

# After Action Review

Chesterville/Chester Township

EF-1 Tornado and Six Day Power Loss

Operational Period: June 13-June 19, 2022



Fire Chief Ben Lovell, OFC

---

*JULY 4TH, 2022*

---

# Contents

- Acknowledgement ..... 3
- Introduction ..... 4
- Fire Department Background..... 4
- Overview of the Events ..... 4
  - Two EF-1 Tornadoes Hit Chesterville Area..... 5
  - Initial Fire Department Response ..... 6
  - Initial Damage Assessment ..... 8
  - Impact of Power Loss to the Community..... 12
  - Post Storm Response ..... 14
  - Social Media Controversy Over Lack of Tornado Sirens and Lack of Advance Warning..... 14
- Recommendations ..... 16



*Figure 1 Chesterville on June 15, 2022*

## Acknowledgement

A special thanks goes out to various members of the community for their assistance, direct and indirect, to creating this document.

- Paula Bowman, Chesterville Village Mayor, for her leadership in this crisis
- Lynn Shinaberry, Chester Township Trustee, for conducting the first damage assessment after the storms hit
- Sarah McNamee, Marion County EMA, for stepping in and providing guidance
- Chief Chad Swank, Mount Gilead Fire Department, for dropping off 3 dozen sealed jugs of drinking water
- Jason Coey, Chesterville Village Council, for helping when the station 2 generator failed in the middle of the night
- Bruce Bowman, for keeping the citizens informed through social media, easing their concerns
- Morrow County 911, for being the center of command and control
- Big Walnut Fire District firefighter/EMTs, for being there and doing what they do best
- Citizens of Chesterville and Chester Township, for remaining calm in a crisis and patient during 6 days of no air conditioning in 95-degree heat



*Figure 2 Members of the Big Walnut Joint Fire District and Morrow County EMS (left to right): Aux Member Bill Park, Chief L. Lovell, Cadet N. Lonchair, Cadet R. Lonchair, Capt Sinclair, Capt Whitt, Capt. Burson, FF Jumper, EMT Marstiller, Capt. Park, FF Clayton, FF Goings, EMT Spayde. Picture taken on July 4, 2022.*

## Introduction

The Operational Period of this event begins on June 13, 2022 with the touchdown of 2 EF-1 tornados near Chesterville and ends on June 19, 2022 when power was restored.

## Fire Department Background

The Big Walnut Joint Fire District is a paid-on-call fire district with two fire stations, Station #2 in Chesterville and Station #1 in Marengo. Big Walnut covers Chester Township, Harmony Township, Bennington Township, and the villages of Chesterville and Marengo. There are 24 firefighter/EMTs on the roster, with 2 assigned day staff seven days a week from 9am to 5pm at the Marengo fire station. The Chesterville fire station is volunteer only and is unmanned. Big Walnut covers 75 square miles and over 7800 people.



*Figure 3 Big Walnut Joint Fire District Station #2*

## Overview of the Events

A line of severe thunderstorms moved rapidly southeast out of Michigan and Indiana late in the evening hours of Monday June 13 and during the pre-dawn hours of Tuesday June 14, tracking along a warm front which separated very hot and humid conditions to the southwest from cooler and drier conditions to the northeast. These severe thunderstorms produced a swath of continuous wind damage from winds estimated at 60 to 70 mph from northwest Ohio through interior sections of north central and northeast Ohio. A swath from Richland, Ashland, and Morrow Counties through Wayne, Holmes, and Knox Counties was particularly hard hit with widespread tree damage from winds likely around 80 mph. A large macroburst that tracked across Wayne and Holmes Counties produced estimated 80 to over 90 mph winds from Wooster Township through Millersburg. Thousands of trees were downed along this path, many of which fell on homes, vehicles, and power lines causing widespread power outages. Clean-up and power restoration in Richland, Ashland, Morrow, Wayne, Holmes, and Knox Counties took several days. In addition to the straight-line winds, three E-F1 tornadoes touched down.

The first tornado touched down 5 miles northeast of Mt. Gilead and ended 6 miles northwest of Chesterville and had maximum winds of 97 mph. The second tornado touched down in Chesterville and ended 5 miles southwest of Fredericktown and had maximum winds of 105 mph. The third tornado touched down 3 miles north of Butler and ended 4 miles south of Perrysville. These tornadoes damaged or destroyed several barns and outbuildings. (NWS Report). This line of thunderstorms was classified as a derecho. A derecho is defined as “A widespread, convectively induced straight-line windstorm, more specifically, any family of downburst clusters produced by an extratropical mesoscale convective system.” (American Meteorological Society, 2014).

