which the sound may carry including wind, vegetation, hills, buildings and other noise in the area such as highway road noise.

## Siren Education

Most outdoor warning sirens now in use in Wisconsin do not have the capability to provide a voice message. Even when voice messages can be provided, siren tones carry across much further distances than an amplified human voice. Therefore, people need to know what to do when they hear a siren tone without any further explanation. Public education is an essential component of a successful outdoor warning siren capability. If people are unaware of what action to take when a siren sounds, some will seek shelter, others will run, and still others will stick around to find out what is going on. In the absence of any specific guidance provided for a special circumstance, emergency managers in Wisconsin want the public to immediately move to shelter when outdoor warning sirens are heard, and then get information from a reliable source about the threat. People should always “get inside, then get information” when sirens sound. Education about sirens and other warning methods reduce public confusion, which is a major contributor to inappropriate and possibly fatal actions when disaster strikes.

## Situational Awareness

Another important part of public warning, especially with outdoor warning sirens, is situational awareness. Situational awareness is different than just knowing what to do when a siren sounds. Situational awareness is making sure people are aware of the increase and decrease of hazards and threats over days and weeks. This is especially important during severe weather season in our state. Advances in technology and the skill of National Weather Service (NWS) meteorologists mean that typically there are days of indications that severe weather will form. This information is outlined in the Hazardous Weather Outlook from the NWS office for your area. Furthermore, there are often hours of notice that the development of dangerous weather is imminent such as; when Severe Thunderstorm or Tornado Watches are issued by the Storm Prediction Center. Finally, there are usually only minutes of warning to take shelter when a Severe Thunderstorm or Tornado Warning is issued by the local National Weather Service offices. Citizens should understand that sirens are the last link in the warning chain, not the first. A very small investment of a few minutes of time each day can ensure proper situational awareness and better decision-making for the safety of families, groups and businesses. People should take a moment to check weather forecasts daily for any mention of severe weather. Extra attention should be paid on days with severe weather potential. Situational awareness prevents surprise. Surprise often causes unnecessary delay in taking appropriate life-saving action – sometimes with tragic results.

## Siren Operation Issues

While outdoor warning sirens are useful, siren owners can be much more effective with their implementation as part of an overall public warning strategy. Simple policy updates and changes statewide would make sirens more trusted as a warning tool and improve public safety without requiring expense. Recent studies about public reactions to outdoor warning sirens in such deadly tornado events as Joplin, Missouri (2011); Tuscaloosa, Alabama (2011); and Moore, Oklahoma (2013), show that many people don't trust sirens to be accurate, and therefore, do not take shelter when they hear them. Instead, many begin to call or text friends and family when sirens are activated to verify conditions and discuss options before taking any further action, yet others will dial 911 looking for information or complaining that the sirens have sounded. These studies show that overuse of sirens leads people to ignore them, a condition known as "siren fatigue". Overuse includes testing them too often, using sirens for non-warning reasons, such as for lunch/dinner signals, curfew sirens and fire department member alerting. People have difficulty sorting out all the sirens they hear and tune them out from frustration and annoyance. Another problem happens when sirens are sounded in too large of a geographical area when the hazard is only threatening a small portion of the area. People far from an actual threat may think everything looks fine, but have sirens activated near them. These so called 'blue sky warnings' do not match the smaller polygon warnings that are now possible and in wide spread use. This produces a lack of confidence in outdoor warning sirens and results in a lack of urgency when they are heard.

## Intent of this Best Practice Recommendation Document

The siren workgroup is striving to create best practice recommendations for outdoor warning sirens in order to improve public safety and public warning effectiveness in Wisconsin by encouraging voluntary statewide adoption of simple, clear, consistent and credible outdoor warning siren policy and practice. This will help foster a statewide understanding of the purpose of outdoor warning sirens among emergency personnel, our media partners and the public we serve. It also describes a standard way to employ them across our state. We are working reduce public confusion and a reduction in, or elimination of siren fatigue. These steps should lead to increased confidence and trust in public warning systems in general and sirens in particular.

