

Hazard/Definition

Tornado:

A rotating funnel-shaped cloud, striking the ground with whirling winds of up to 200 miles per hour or more. The tornado is nature's most violent storm.

Description/Frequency

Tornadoes form when cool, dry air sits on top of warm, moist air. In the plains areas of Colorado, Kansas and Oklahoma, this often happens in the spring and early summer when cool, dry mountain air rolls east over the plains, over-running warm moist air traveling north from the Gulf of Mexico. Most tornadoes move from southwest to northeast, but direction of travel may be erratic and suddenly change. Hail may or may not be associated with a tornado. The greatest number of tornadoes in Colorado occur during May, June and July.

Historical Score: 2

Colorado tornadoes tend to be small, short-lived and relatively weak as compared with the plains states tornadoes. Statistics indicate that Colorado tornadoes last only a few minutes, are generally only about 100 yards in diameter at the surface and have an average path length of 1-1/2 miles. Wind speeds appear to average 100 MPH or less. Tornadoes are uncommon in the City of Boulder, but they sometimes occur in the outlying areas of the county. A tornado damaged a portion of the roof at Vo-Tech on East Arapahoe in **October 1980**, and damaged a home in the vicinity of Baseline Reservoir on **June 6, 1997**. There were no injuries or loss of life. National Weather statistics indicate that between the years 1950-1996, nine (9) tornadoes occurred in Boulder County.

Potential Score: 3

Even though tornadoes in Colorado are small, weak and hard to see compared to those in Oklahoma, they shouldn't be taken lightly. They can still do incredible damage and the potential is always there for damage to property and loss of life.

Impact on Life and Property:

Fallen trees and power lines, broken gas lines, broken sewer and water mains, and the outbreak of fires impact an area where a tornado occurs. Agricultural crops and industries may be damaged or destroyed. While most tornado damage is caused by violent winds, most injuries and deaths result from flying debris.

Mitigation Options/Strategies

- C Public education programs to increase personal protection and reduce the number of deaths from tornadoes. (An awareness campaign is done in the City of Boulder early in the Spring and the outdoor warning sirens are tested on a regular basis during the months of April, May, June, July and August.)
- C Trained volunteer spotters to watch the sky during threatening weather and report any signs of tornado activity to the local law enforcement officials and the regional office of the National Weather Service. Spotters are trained by the National Weather Service (usually law enforcement personnel).
- C The National Weather Service is strategically locating Doppler radar sites across the country that can detect air movement toward or away from the radar. Early detection of increasing rotation aloft within a thunderstorm can allow lifesaving warnings to be issued before the tornado forms.
- C The NOAA Weather Lab in Boulder is working in cooperation with the City and County of Boulder using an experimental forecasting system. A weather display has been installed in the Emergency Operations Center that is linked with the NOAA Lab. The system is experimental and final decisions are not made using this information alone.
- C The Boulder County Multiple Agency Coordinating System (MACS) group, consists of representatives from all agencies and jurisdictions within the County. This group makes plans and agreements for the procurement of resources needed during emergencies.

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Mitigation Options / Strategies

- C SCC Communications and US West partnered together for a warning and evacuation system for Boulder County. It is called the Emergency Warning and Evacuation Service (EWES) and is part of the Emergency Preparedness Network (EPN). The existing 9-1-1 database of telephone numbers and addresses is used in combination with detailed maps to help determine the geographic boundaries of an area impacted. The system is capable of calling up to 2,000 numbers in one minute. It is designed to deliver recorded information to endangered people in advance of a disaster or any major event. Messages can be delivered in various languages, as well as to pagers or the Emergency Alert System (EAS). Multiple floodplain areas can be handled during a single event with priority given to the area most impacted.

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