Furthermore, derechos generally have swaths of damage that extend around 250 to 400 miles in length, around 60 miles in width, and these systems contain 58 mph winds along most of that damage path with a few 75 mph or greater gusts. (NWS Report).

### Two EF-1 Tornadoes Hit Chesterville Area

There is a high index of suspicion that the storm cell that hit Chesterville area on June 13th, 2022, carried with it a phenomenon known as a QLCS tornado (Quasi-Linear Convective System). It is a very unpredictable, rapid occurring system that is very hard to spot on a weather radar. There was no time to send a warning to the public. This is why a lot of people did not get weather warnings from most weather monitoring systems (NOAA, NWS, etc). The weather radar couldn't see it forming. Included the radar picture from the night of June 13th with the potential storms circled.

The National Weather Service conducted a storm damage survey in conjunction with local first responders in southeast Morrow to western Knox Counties. Results determined an EF-1 (86-110 mph) tornado touched down near Chesterville at 1122 PM EDT on June 13. The tornado tracked southeast crossing Township Road 180 before crossing into Knox County and dissipating south of Green Valley Road, near Cochran Road. The total path length was 7.1 miles. Estimate cost of damage is unknown at the time of this report. No injuries have been reported.

In Chesterville, and along the path of damage, numerous trees were uprooted or snapped, including a couple that landed on buildings. Convergent patterns were also noted in farm fields. In Green Valley, a detached garage was completely destroyed, with cinder blocks thrown approx. 20 yards into the field across the street. In addition, a barn was destroyed and farm equipment displaced 200 to 300 yards southeast. Trees and power poles continued to be damaged before it dissipated near Cochran Road.