These recommendations are offered for the use of emergency managers and municipal officials as guidance to help influence local siren policy and practice decisions. It is not the intent of the workgroup for these recommendations to be mandatory.

As a Home Rule State the ownership, maintenance, operational decisions and control lie with the local jurisdiction. The workgroup is striving to develop and promote a siren policy and practices we believe will promote a safer and more resilient Wisconsin. These best practice recommendations are, therefore, goals that we encourage jurisdictions to work towards.

It is not the intent of this group to make these recommendations to suggest implementation of an enforceable statute or rule. The recommendations represent the professional judgment and advice of emergency managers throughout Wisconsin, together with meteorologists' input from the National Weather Service and from our Media Partners. Together, we believe this is the most appropriate approach for strategizing outdoor warning siren use and improving public warning in hazardous weather events.

## Legal Authority

Wisconsin has no statute or administrative rule that dictates the use, ownership, maintenance or requirement that any municipality, city, village or township must have sirens or follow any common practice or procedure. As such it is a home rule issue and is completely left to the individual local unit of government to decide if they will have and operate outdoor warning sirens and under what conditions and criteria.

Thus making the need for clear and concise guidance for statewide dissemination to encourage voluntary acceptance and use even more apparent.

## Principles

In order to move toward one simple, clear, consistent and credible outdoor warning siren policy for Wisconsin, the following overarching principles are recommended as best practice.

### Protection of Life

The sole purpose of outdoor warning sirens is for the protection of life.

Sirens should be used to warn of immediate threats to life and safety. They should not sound when the predominant hazard is for property damage. They also should not be used for any non-life safety purpose such as time-of-day notification (“noon siren”) or for celebratory reasons (welcoming a winning sports team home).

### Public Warning

In order to reduce confusion, outdoor warning sirens should be sounded for public warning purposes only. Using outdoor warning sirens for calling firefighters to the station can result in public confusion because these sirens do not fit a predictable pattern. While using sirens to alert volunteer firefighters is traditional and has a life-safety objective, technology improvements make siren alerts to firefighters less and less effective or necessary. Many fire departments in Wisconsin have phased out sirens for firefighter recall. The practice of using sirens for fire calls has also dropped dramatically across the United States. Use of sirens for non-public warning purposes as a practice should be phased out.

### Take Shelter

The public should know that hearing an outdoor warning siren is a call to take immediate life-saving action. The desired action is to take shelter.

Shelter does not just mean going inside any structure or vehicle. It means finding a sturdy, permanent building in a place that offers the best possible protection. The phrase “get inside then get information” are memorable words to describe the essential actions that people should take when they hear an outdoor warning siren.

There are a very few special circumstances in small areas where sirens may mean something else (described later). If people have no other information however, they should always take shelter when hearing a siren.

Public education must also go further to give people the ability to identify the most protective areas in buildings.

## All Hazards

Outdoor Warning Sirens are not “tornado sirens.” Sirens may be used for all types of hazards where emergency officials want people in a defined area to “get inside then get information.”

Besides severe weather, other situations such as the release of hazardous materials or an immediate security threat may require that sirens be used to tell to people take shelter. Outdoor warning sirens are also an important part of the National Alert and Warning System (NAWAS) that warns of imminent attack and other national security emergencies. These uses need to be accompanied by a well thought out policy/procedure and significant efforts in public education so residents in these “All-Hazards” use area know the differences in siren alerts and the actions they should take

## Multi-Mode Warning

Sirens are just one element in a larger public warning system. No single warning element is effective at all times and in all circumstances. Many tools must be used to make sure that people get proper timely warning to take shelter or other appropriate action dictated by the hazard. Outdoor warning sirens are the tool of choice to warn those people who are outside to seek shelter then information.

According to a recent national survey, 20.9% percent of Americans prefer outdoor sirens as their method to get warning<sup>1</sup>. This data shows a fundamental problem in perception of sirens and of public warning in general.

