

Annex I: Tornado and Severe Weather Response Guide

Date	Title
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A. INTRODUCTION

This Tornado and Severe Weather Response Guide is designed to help college departments, students, and employees prepare for a tornado or severe weather event. Please contact The Department of Police (804) 523-5219 with questions or to request assistance.

B. SCOPE

Severe weather includes high winds, thunderstorms, lightning storms, hail, floods, hurricanes, extreme heat, or cold, and other weather systems that have the potential to create safety hazards or cause property damage.

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Strong tornadoes can produce wind speeds exceeding 200 mph, and the most extreme can approach 300 mph. Most commonly, however, they produce winds between 80 and 120 mph. Tornadoes are highly unpredictable, appearing separately or in clusters, and varying greatly in length, width, direction of travel, and speed.

C. NOTIFICATION

Notification/Activation Stage

Notification of an emergency will be made in accordance to the Communication Support Functions Annex.

Notification of an approaching tornado or severe weather system will occur by one or more of the following:

- National Oceanographic and Atmospheric Administration (NOAA) broadcast via
 - AM/FM/Weather radio or TV bulletin.
 - NOAA Weather radio station WXK-65 broadcasting on 162.475 MHz
 - Streaming NOAA Radio for the Northern Virginia region
http://www.erh.noaa.gov/er/akq/CRS_AUDIO/play/playerRIC.html
- Radio or TV emergency announcement.
- Reynolds Alert email or text message. To participate visit <https://alert.reynolds.edu>
- Reynolds TV

The Reynolds Alert will contain information regarding the location, event, response, and where to obtain additional information or assistance.

D. ALERT TERMINOLOGY AND DEFINITIONS

Hazardous Weather Outlook: statement highlighting any potential significant weather systems in the area for the next seven days. It is imperative that you are familiar and understand the weather terminologies so that you can prepare and react accordance of being informed of severe weather.

Watch: when conditions are favorable for the development of severe weather within or close to the watch/listening area. The impacted area and length of a “watch” can vary depending on the weather situation and is usually issued for a duration of four to eight hours. During a “watch,” review severe weather safety guidance and be prepared to move to a shelter if threatening weather approaches.

Warning: when severe weather is confirmed by radar or reported by storm spotters. Information in a “warning” will include the location of the storm, the areas that will be affected, and the primary threat associated with the storm (e.g. tornado, high winds, flooding, etc.). If you are in the affected area, seek safe shelter immediately. Warnings can be issued without a watch already in effect.

Flash Flood: rapid rise in water that occurs with little or no advanced warning, usually as the result of an intense rainfall over a relatively small area in a short amount of time.

Flash Flood Watch: when a developing hydrologic conditions are favorable for flash flooding in and close to the watch area. When a watch is issued, be aware of potential flood hazards and the topography of your surroundings. Low-lying areas, such as basements, streams, and retention ponds, should be avoided.

Flash Flood Warning: when flash flooding is in progress, imminent, or highly likely. Those in low areas and near small streams should leave for higher ground. Water is expected to rise rapidly. Also, be extremely cautious driving as low areas may be washed out. Information in this warning will include some locations where flooding is expected. Flash Flood Warnings can be issued without a Flash Flood Watch in effect.

Flash Flood Statement: provides follow-up information on any flooding that is occurring, including which areas will be affected.

Severe Thunderstorm Watch: conditions that is favorable for damaging thunderstorms. Consider your shelter options and be prepared to take cover quickly if a warning is issued, or threatening weather approaches.

Severe Thunderstorm Warning: A damaging thunderstorm is expected that may produce damaging winds and/or large hail an inch or more in diameter (quarter-size). Tornadoes can sometimes form quickly in severe thunderstorms.

Funnel Cloud: A funnel cloud is a quickly rotating cloud extending down from a thunderstorm that is NOT in contact with the ground.

Tornado Watch: conditions are favorable for the formation of a tornado and that tornadoes are possible. When a tornado watch is issued, stay tuned to the Internet, Reynolds Alerts, local radio, TV, or NOAA weather radio for further information and possible warnings. Consider your shelter options and be prepared to take cover if necessary.

Tornado Warning: a tornado has been sighted or has been identified by National Weather Service radar. When a warning is issued, take cover indoors or in an appropriate shelter immediately.

E. RESPONSE

There are no such things as guaranteed safe shelter in the event of a tornado. Tornadoes are unpredictable and powerful; unusual occurrences happen within the pathway of a tornado. The most violent tornadoes can level and blow away almost any house or structure and its occupants. Extremely violent EF5 tornadoes are very rare, though.

Tornado Ratings:

Tornadoes were originally rated on the Fujita Scale, named for its inventor, University of Chicago meteorologist

T. Theodore Fujita. The meteorologist created the scale in 1971 based on the wind speed and type of damage

caused by a tornado. There were six levels on the original scale:

F0

- Wind Speed: 40-72 mph (64-116 kph)
- Light damage: Tears branches from trees; rips shallow-rooted trees from the ground; can damage signposts, traffic signals, and chimneys.