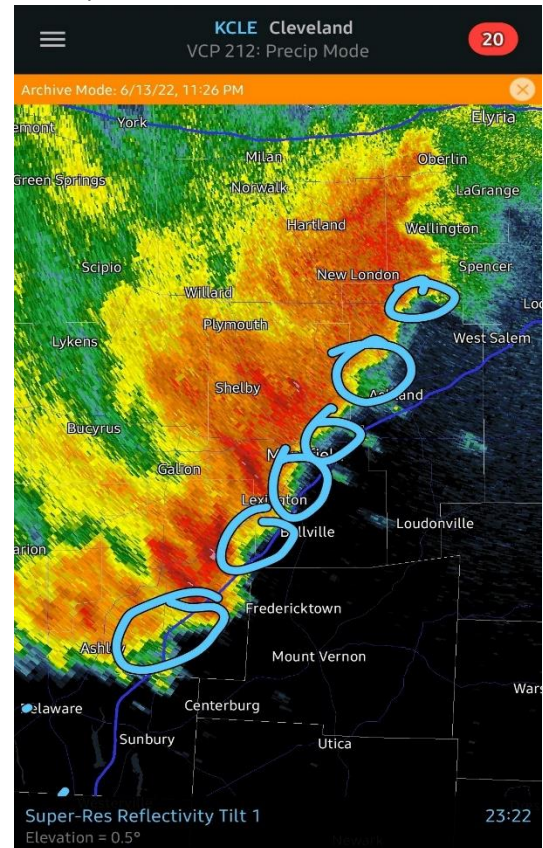


Figure 4 June 13, 2022 11:22pm, courtesy Mickey Smith

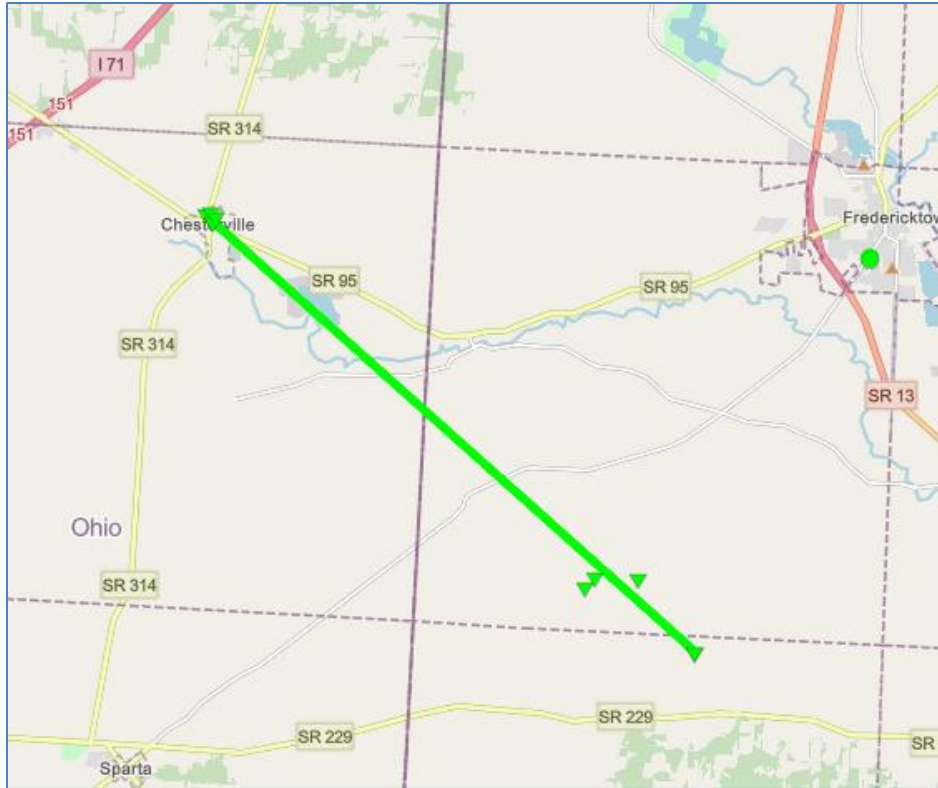


Figure 5 NWS diagram of path of #2 EF-1 tornado June 13, 2022

#### Initial Fire Department Response

The first 911 response into BWJFD's area was at 11:57pm on a report of trees down. As more calls came in, more fire department personnel responded from home. Due to the heavy rain conditions, very little report writing was done in the apparatus. Combined with the lack of dispatch records only about 30% of the actual responses were recorded. Among the initial runs that night were a tree on top of a car with 2 trapped occupants at Township Road 170 and Township Road 25, a shooting on Township Road 175 requiring emergent transport to a trauma center, a carbon monoxide emergency due to running a generator too close to a house and allowing fumes to enter, and approximately 12-15 service calls with trees down wires down or residential fire alarms that were not tracked.

---

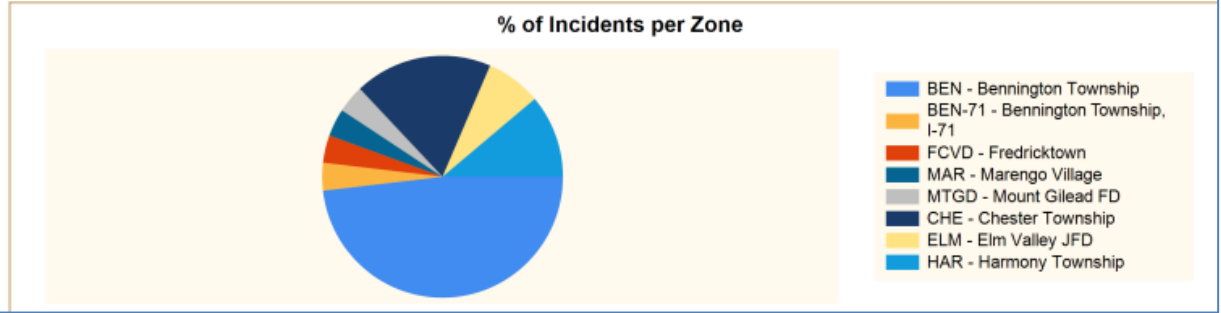
***It should be noted there was no response out of the BWJFD Chesterville fire station #2 during the storm, and only 1 response for the Fredericktown fire. A lack of available personnel in the area was the reason. Residents of Chesterville/Chester Township received services from the BWJFD Marengo fire station #1.***

***IT IS IMPERATIVE THAT A STATION IS CONSTRUCTED AND MEMBERS ARE AVAILABLE ON STATION 24/7/365.***

---

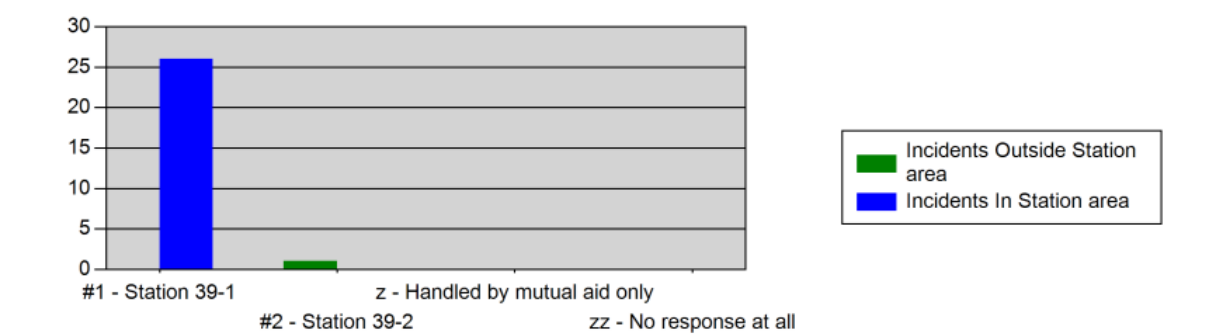
**Count of Incidents by Incident Type per Zone**

