

## **Tornado**

### **General**

Tornados typically occur in Pennsylvania during the spring and summer months. In the past 125 years, about 250 tornados were reported in 58 of the 67 counties in Pennsylvania. The National Weather Service estimates the Commonwealth will experience 10 tornadoes annually. Tornados are measured by wind speeds on the Fujita Scale.

**Table C.27  
Fugita Scale**

<b>Magnitude</b>	<b>Description</b>
<b>F0</b>	40-72 mph: Gale Tornado. Light Damage: Some damage to chimneys; breaks twigs and branches off trees; pushes over shallow rooted trees; damages signboards; some windows broken; hurricane wind speeds begin at 73 mph.
<b>F1</b>	73-112 mph: Moderate Tornado. Moderate damage: Peels surfaces off roofs; mobile homes pushed off foundations or overturned; outbuildings demolished; moving autos pushed off the roads; trees snapped or broken.
<b>F2</b>	113-157 mph: Significant Tornado. Considerable damage: Roofs torn off frame houses; mobile homes demolished; frame houses with weak foundations lifted and moved; box cars pushed over; large trees snapped or uprooted; light-object missiles generated.
<b>F3</b>	158-206 mph: Severe Tornado. Severe damage: Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forests uprooted; heavy cars lifted off the ground and thrown; weak pavement blown off roads.
<b>F4</b>	207-260 mph: Devastating Tornado. Devastating damage: Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and disintegrated; large missiles generated; trees in forest uprooted and carried some distance away.
<b>F5</b>	261-318 mph: Incredible Tornado. Incredible damage: Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 300 feet (100 m); trees debarked; incredible phenomena will occur.
<b>F6</b>	319 + mph: The maximum wind speeds of tornadoes are not expected to reach F6 wind speeds.

*Data Source: National Climatic Data Center*

As stated by the National Climatic Data Center, “wind speeds in tornados range from values below that of hurricane speeds to more than 300 miles per hour.” The NCDC continues, “The maximum winds in tornados are often confined to extremely small areas, and vary tremendously over short distances.” This is the reason that one house will be completely demolished by a tornado, yet the house next to it might be untouched. Additionally, the forward motion of tornados can range from speeds between 0 and 50 miles per hour.

**History**

Perry County has witnessed three tornados since 1967. Of these, the most significant was in 1967, when a Category 2 storm hit the County, resulting in \$250,000 in property damages.

**Table C.28  
Perry County Tornado History**

<b>Date</b>	<b>Magnitude</b>
9/21/1967	F2
6/28/1976	F1
6/20/1989	F2
5/26/2011	F1

*Source: National Climatic Data Center*

**Vulnerability**

Tornados are most common in the southeastern and southwestern parts of the Commonwealth; however, they have the potential to affect any part of the state if the right mix of weather conditions exists. Recent tornados have affected nearby Lebanon, Cumberland, Luzerne, and Dauphin Counties. Perry County typically experiences a lower incidence of tornados than these areas. The most recent tornado in Perry County occurred in 2011 in Perdix. It did a total of \$75,000 in damage. Tornados can usually be expected June-July. Factors that impact the amount of damage caused by a tornado are its strength, the time of day, and the area of impact. Usually, these distinct funnel clouds are localized phenomena impacting a small area. However, the high winds of tornadoes make them one of the most destructive of all natural hazards.



**F-3 Tornado, Campbelltown, PA, July 14, 2004**

**Probability**

The probability of a tornado striking Perry County is relatively low. According to the National Climatic Data Center, four tornados hit the County between 1967 and 2012. History illustrates that the frequency of occurrence in Perry County is approximately once every 10 years or less.

**Maximum Threat**

While it is difficult to pinpoint the exact locations at greatest risk from a tornado, low-lying areas and flat fields are susceptible to touchdowns, while most damage will likely occur in densely populated areas. The maximum threat to Perry County is to property, facilities, and infrastructure in the more populated areas of the County.

**Secondary Effect**

Tornados typically have limited secondary effects. The most common is power failure, as severe wind conditions dismantle power sources. Significant structural damage to property, facilities, or infrastructure could cause small segments of the population to temporarily displace. Hazardous material spills can occur if a tornado damages a holding tank or causes a traffic accident. Limited disruptions of critical emergency services may be experienced by non-affected portions of the County. Economic and financial impact can range from nominal to major, based on the severity of damage.