Warning method is not a matter of favorites, but instead is a function of the activity a person is doing at the time of the warning. Sirens warn those outside. Television screen crawlers warn those watching TV. Digital message boards and radios warn those driving. Weather alert radio awakens those who are asleep or warn those doing work inside a home or office. Wireless Emergency Alerts warn those who are mobile and maybe outside of their local area. People always should have and need several warning systems available to them as they go about their day. As people go about their day, they should always have access to at least one of these warning systems.

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<sup>1</sup> 2012 Third Annual Public Safety Survey – [http://www.federal-signal-indust.com/sites/default/files/attachments/ANS104\\_2012\\_Survey-lowRes.pdf](http://www.federal-signal-indust.com/sites/default/files/attachments/ANS104_2012_Survey-lowRes.pdf)  
Outdoor Warning Siren Best Practices Recommendation

## OPERATIONAL STANDARDS RECOMMENDATIONS

Specific recommended operating standards and best practices for outdoor warning siren use in Wisconsin:

### *Two Siren Tones*

There are two basic sounds or tones used by outdoor warning sirens; 1) Alert and, 2) Attack.

1. Alert is a steady 'wail' tone
2. Attack is a rising and falling 'wavering' tone

These long-established tones are a national standard under a system established by the Federal Government. Across Wisconsin, the public should only have to understand the meaning of two separate siren sounds. Any other tones used are only for very specific circumstances inside small and often restricted areas (discussed later). People should understand that some jurisdictions are currently only able to offer the alert tone for public warning. It is also important to know that some fire services utilize siren signal to notify firefighters of a call.

**Best Practice Recommendation:** Jurisdictions that operate outdoor warning sirens should attempt to have both the alert and attack tones available for public warning. The alert tone should be used for local emergency warning i.e.: Tornado/Extreme winds or nuclear plant emergencies. The attack tone should be reserved only for national defense warning. According to the National Warning System Operations Manual, the attack signal "...will have no other meaning and will be used for no other purpose."<sup>2</sup>

<sup>2</sup> FEMA Manual 1550.2: National Warning System Operations Manual – [http://www.fema.gov/pdf/library/1550\\_2.pdf](http://www.fema.gov/pdf/library/1550_2.pdf)

### *Use in Local Emergencies*

Local emergencies that may require siren activation include, but are not limited to dangerous weather events such as tornadoes or extreme winds; deadly chemical or hazardous material releases; or certain active security situations. The message that emergency officials want to communicate to the public by using outdoor warning sirens is to find protective shelter, using the catch-phrase "get inside then get information."

**Best Practice Recommendation:** When used for a public warning of local emergency, outdoor warning sirens should sound the alert tone only. During use for an actual warning (as opposed to a test), the duration of the alert tone should be at least three (3) minutes. There is strong evidence that people take siren warning more seriously if the siren is sounded for a longer duration, or if the tone is quickly repeated. Public education on what actions are to be taken when sirens are activated is key.

## ***Weather Triggers***

There are several types of extreme weather that should trigger activation of outdoor warning sirens (and many types that should not). Quick and effective use of sirens is especially important during violent weather events since sirens are designed to warn people engaged in outdoor activities. People outdoors are the most vulnerable to the impacts of weather. Use of sirens for weather warnings should be for a clear and present danger to life-safety. Of course, inclement weather can increase safety risks that may result in death or injuries. Slippery roads, standing water, lightning and other dangers are often part of storms. People should adjust their activities and come inside, but activation of sirens for general public warning is not appropriate for routine storms. Siren activation should only take place when the effects of weather would likely kill or injure unprotected people outdoors or hurt people in lightly constructed structures such as mobile homes, campers, etc. When sirens are activated, protective action does not just mean going inside any object structure, but actually finding safe shelter within structures or leaving unsafe structures (such as mobile homes) and vehicles and then finding good, solid protective shelter.

### **Best Practice Recommendation:**

Two types of violent weather events should trigger siren activation using the alert tone. These include: Tornadoes and Extreme winds.