Incident Status: Reviewed | Start Date: 06/13/2022 | End Date: 06/19/2022



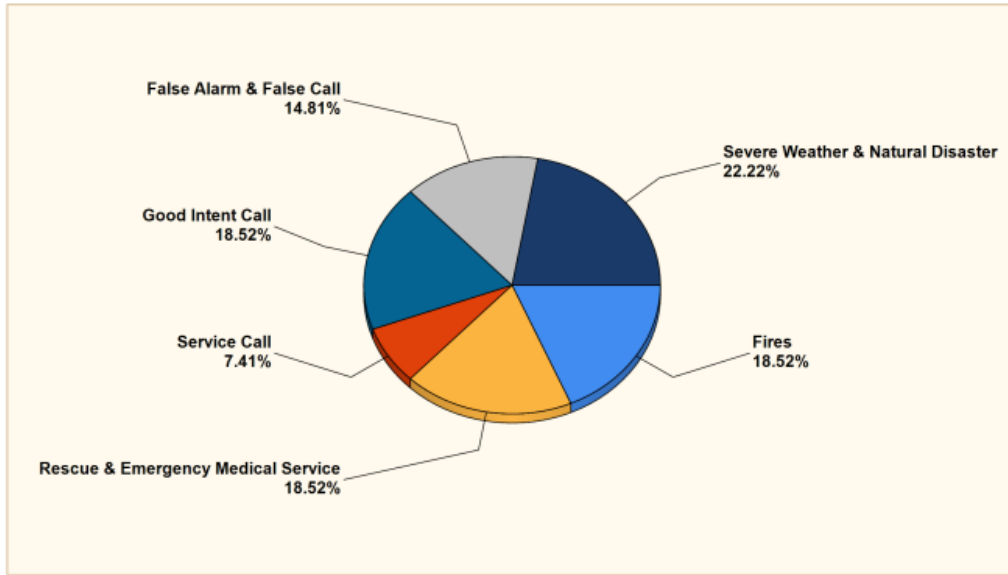
**Incident Count Per Station (In and Out) For Date Range**

StartDate: 06/13/2022 | EndDate: 06/19/2022



STATION	INSIDE	OUTSIDE	TOTAL
#1 - Station 39-1	26	0	26
#2 - Station 39-2	0	1	1
z - Handled by mutual aid only	0	0	0
zz - No response at all	0	0	0
<b>TOTAL:</b>	<b>26</b>	<b>1</b>	

**Breakdown by Major Incident Types for Date Range**  
 Zone(s): All Zones | Start Date: 06/13/2022 | End Date: 06/19/2022



MAJOR INCIDENT TYPE	# INCIDENTS	% of TOTAL
Fires	5	18.52%
Rescue & Emergency Medical Service	5	18.52%
Service Call	2	7.41%
Good Intent Call	5	18.52%
False Alarm & False Call	4	14.81%
Severe Weather & Natural Disaster	6	22.22%
<b>TOTAL</b>	<b>27</b>	<b>100%</b>

**Initial Damage Assessment**

When daylight appeared, people were able to begin to survey the damage. Chester Township Trustee Lynn Shinaberry and Fire Chief Ben Lovell conducted an initial damage survey along the St. Rt. 95 corridor on June 14<sup>th</sup> at approx. 2pm. It was apparent that a major weather event had passed down State Route 95. Over the next few days, social media erupted with pictures of storm damage all over Morrow County.