F1

- Wind Speed: 73 - 112 mph (117 - 180 kph)
- Moderate damage: Roofing materials and vinyl siding can be displaced; mobile homes are highly vulnerable and can easily be knocked from the foundation or toppled; motorists can be sent careening off road and possibly flipped over.

F2

- Wind Speed: 113 - 157 mph (181 - 253 kph)
- Considerable damage: Well-established trees are easily uprooted; mobile homes are decimated; entire roofs can be ripped off houses; train cars and trucking hauls are knocked over; small objects become dangerous missiles.

F3

- Wind Speed: 158 - 206 mph (254 - 332 kph)
- Severe damage: Forests are destroyed as a majority of trees is ripped from the ground; entire trains are derailed and knocked over; walls and roofs are torn from houses.

F4

- Wind Speed: 207 - 260 mph (333 - 418 kph)
- Devastating damage: Houses and other small structures can be razed entirely; automobiles are propelled through the air

F5

- Wind Speed: 261 - 318 mph (419 - 512 kph)
- Incredible damage: Cars become projectiles as they are hurled through the air; entire houses are completely destroyed after being ripped from the foundation and sent tumbling into the distance; steel-reinforced concrete structures can be seriously damaged [source: NOAA]

Know the signs of a tornado: Weather forecasting science is not perfect and some tornadoes do occur without a tornado warning. There is no substitute for staying alert to the sky. Besides an obviously visible tornado, here are some things to look and listen for:

- Strong, persistent rotation in the cloud base.
- Whirling dust or debris on the ground under a cloud base -- tornadoes sometimes have no funnel!
- Hail or heavy rain followed by either dead calm or a fast, intense wind shift. Many tornadoes are wrapped in heavy precipitation and cannot be seen.
- Day or night - Loud, continuous roar or rumble, this does not fade in a few seconds like thunder.
- Night - Small, bright, blue-green to white flashes at ground level near a thunderstorm (as opposed to silvery lightning up in the clouds). These mean power lines are being snapped by very strong wind, maybe a tornado.
- Night - Persistent lowering from the cloud base, illuminated or silhouetted by lightning -- especially if it is on the ground or there is a blue-green-white power flash underneath.

Once emergency response personnel have responded to the scene and an initial assessment has been completed, the on-scene Incident Commander or field supervisor personnel will be responsible for notifying the activating Emergency Notification System (Section 6). Upon awareness of an emergency, that warrants the activation of this Crisis and Emergency Management Plan (CEMP), the following steps will be taken.

1. Department of Police will notify the college community.
2. Emergency Manager/Emergency Coordinator or designee will make the decision to convene at the EOC.
3. EOC activates additional Support Functions Annex as necessary.

F. SHELTER AREAS

If a tornado warning or severe weather system with the potential to cause damage has been issued, the following actions should be taken:

- Seek shelter immediately in the nearest interior hardened structure with limited number of windows/skylights.
- Use hallways, bathrooms, and interior rooms if unable to reach shelter location.
- Seek shelter at lowest available level of the building.
- Take account of your co-workers and/or students and attempt to locate missing persons if safety permits.
- If severe weather strikes the building, in which you are sheltered and begins to produce damage, protect your body from flying debris with any available furniture or sturdy equipment.
- Avoid windows. Get in the basement and under some kind of sturdy protection (heavy table or workbench), or cover yourself with a mattress or sleeping bag. In your home, know where very heavy objects rest on the floor above (pianos, refrigerators, waterbeds, etc.) and do not go under them. They may fall down through a weakened floor and crush you. Head protection, such as a helmet, can offer some protection also.
- Avoid windows. Go to the lowest floor, small center room (like a bathroom or closet), under a stairwell, or in an interior hallway with no windows. Crouch as low as possible to the floor, facing down; and cover your head with your hands. A bathtub may offer a shell of partial

protection. Even in an interior room, you should cover yourself with some sort of thick padding (mattress, blankets, etc.), to protect against falling debris in case the roof and ceiling fail.

- In an office building, go directly to an enclosed, windowless area in the center of the building -- away from glass and on the lowest floor possible. Then, crouch down and cover your head. Interior stairwells are usually good places to take shelter, and if not crowded, allow you to get to a lower level quickly. Elevators; could entrapped you inside if power is lost.
- On campus: Follow the drill! Go to the shelter; move quickly and in an orderly fashion. Faculty members keep your class together and have an accurate account of your class attendance roll. Crouch low, head down, and protect the back of your head with your arms.
- In the open outdoors: If possible, seek shelter immediately in a sturdy building. If a tornado or severe weather forces you to abandon your vehicle or you are outdoors and are unable to find a hardened structure, take cover in a culvert, ditch, or depression and protect your head with your hands. If not, lay flat and face down on low ground, protecting the back of your head with your arms. Get as far away from trees and cars as you can; they may be blown onto you in a tornado.
- In a car or truck: Vehicles are extremely risky in a tornado. There is no safe option when caught in a tornado in a car, just slightly less-dangerous ones. If the tornado is visible, far away, and the traffic is light, you may be able to drive out of its path by moving at right angles to the tornado. Seek shelter in a sturdy building, or underground if possible. If you are caught by extreme winds or flying debris, park the car as quickly and safely as possible out of the traffic lanes. Stay in the car with the seat belt on. Put your head down below the windows; cover your head with your hands and a blanket, coat, or other cushion if possible. If you can safely get noticeably lower than the level of the roadway, leave your car and lie in that area, covering your head with your hands. Avoid seeking shelter under bridges, which can create deadly traffic hazards while offering little protection against flying debris.