1. Tornadoes (NWS tornado warnings)

2. Extreme Winds (NWS measured or imminent at or above 80 MPH.)

People in structures such as mobile homes, are also at risk for significant damage above that wind speed. Sirens should not be sounded for basic severe thunderstorm warnings because the NWS severe thunderstorm threshold is set for property damage.

In addition, severe thunderstorm warnings occur so frequently across Wisconsin that siren activation would likely happen many times each year, eroding public confidence in sirens and resulting in people ignoring sirens and not taking individual protective actions quickly enough.

The sounding for Extreme Wind (80mph +) can be a logistical and procedural challenge. There are no current reliable automated methods other than an anemometer activated siren to perform the function of setting off the alert. Most jurisdictions would have a dispatcher or emergency manager reading the texts of an NWS weather warning product for the indicators of the extreme wind conditions. These extreme winds of 80 mph or higher can and do cause the same damage and injury/fatality potential as tornadoes. Future development of alerting technology may make this more prevalent in the future and jurisdictions should always strive to provide the most complete warning information as possible

## ***Use in National Defense Emergencies***

There are several scenarios where national authorities may decide to warn the public directly through the National Alert and Warning System (NAWAS) as well as the Wireless Emergency Alert (WEA). Attack warning was the original purpose of the nation's siren system. In the event of an imminent attack State and County Warning Points will be notified on the NAWAS line to sound the "attack" warning under the four specified circumstances as well as other circumstances of national interest. These procedures are spelled out in FEMA Manual 1550.2 published in 2001 and revised in 2015.

**1. Enemy Attack.** The Attack Warning will be disseminated over NAWAS when the Commander, North American Aerospace Defense Command (NORAD) declares Air Defense Emergency (ADE) Warning RED. ADE RED signifies that an attack upon the United States is imminent or taking place. Only NORAD is authorized to declare ADEs. Additionally, there are limited threat scenarios by which terrorists or countries of concern may attempt to harm U.S. interests. These scenarios may require an announcement of a limited Attack Warning to a specific area or region of the United States. Warnings are based on tactical and strategic intelligence data gathered and evaluated by NORAD under its responsibility for the aerospace defense of North America.

**2. Accidental Missile Launch.** An agreement between the United States and Russia exists to reduce the risk of nuclear war because of an accidental, unauthorized, or any other unexplained incident involving a possible nuclear weapon detonation. In the unlikely event of such an incident (e.g., an accidental missile launch) that would threaten the United States or a particular area within the country with a possible nuclear detonation, an accidental launch-warning message will be transmitted over the NAWAS. The attack warning tone would be used.

**3. Radioactive Fallout.** NAWAS would be used to convey fallout information to the affected State(s). The State(s) would then pass this information on to local governments, which would issue fallout warnings and instructions to the public based on local observations and information received from the State. The attack warning tone would be used.

**4. Domestic Errant Missile Launch.** The United States space program launches a variety of missiles (military, government and civilian) from several launch locations within its borders. There is potential for these missiles to go errant and not reach proper altitude in outer space but instead fall back to Earth. The rocket launch facility, in conference with NORAD, which monitors all orbital activity, would issue a warning via NAWAS to the threatened state's warning point. States would then pass this information to affected local governments, which would sound the attack tone and issue instructions via media and other sources.

**Best Practice Recommendation:** Counties and siren owner/operators participate in, and support, the NAWAS system by maintaining the capability to sound attack warnings for public safety in case of national defense emergency. While national defense emergencies are low probability, most carry high consequences and would likely result in many more casualties if the public did not get adequate advance warning.

### ***Smallest Warning Area Possible***

Siren control technology used in some places in Wisconsin is unable to sound sirens in areas smaller than the entire county or municipality. This results in so-called ‘blue sky warnings.’ A blue sky warning happens when the public warning area where sirens sound is much larger than the actual area under threat and results in people losing trust in siren accuracy and ignoring warnings.

**Best Practice Recommendation:** When repaired, upgraded or replaced, siren controls should be equipped with technology or systems to allow only sirens within a specified NWS warning polygon to sound. Additional technology advancements that allow automatic siren activation upon receipt of a NWS tornado or wind message for pre-set conditions should also be considered.