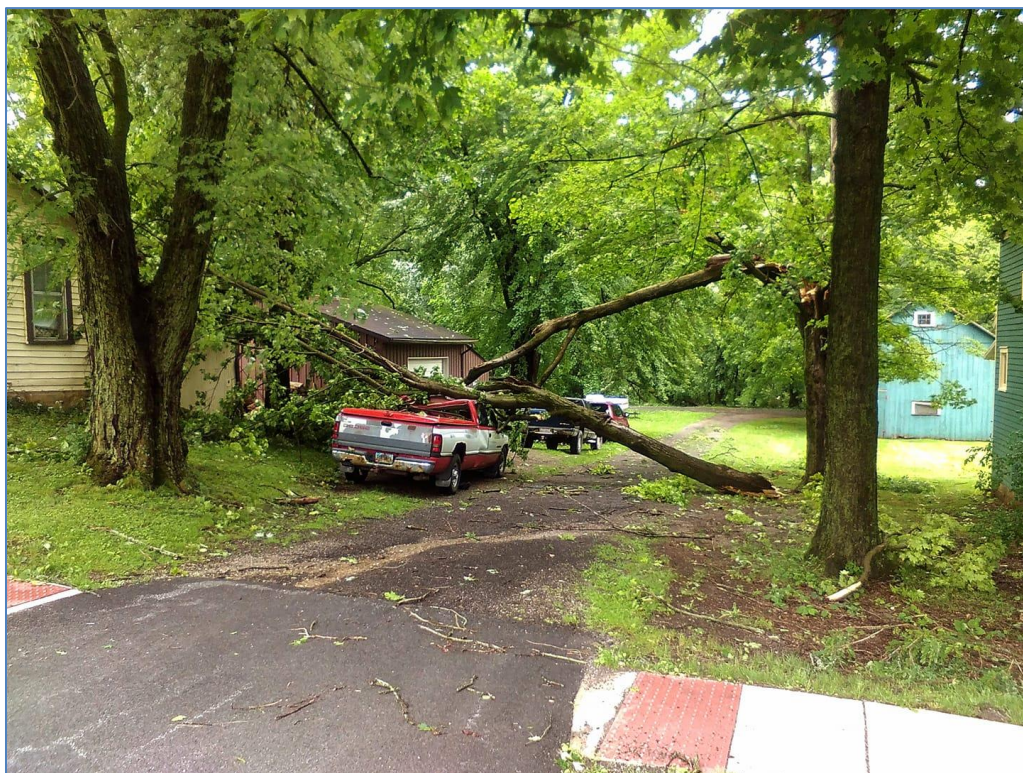
*Figure 6 From Facebook*



*Figure 7 From Facebook*



*Figure 8 Chesterville Market, From Facebook*



*Figure 9 From Facebook*



*Figure 10 From Facebook*



*Figure 11 From Facebook*



*Figure 12 From Facebook*

#### Impact of Power Loss to the Community

Electrical power, AT&T, Verizon phone service and Centurylink internet service were all knocked out in Chesterville and a large surrounding area. The only source of light in the village was the building light and flagpole light on the Chesterville firehouse, Big Walnut Fire Station 39-2. Due to the lack of internet, the Morrow County 911 CAD (computer aided dispatch) was not operational. Members of the community lost the ability to charge mobile phones. People with well water were unable to pump out of the well. Gas pumps were not operational, all communications were knocked out (landline phones, mobile phones, internet). In comparison, the impact area was comparable to the size of a 15,000-kiloton nuclear bomb detonation.

