

# Section 10: Windstorm Updates

## Windstorms Since 2002

The most recent high wind event affecting the County lasted from December 14<sup>th</sup> to December 15<sup>th</sup>, 2006. This event caused extensive power outages, as over 29,000 people without power in Clackamas County. HWY 26 closed due to trees falling, and many local roads closed due to downed power lines and debris. Wind gusts were over 60 mph, and a few homes were affected by falling trees.

In addition, flooding that began on November 6<sup>th</sup> continued to threaten many homes in Welches, Zig Zag, Carver and Estacada. Because the high wind occurred just after significant flooding event in November, more trees were introduced into stream systems, causing debris dams and channel migration, especially in the Sandy River. As the channel moved and transported trees and other debris downstream private property, homes, and infrastructure were damaged. In the higher elevations, the extreme wind and snow created a blizzard on Mt Hood.

The County Emergency Operations Center was activated to support first responder field activities and coordinate response efforts county-wide and regionally. The county recorded \$111,638 in losses, but no disaster declaration was made.

## Hazard Assessment

### Hazard Identification

**Mapping:** The County does not have adequate data for mapping the windstorm hazards, as Climatic hazards are difficult to portray geographically.

**Geographic Extent:** The primary affects of windstorms are on road and power systems, which cause widespread transportation issues and prolonged power outages.

**Frequency:** According to historical records, there have been an estimated 6 windstorm events in the past 100 years, which is about 1 every 16-17 years.

### Vulnerability Assessment

**Risk to Life and Property: Moderate**

The major risk to property results from exposed utilities, especially power lines and water pipes that are damaged by wind, broken tree limbs. Businesses also suffer economic losses when they must close as the result of the inclement weather and/or the loss of power, which, in turn, disrupts the local supply chain of goods and services. When transportation routes are impassable, emergency response services are hindered and the mobility of residents is limited, which could result in serious life safety issues.

Tornadoes and can cause significant property damage and pose a risk for injuries and loss of life. They can also require need to shelter and care for individuals impacted by the events. Although the majority of windstorm events in Clackamas County likely will not be as sudden and severe as tornados, it is important to consider the potential affects of these events on life and property because there is the potential for significant windstorms in Clackamas County.

***Risk to Critical Facilities and Infrastructure: Moderate***

Windstorms can cause power outages, transportation, and economic disruptions, roof or building component failures and considerable structural damage. Trees, power lines, telephone lines, and television and radio antennas can be impacted by wind, falling trees and limbs. Delay in emergency personnel response may pose a secondary threat to life if police, fire, and medical personnel cannot respond to calls.

**Risk Assessment**

Factors that should be included in a windstorm risk analysis include: population and property distribution in the hazard area; the frequency of windstorm events; and information on the types of trees and failure rates most susceptible to severe windstorm events as well as and information on utilities, and infrastructure that may be impacted by windstorms. These inputs can be used in modeling software such as Multi-Hazard HAZUS to predict potential losses from a particular storm event.

Due to insufficient data and modeling capability, Clackamas County is unable to perform a quantitative severe storm risk assessment at this time. The County has addressed this issue in the action items, and will be completing a risk assessment as data and resources become available.

**Windstorm Mitigation Action Items**

**WS#1: Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorm events.**

***Ideas for Implementation***

1. Partner with responsible agencies and organizations to design and disseminate education information to property owners to reduce risk from tree failure to life, property, and utility systems;
2. Develop partnerships between utility providers and county and local public works agencies to document known hazard areas; and
3. Identify potentially hazardous trees in urban areas.

**Coordinating Organization:** Clackamas County Department of Transportation and Development  
**Plan Goals Addressed:** Emergency Services, Partnerships and Implementation  
**Multi-Jurisdictional:** Canby, Milwaukie, Lake Oswego, Gladstone, West Linn  
**Priority:** High

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**WS#2: Map and publicize locations around the county that have the highest incidence of extreme windstorms.**

*Ideas for Implementation*

1. Identify a responsible agency for central collection and reporting of storm data. Data collected should include:
  - ✓ Windstorm data (sustained speeds, gusts, storm durations) for localities throughout the county;
  - ✓ Maps of the locations within the county, which are most vulnerable to high winds;
  - ✓ Injury and property damage estimates, including locations; and
2. Identify public infrastructure and facilities subject to damage or closure during windstorm events.

**Coordinating Organization:** Clackamas County Geographic Information Systems

**Plan Goals Addressed:** Public Awareness, Protect Life and Property, Partnerships and Implementation

**Priority:** Low

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**WS#3: Support/encourage electrical utilities to use underground construction methods where possible to reduce power outages from windstorms.**

*Ideas for Implementation*

1. Increase the use of underground utilities where possible.

**Coordinating Organization:** Hazard Mitigation Advisory Committee

**Plan Goals Addressed:** Natural Systems, Partnerships and Implementation

**Multi-Jurisdictional:** Canby, Milwaukie, Lake Oswego, Gladstone, West Linn

**Priority:** Medium

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**WS#4: Increase public awareness of windstorm mitigation activities.**

*Ideas for Implementation*

1. Collect information on public education materials for protecting life, property, and the environment from windstorm events; and
2. Distribute educational materials to Clackamas County residents and public and private sector organizations regarding preparedness for no power situations.

**Coordinating Organization:** Hazard Mitigation Advisory Committee

**Plan Goals Addressed:** Public Awareness, Protect Life and Property

**Multi-Jurisdictional:** Canby, Milwaukie, Lake Oswego, Gladstone, West Linn

**Priority:** Medium

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**WS#5: Encourage development and enforcement of wind-resistant building siting and construction codes.**

*Ideas for Implementation*

1. Continue to evaluate and enhance building codes for efficiency in protecting structures from wind damage.

**Coordinating Organization:** Clackamas County Building Division

**Plan Goals Addressed:** Public Awareness, Protect Life and Property

**Priority:** Low