### ***Siren Resilience***

Severe weather can quickly make outdoor warning siren systems fail if it is totally dependent on the local power grid as its only power source. Power failures can happen well before a storm hits an area. Lightning or fallen trees can cut power and make critical outdoor warning sirens silent just when an area needs it most. Severe weather often comes in waves over the course of hours, or even days. If the first storm knocks out power resulting in warning sirens going off line, the public is at risk when new lines of storms approach.

**Best Practice Recommendation:** To ensure function during critical situations, outdoor warning sirens should not depend on the power grid as their sole source of power. Backup power sources should be installed, including battery back-up, or connection to a generator that automatically starts when the grid power source shuts off. Consider future sirens that are not connected to the grid at all and are capable of independent power through use of solar charged batteries or other power systems.

### ***Siren Control System***

Siren Control systems can vary greatly due to age. Redundancy in siren controls as well as protection of those systems from cyber or physical attack or tampering must be addressed.

**Best Practice Recommendation:** To ensure function during critical situations, outdoor warning sirens systems should include at least two control points for sounding or canceling of the siren activation.

**Best Practice Recommendation:** Outdoor warning siren control systems should be protected from physical tampering as much as is possible. As well control systems using radios as control should use encryption methods to prevent the remote hacking of sirens.

***“All-Clear” Message***

A frequent question asked of emergency managers by the public is “what is the all-clear siren tone?” Of course the answer is that there is NO “all-clear” tone. The mistaken belief that there is such a signal comes from the all clear signal used to tell people that they could come out of bomb shelters after enemy bombers had passed in London during World War II. The all clear tone dropped from use in Civil Defense when bombs became nuclear and radioactive fallout became a concern. For weather events and hazardous material emergencies, the idea that there is an “all-clear” tone is dangerous. The “get inside then get information” concept is supposed to have people move inside to sturdy shelter and then connect with an information source, such as radio and TV. The all clear will come from broadcasts and other sources while people remain in the sheltered location. People should not leave a safe shelter spot in an attempt to hear an all clear siren tone outside that is supposed to tell them it is OK to leave shelter. It is unsafe practice that may potentially put people in danger.

**Best Practice Recommendation:** Outdoor warning siren policies should not include any form of “all-clear” signal.

***Inappropriate Use of Sirens***

There are siren practices that are inappropriate, such as celebrating a sport team winning a championship. The use of the outdoor warning siren system to celebrate an event such as a sports teams win, the welcome home of a local or national hero or the signal as a start of a parade should be absolutely prohibited. This is comparable to pulling a building fire alarm to celebrate an event.

The use of outdoor warning sirens for calling firefighters to the station is a use that should be phased out if still in use. The advent of pager, radio, cell phone text and automated call alerts has rendered this practice obsolete. Given that the average warning siren has an alerting range of 1.5 miles, outside and the fact that few of our firefighters tend to live or work within that strict range is an indication of why this practice is not recommended. The use of the sirens in this way can and does result in public confusion and annoyance because these sirens do not fit a predictable pattern that the general public is aware of.

While using sirens to alert volunteer/Paid On Call firefighters is traditional and it does have a life-safety objective, technology improvements make siren alerts to firefighters less and less effective or necessary. Many fire departments in Wisconsin have phased out the use of sirens for firefighter recall. Using sirens for fire calls has also dropped dramatically across the United States.

**Best Practice Recommendation:** By policy and procedure prohibit the “Celebratory” use of outdoor warning sirens for any and all reasons.

**Best Practice Recommendation:** Phase out the use of outdoor warning sirens as standard practice for alerting Fire and Emergency Medical Services to respond. This should be done as soon as is practical based on the alerting technology that is available to the individual departments.