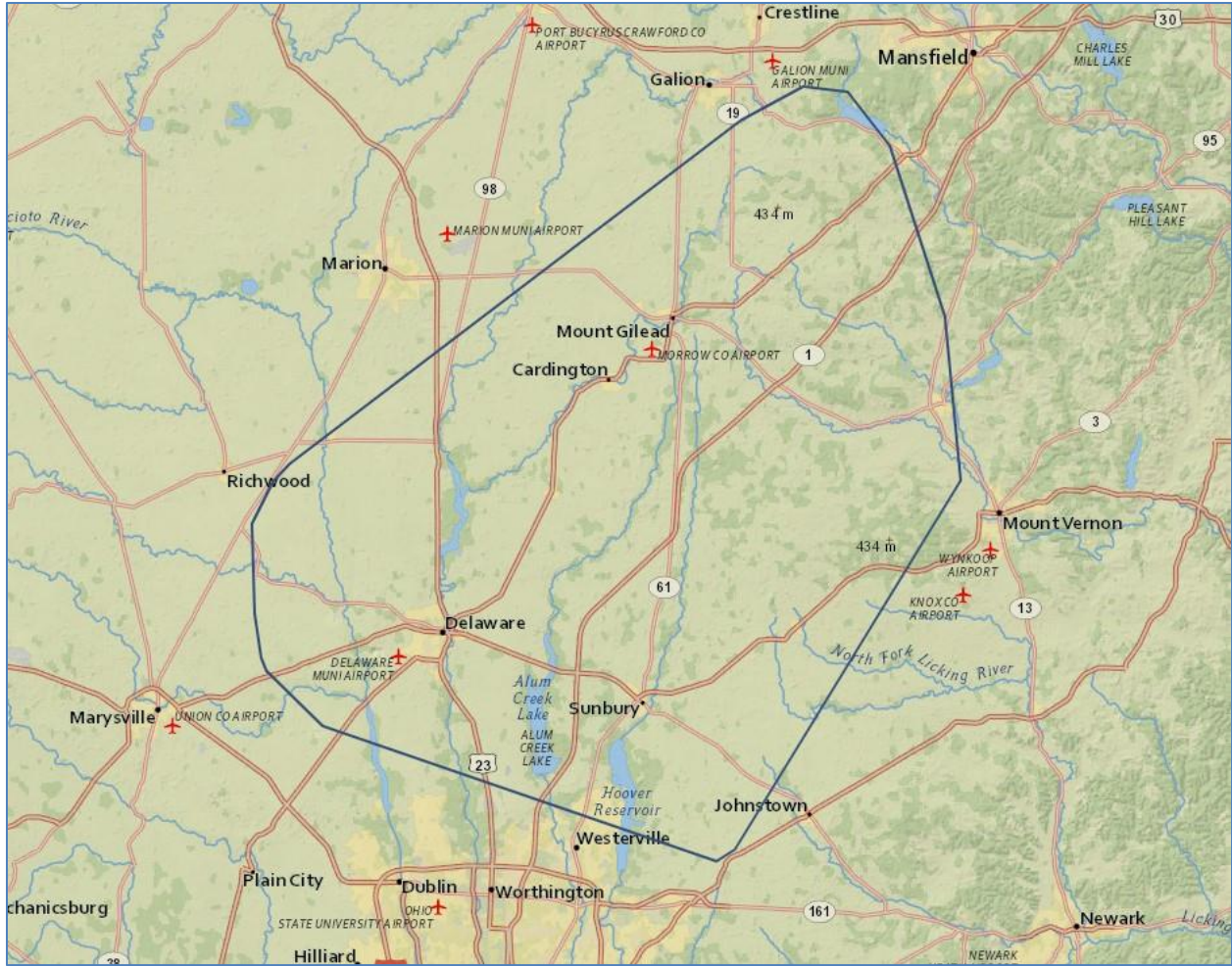


Figure 13 Ohio Edison power loss map, June 14th, 9:08 am, taken off Facebook

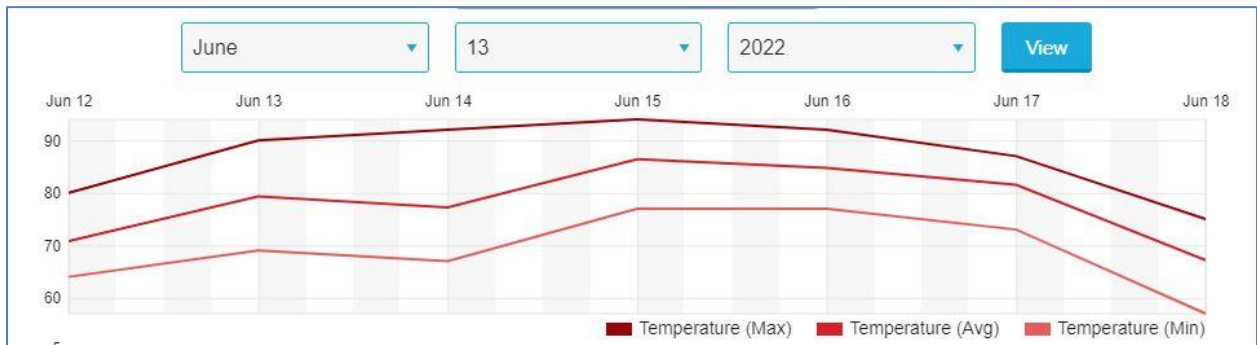


Figure 14 Copied from Wunderground Weather History Report

Obviously, air conditioning was not available. Weather was immediately a problem. Temperatures were in the mid-90s for the week of June 13th. On June 14<sup>th</sup> there was a residential fire in Bennington Township due to an air fryer left plugged into an outlet, when the power was restored, it surged in the house and caught the air fryer on fire. A family dog and cat perished in the heavy smoke. On June 17<sup>th</sup>, the generator at the Chesterville fire station failed, leaving the entire village in the dark. The stoplight at St. Rt. 314 and St. Rt. 95 was not operational. Village elected officials and Chief Lovell 302 were on scene to assess the situation. The generator ran out of oil and self-shut down. Maintenance was called and generator was restarted. June 18<sup>th</sup> there was a meeting with elected officials, interested parties, and fire department personnel Chief Ben Lovell and Public Information Officer Captain Andrew Park. Power was restored in Chesterville June 19<sup>th</sup> sometime around 2pm.