Campus shelter locations are as follows:

Parham Road Campus

- LTC/Massey Building – Auditorium
- Georgiadis Hall – Gallery
- Burnette Hall – Interior 1st floor rooms
 - Women’s Restrooms
 - Men’s Restrooms
- Trailers – Use Burnette Hall Locations
- Bookstore – Receiving room (ensure garage door is closed)
- Workforce – 1st Floor Conference Center, rooms 100 A, B, and C
 - Interior 1st floor rooms
 - Women’s Restrooms
 - Men’s Restrooms
- Brookside
 - 1st floor interior hallway between rooms 106 and 112 (ramp area)
 - Women’s Restrooms
 - Men’s Restrooms
- Facilities – Restrooms

- Warehouse – Break room that has a restroom
If none of the shelters, locations are available or accessible, then utilize the lower level restrooms and the interior hallways that do not have exterior windows.

Downtown Campus

- 1st Floor Auditorium
If none of the shelters, locations are available or accessible, then utilize the lower level restrooms and the interior hallways that do not have exterior windows.

Goochland Campus

- Building C20 Lower level interior hallways, restrooms, student lounge
- Building C01 Lower level immediate areas outside restrooms, and restrooms

If none of the shelters, locations are available or accessible, then utilize the lower level restrooms and the interior hallways that do not have exterior windows.

CONTINGENCY PLANS

Automobiles: If you are in an automobile when severe weather approaches, get out of your vehicle and find shelter inside a hardened structure. For non-severe thunderstorms, hard-topped vehicles provide good protection from lightning. Prolonged Event/Entrapment: If severe weather prevents you from exiting your work area, entraps you within a building or debris, or otherwise causes you to remain in place for an extended period of time conduct the following:

1. Remain calm.
2. Notify the Department of Police of your location and condition by dialing 523-5911 or 911 for local jurisdiction assistance.
3. Ask for assistance or assist people who are injured or trapped by debris.
4. Provide first aid and CPR if trained.
5. Attempt to locate an alternate safe exit. Do NOT attempt to navigate hazards.
6. Identify or be aware of live power lines, falling debris, hazardous materials, and unstable structures.
7. Exit the area if it is safe to do so, otherwise remain calm and in place until emergency personnel arrive.
8. If you are trapped under debris, call out to emergency personnel for help.

G. PREPARATION

Work: In addition to completing and reviewing a severe weather plan with employees, you may consider maintaining basic supplies in your work area that can be used in the event of an extended or severe emergency situation, such as:

- First aid kit and essential medications (which should be secured)
- Battery-powered or hand-crank radio, preferably a NOAA weather radio
- Flashlight(s) and extra batteries or hand crank flashlight
- A small supply of non-perishable foods that can sustain you for up to eight hours
- A small supply of bottled water

Home and Family:

- In addition to identifying a shelter area and maintaining emergency supplies, a communications plan should be developed and discussed with your family members in the event that phone service fails or family members are separated by a severe weather event.
 - A pre-determined meeting location and alternate method for contacting family members (e.g. out-of-town contacts) should be agreed upon in advance.
 - Your locality may have an evacuation plan; if so, become familiar with the plan and understand its direction and impact on your family.
 - Review your plan with your family to ensure that everyone knows the location of emergency supplies, evacuation plans, and is able to exercise the communications plan.
- For additional information and a family plan template, please visit: ReadyVirginia.gov

H. ADDITIONAL RESOURCES

Additional resources to help you plan for severe weather at work or at home can be found on the following websites:

Preparedness:

- NOAA: <http://www.weather.gov/om/severeweather/index.shtml>
- Federal Emergency Management Agency (FEMA): <http://www.ready.gov/natural-disasters>
- Centers for Disease Control and Prevention (CDC) <http://www.bt.cdc.gov/disasters/>
- Ready Virginia: <http://www.readyvirginia.gov>
- National Geographic: <http://environment.nationalgeographic.com/environment/naturaldisasters>

Weather Resources:

- Weather.com: <http://www.weather.com/>
- <http://weather.org/>
- Accuweather.com: <http://www.accuweather.com/>
- Weatherunderground.com: <http://www.wunderground.com/>
- NOAA/National Weather Service: <http://www.weather.gov/>
- Streaming NOAA Radio: http://www.erh.noaa.gov/er/akq/CRS_AUDIO/play/playerRIC.html

Mobile Phone Weather Resources:

Many applications and software are available from companies such as AccuWeather, and The Weather Channel to view and receive emergency and general weather information (including