## **Siren Tests**

### **Monthly Tests**

Monthly siren tests have several purposes. These include verification that the siren is functioning, enabling listeners to learn the sounds used by outdoor warning sirens, and providing a trigger for immediate action drills by people at home, work, school or other sites. It is important that people in listening range of outdoor warning sirens fully understand the intent behind monthly siren tests. Some cities depend upon resident reports to find out if a siren does not work. People in these locations should know that they are expected to notify the siren owner when it does not work during a test. Information about siren tones and family and workplace immediate action tests are also essential to getting full value from the siren system.

**Best Practice Recommendation:** Public education efforts should make it clear that siren tests are provided as a way for people to become familiar with the siren tones that they will hear for warning. They should learn how siren sounds carry to their yards, worksites, parks, playing fields, lakes and other outdoor spaces in various weather conditions. They should be given tools to have a brief home, workplace, school or outdoor recreation action test when sirens are heard. During these tests people can actually move to a place of shelter, or they can do a quick mental assessment of what they would do in an actual emergency. If people are expected to report siren outages, they must be provided contact methods to do so. Surveying field units in the jurisdictions where sirens have been tested to ensure the audible alert was heard is also another way to verify functionality of the sirens. Always defer to the testing recommendations of the siren manufacture for the frequency of testing.

### **Conduct of Monthly Tests**

Siren operators must balance several demands during siren tests. Sirens must be tested to verify that they work. The test also satisfies the need to provide the public with opportunities to hear sirens before an actual emergency. The tests can also provide a trigger for brief action tests for people to practice protective measures. Too many tests, especially when combined with non-public warning uses of outdoor sirens such as time notifications and fire calls, result in siren fatigue. In siren fatigue, people have become numb to siren sounds and their attention is no longer secured when a siren is activated. Siren tests must be limited to only those needed to meet objectives in order to not build siren fatigue among the public.

**Best Practice Recommendation:** A single audible siren test protocol used across the state will help reduce public confusion and familiarize people with tones they will hear in an emergency. Best practice recommends one monthly audible siren drill. This drill should occur at the same time and day of each month. (Time and day should be coordinated countywide as well as with neighboring counties)The goal for outdoor warning siren capability in Wisconsin is to offer a single one-minute siren tone to test and educate populations.

### ***Test Day Severe Weather Threat***

During severe weather season there is a good chance a siren test may occur on a day with actual severe weather risk. Siren operators do not want to be in a position where a monthly siren test is happening while actual severe weather is building in the same area. This kind of siren purpose conflict would only erode public confidence in the siren system and in government decision-making. Looming severe weather or other developing emergency situations are appropriate reasons to cancel siren tests in order to reduce public confusion. Cancellation also reassures people that officials are actively monitoring developing situations and making appropriate adjustments when needed.

**Best Practice Recommendation:** If, on the day of the siren test, the National Weather Service forecasts a threat of actual severe weather in a specific county or counties, to occur within the six (6) hours prior to and through the six (6) hours following the siren test scheduled time, the test should be cancelled in the county/counties described in the forecast. The six hour minus - six hour plus window allows time for variance in predicted storm development times and for counties with large geographic areas. Local media outlets should be advised that the test is cancelled due to an actual severe weather threat. This not only will notify the public of the cancelled test, but is also another newsworthy method to highlight to the public the increased severe weather risk for that day. Cancellation of the test should be announced to the public.

### ***Annual Statewide Tornado Drill***

Wisconsin Emergency Management coordinates a Statewide Tornado Drill each year in April as part of Wisconsin's Severe Weather Awareness Week. This is a valuable public education effort that gets a lot of concentrated media attention across the state in the weeks just before the onset of severe weather season in Wisconsin. These tests are also aligned with neighboring states to provide cross border consistency. The use of outdoor warning sirens during an afternoon and an evening tornado warning scenario is important to the success of the education effort.

**Best Practice Recommendation:** Actively participate in Wisconsin Severe Weather Awareness Week and use outdoor warning sirens for the annual Statewide Tornado Drill held twice on the day of the test, one afternoon and one evening test

### ***Nuclear Power Plant Areas***

Wisconsin has nuclear power plants located in the state as well as in bordering states that have areas subject to special public alert and warning procedures. These areas include the 10 mile radius Emergency Planning Zones (EPZ) surrounding the plants. Siren procedures in the EPZ are governed by federal regulations.