*Figure 15 Kitchen fire in Bennington Township, June 14*

#### Post Storm Response

The Village of Chesterville did not have an Emergency Operations Plan, so there was direct coordination between the elected officials and the Big Walnut Joint Fire District. On June 18<sup>th</sup> the Village of Chesterville asked the Big Walnut Joint Fire District to initiate requests through EMA for emergency response for portable power, water for showers. There were no direct requests of civilians to the Village of Chesterville or the Big Walnut Joint Fire District for assistance. Big Walnut fire chief monitored social media traffic on 4 different pages to maintain situational awareness of the climate of the citizens. There was moderate frustration of lack of power, but no indications of life-threatening situations. Citizens had water, food



*Figure 16 Situation briefing meeting in Chesterville Village Offices, June 18, Morrow County Sentinel*

#### Social Media Controversy Over Lack of Tornado Sirens and Lack of Advance Warning

When the line of storms hit the Chester Township area, there was no advance warning of a tornado. After the incident, there was much discussion amongst residents within the county regarding a lack of warning, and why were there no tornado sirens. The problem, when explored fell into two categories. The tornado sirens have been inactive for years, and the National Weather Service radar stations couldn't see the tornado radar echo to identify it and make the declaration of a tornado warning.

Morrow County EMA has been aware of the lack of tornado sirens and have taken steps to initiate a call system to warn people of severe weather for several years. In 2014, 10TV did a story on the lack of tornado sirens in Morrow County. The issue of tornado sirens not being effective was a focus point in the article. 10TV's article stated, "Christine Caldwell says when severe weather approaches her Morrow County home, she hears nothing. "The only way you can hear tornado sirens in this area is if you are outside and the wind is blowing just right," said Christine Caldwell" (retrieved from 2014 article <https://www.10tv.com/article/news/lack-tornado-sirens-means-morrow-county-residents-must-depend-phones-weather-radios>). Currently, Morrow County EMA strongly urges people to register with HyperReach, a system that can notify people with mobile phones, landlines of severe weather. This is an upgrade from the old CodeRED system.

The National Weather Service radar stations in Wilmington and Cleveland are aimed at each other. However, due to the gentle curvature of the Earth, there are blind spots. Morrow County is one of the blind spots in the State of Ohio. The NWS radar can not see atmospheric activity below 7000 feet. These storms can form and travel as low as 2500 feet, at over 70mph.

The result of the NWS inability to see and interpret the radar echoes and initiate a tornado warning, coupled with the speed of the system, and the lack of general population with their mobile or landline numbers registered with Morrow County (combined with a time on target of approximately 11:30pm) led to this event. Only luck averted a disaster.

