HAZARD DESCRIPTION

Landslides occur when rock, soil or other debris moves downslope. Typically, landslides are caused by gravity acting on an overly steep slope; however, landslides are influenced by both natural factors (geology, topography, weather, and hydrology) and human activity (mining, construction, vegetation removal, improper drainage design). Landslides are activated by storms, fires, earthquakes, volcanoes, and various human activities.

Landslide - Historical Occurrences and Impacts

The State of Washington rates landslide losses second to flood losses statewide, with the Puget Sound area having the greatest vulnerability.

September 1990: A major landslide occurred on the Nisqually River approximately five miles downstream from La Grande Dam. The river’s course shifted several hundred yards to the north.

February 1996: Flooding caused sections of bluff to slide into the Nisqually River near Yelm; several residences were declared unsafe to occupy. Another landslide broke the two main sewer lines that carried the majority of Tumwater’s and the former Olympia Brewery’s wastewater to the LOTT treatment plant in Olympia. A landslide removed a section of Flumerfelt Road, southwest of Bucoda, which was closed for several months.

Winter 1998-99: Three years of above average winter rainfall contributed to a massive slide in the Carlyon Beach area. The 66-acre landslide left 40 homes uninhabitable.

MARINE BLUFF AND LANDSLIDE HAZARD CONSIDERATIONS IN CRITICAL AREAS ORDINANCE

Marine Bluff Hazard Areas

The existing Critical Areas Ordinance establishes buffers at both the top and the bottom of marine bluff hazard areas. In other words, property owners are prevented from building too close to the top of the slope because the slope could give way, or too close to the bottom of the slope where a slide could submerge their properties.

The top buffer is calculated by drawing a line at a 2:1 angle from the ordinary high water mark upward to where the line intersects the surface of the ground at the top of the slope. The minimum top buffer is 50 feet. This provision would remain the same. The buffer at the bottom of the slope, however, would increase from 25 feet to 50 feet.

Landslide Hazard Areas

The existing Critical Areas Ordinance sets a standard 50-foot buffer at the top of a landslide hazard area. The potential amendments would instead use the same 2:1 slope calculation and 50-foot minimum that applies to marine bluff hazard areas (see above). The bottom buffer would increase from 25 feet to 50 feet.

Geologic Assessment

To protect property owners from physical harm and property damage, a geologic assessment would be required when a property owner applies for a building permit within or adjacent to a geologically hazardous area.