**Best Practice Recommendation:** Outdoor Warning Sirens serving the 10 mile Emergency Planning Zones (EPZ) around nuclear power plants are considered special use sirens and are beyond the scope of these outdoor warning siren recommendations. If, however, these sirens are used for weather warning purposes, it is recommended that they follow the guidance provided within this document when activated for weather-related purposes.

### **Voice Notification Systems**

Some outdoor warning sirens are also capable of providing a voice message when used as a loudspeaker. Generally, the audible range of a voice message is less than when using the speaker as a siren. Voice messages are able to provide more information than a simple tone, and can be much more specific about the threat and directive in actions to take.

**Best Practice Recommendation:** When used in a voice mode with a voice message, outdoor warning loudspeaker-sirens have a much more limited range. Use of the voice mode should be considered for specific area and venues such as fair grounds, marinas and outdoor sports complexes to direct people to shelter and action in an unfamiliar place. Use over a wide spread area has been shown to have limited effectiveness.

### **Special Considerations**

There are special environments or circumstances when outdoor warning sirens have a public warning value when used in different ways than described in this best practice recommendation. However, the large benefit of simple and easily understood statewide standard siren practices will be lost if too many special exceptions are made. Emergency managers and siren owner/operators should use caution when thinking about exceptions to their siren policy. Public confusion could be the result.

A special environment for outdoor warning siren includes relatively small areas that have long-term, well-defined risk from a rapid onset emergency. A narrow ravine, for instance, which has homes or businesses within it, that is prone to flash flooding could be a special environment for outdoor warning sirens. The role of outdoor warning sirens in this limited case may be to trigger an evacuation (rather than to seek shelter).

**Best Practice Recommendation:** Warning sirens should not be used for general evacuation purposes. This conflicts with the idea that people should “get inside then get information” when they hear a siren. It is recommended that other notification methods be used such as public-address systems on fire trucks and police cars and/or Reverse 911, WEA or other subscription based alert and notification with consideration to repeat these messages on social media platforms. The use of Outdoor Sirens for evacuation signals should be a last choice and limited to very unique and special circumstances that cannot be effectively managed by other means. These areas require special attention to public education for understanding of the need for action and what those actions need to be.

## Public Education

Educating the public we serve as well as media partners and other public safety on the operations and limitations of outdoor warning sirens is a key component to a robust public alert and warning program.

The general public needs to understand the criteria used for sounding sirens and what actions to take when they hear a siren that has been activated. It is well established that people will seek three trusted sources of confirmation on a warning before taking action. That is why it is imperative that your siren program is NOT the only link in your public warning chain. It is also an indication that you must work through education and public relations to become their trusted source for alerting and notification to take life-saving measures.

Links:

<https://www.fema.gov/media-library/assets/videos/102004>

Example of education info graphic:

### Outdoor Warning Sirens

# GET INSIDE! THEN GET INFORMATION.

Severe weather can strike anywhere. Know where to seek shelter and actions to take

#### WHAT YOU SHOULD DO WHEN SIRENS SOUND



- 1** Stop activities! Pay attention to the warning.
- 2** Get inside! Seek shelter in a sturdy enclosed structure or designated severe weather shelter.
- 3** Seek additional information. **DO NOT CALL 911** for information! Listen to TV, Radio or seek information on cell phone apps and internet sources.

#### OUTDOOR WARNING SIRENS ARE TO ALERT PEOPLE THAT ARE OUTDOORS.

Outdoor Warning Sirens are not designed or intended to alert people inside buildings. Have multiple ways to receive severe weather warnings




#### WHEN A WEATHER WARNING IS ISSUED

**GET INSIDE!  
THEN GET INFORMATION.**

Don't go outside or by windows to video or take photos. Seek safe shelter in the basement or interior room without windows.



Stay safe

[www.facebook.com/ozaukeecountyEM/](https://www.facebook.com/ozaukeecountyEM/)

## ***Thank You***

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