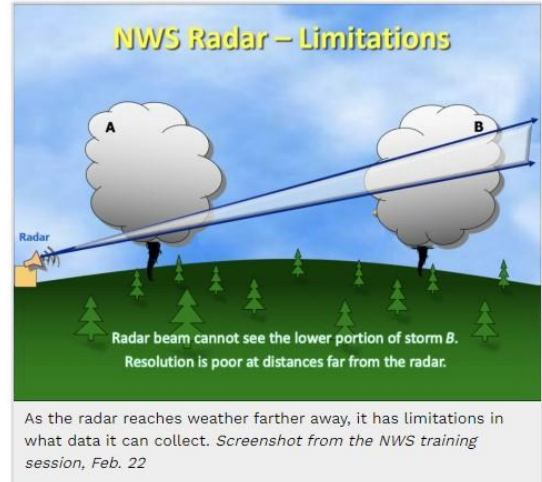


Figure 17 Courtesy of Mickey Smith

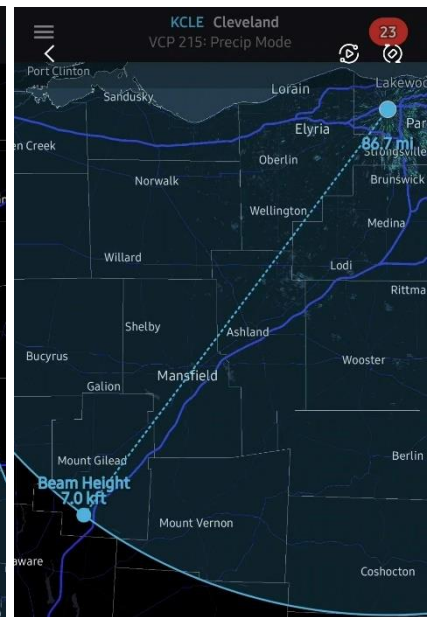


Figure 18 Courtesy of Mickey Smith

## Recommendations

- a. It is imperative that a new fire station is constructed in Chesterville that can provide heat or air conditioning for extended periods, as well as on staff firefighter/EMTs working 24/7 who can respond in under 120 seconds.
- b. In the event of another large event or in storm mode, the Marengo fire station needs to open an EOC (Emergency Operations Center). A firefighter/SME subject matter expert needs to man the station and control radio traffic.
- c. The Chesterville fire station needs a small air conditioning unit to use in case of wide spread power loss and can be used for either firefighter rehab or a community shelter.
- d. The Chesterville village offices should be equipped with a generator so it can be used as a community center.
- e. Village of Chesterville and Chester Township should have an emergency operation plan and a continuity of operations plan.
- f. All political subdivisions should have copy of Morrow County Emergency Operations Plan
- g. There should be landlines in the government buildings that can talk to each other directly without internet usage.
- h. BWJFD should consider an on-site fuel depot running off a generator so we can refuel our trucks during a power outage.
- i. NWS SKYWARN Storm Spotter Program. Due to the radar blind spot over Morrow County below 7000 feet, citizens should attend this storm spotter class that is given and be prepared to relay current weather information to the community.
- j. The Marengo fire station generator did not start on its own.
- k. There was a lack of understanding of Marengo fire station generator operation.
- l. Is the generator on a weekly/monthly checklist? Fluids, battery condition, etc.
- m. Bathroom lights are not on the generator.
- n. We need fuel options or storage. Trucks were down to 1/2 tank when we called to regroup at Marengo fire station.



- o. We need more 2-cycle fuel/oil on hand. Either pre-mix or oil and fuel to mix on our own.
- p. We need more spare chains available. (We were out for ~5 hours cutting a good part of the time)
- q. We need spare parts for the chainsaws. (We had 2 nuts fall off on 25. Luckily, we were able to find them.)
- r. We need summer rain/wind hi-viz coats. (Maybe get summer one year and winter the next or find a 3-in-1 style that allows layering.)
- s. We need rear scene lighting and emergency lighting on B32. (We may have it in the station. I plan to work the 20th, not as day crew to get B32 and H39 better lit.)
- t. Is there an option for a district-wide talk around, while still having contact with dispatch? Often needed to touch base with other crews for conditions found, roads closed, crew and equipment status, etc.
- u. We need to split crews based on experience.
- v. We need to group better and have a clearer plan of attack. Divide the district and get the main routes clear ASAP. Roads passable or clear? Method for closing roads?
- w. We need to make Squad 39 crew a priority. We were down to 2 boxes in the district. 4's had to come in for the shooting. MCEMS had staffing but was not able to get their 6th box started (mechanical issues).
- x. Are the phones on the generator?
- y. Rescue helmets with lights on all trucks would be a huge plus. Fire helmets get heavy with extended use. Carrying a box light while operating a chainsaw is hazardous with no sway strap. Operating saws with no helmet is hazardous.
- z. Equipping S39 with a chainsaw and possibly having spares at 39-1. Vehicles had to reroute because of lack of access. If we cannot reach a residence and have to wait for a truck with a saw to arrive, it adds unneeded delays.

- aa. Electric chainsaws? Milwaukee has some that will run off our current batteries. These are great for confined spaces (exhaust issues), RIT (no flooding, etc in a panic), and when fuel availability is an issue.
- bb. Tourniquets (maybe even IFAK) on every truck. Bailey did not see one in the B32 kit while we were staging. Can be used in any shooting situation as well as injuries from a chainsaw, etc.
- cc. Vests/Helmets/Tactical EMS (I know this has been a desire for a while. How many shootings in the last year? Feels more frequent but, may just be perception.)
- dd. We need a method to self-dispatch or record status on the iPad. Similar to Delaware where you can mark your status without marking dispatch.
- ee. We need more iPads. E30, B37, and B32 I believe did not have one. S39 and E33 I think had one. This also comes with the need for more licenses, etc. for software.
- ff. A policy that when storm mode is declared, all responders are put on hourly pay. I think Anthony said we ran 18 runs in 24 hours. If a member took all 18, that is \$324. If hourly, that is only \$240. I think those 18 were in a shorter time frame as well. It also alleviates as much generating of reports. The roads were so bad, that we were not even going 100 yards before another blockage at times.
- gg. We need a surplus of cones. During storms, we can drop them at closures. During training, they can be used for driver training, etc. We can also use them for R31 if we employ it as a blocker.