

**STAFF REPORT FOR THE PLANNING COMMISSION BRIEFING
November 5, 2018**

**GEOLOGIC HAZARDS REGULATIONS
(PC-2018-10262)**

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SECTION 1.0 INTRODUCTION

This project, PC-2018-10262, is intended to address landslide mitigation policies, strategies, objectives and action items identified for Multnomah County Land Use Planning in following three plans. The purpose of this briefing is to introduce the Planning Commission to the best available landslide mapping information and to discuss next steps.

1. Multnomah County Comprehensive Plan (2017)
<https://multco.us/landuse/comprehensive-plan>
2. Multnomah County Multi-Jurisdictional Natural Hazards Mitigation Plan (2017)
<https://multco.us/em/natural-hazard-mitigation-plan-document-library>
3. Multnomah County Climate Action Plan (2015)
<https://multco.us/sustainability/2015-climate-action-plan>

SECTION 2.0 COUNTY PLAN DIRECTION

MULTNOMAH COUNTY COMPREHENSIVE PLAN (2017)

Chapter 7 (Natural Hazards) of the Multnomah County Comprehensive Plan provides background information and policy direction on a range of community hazards including landslides, floods, wildfires and earthquakes.

As stated on page 7-3 of the Comprehensive Plan, *“Landslides can threaten people, property, and natural resources, and often occur in connection to human activity and other hazards such as erosion, flooding, and earthquakes. Susceptibility to landslides is related to underlying geology, the steepness of a slope, instability associated with previous landslides,*

soil type, moisture content, and human activity. Multnomah County currently regulates development on steep slopes to address risks in such areas related to erosion or landslides. The incidence of landslides is likely to increase in the future due to the impacts of climate change as increased winter rainfall leads to more soil and slope instability, particularly following prolonged periods of precipitation when the soil is saturated with water.”

This project, PC-2018-10262, will consider the following Comprehensive Plan policies and strategies related to minimizing landslide hazard risk and damage:

Areas Susceptible to Landslide

Policy 7.1: Direct development and landform alterations away from areas with development limitations related to potential hazards associated with steep slopes (over 25%) and other areas shown to be potentially susceptible to landslides or their impacts based on available County and state data associated with these hazards. Allow for exceptions based upon a showing that design and construction techniques can prevent or mitigate public harm or associated public cost and prevent or mitigate adverse effects to nearby properties.

Strategy 7.1-1: Update the County’s regulatory slope hazard map, as needed, to more accurately reflect the location of steep slopes and areas potentially susceptible to landslide hazards.

Strategy 7.1-2: Evaluate and revise the Hillside Development and Erosion Control Overlay zone, as needed, to implement up-to-date regulatory approaches for addressing landslide hazards.

Policy 7.2: Protect lands having slopes greater than 25% and lesser slopes shown to be potentially susceptible to landslides from inappropriate development or slope alteration. Consider possible adverse effects on nearby homes and public and private infrastructure.

Strategy 7.2-1: Designate lands with slope greater than 25% and lesser slopes determined to be potentially susceptible to landslides as having development limitations and apply appropriate standards to new development on these designated lands. Slope alteration and site disturbance shall be minimized and measures taken to stabilize slopes, minimize erosion, and replant areas where vegetative cover will be removed.

Strategy 7.2-2: Investigate the advisability of requiring property owners to record landslide-related limitations as deed restrictions.

MULTNOMAH COUNTY MULTI-JURISDICTIONAL NATURAL HAZARDS MITIGATION PLAN (2017)

In addition to the Comprehensive Plan, the 2017 Multnomah County Multi-Jurisdictional Natural Hazards Mitigation Plan (NHMP) describes natural hazard risks shared by the region and identifies action items related to a wide range of hazards. Specifically, Appendix E of

that Plan identifies the following landslide hazard related action item for Multnomah County Land Use planning.

NHMP Action Item 53: Review the hillside development ordinance to consider amendments that address areas at risk from landslides for areas not already identified on the County Slope Hazard Map or otherwise subject to the hillside development zoning code.

MULTNOMAH COUNTY CLIMATE ACTION PLAN (2015)

Finally, as stated in the Multnomah County Climate Action Plan, “Changes in the intensity of winter rains may increase the incidence of landslides, particularly following prolonged periods of precipitation that happen when the soil is already saturated with water. With more rain, groundwater levels can rise, increasing the risk of large, deep landslides.” This project, PC-2018-10262, will also consider Climate Action Plan Objective 15F.

15F Landslide Risk - Manage the increased risk of landslides due to increased winter rainfall by: a) Incorporating landslide and hazard risk reduction polices into the updated Comprehensive Plan. b) Identifying, mapping and monitoring landslide hazard areas with agency partners. c) Incorporating landslide hazard reduction approaches into infrastructure planning projects, land use policies and city codes. d) Providing outreach and education on reducing landslide risks to private property owners.

SECTION 3.0 SUMMARY OF COUNTY GEOLOGIC HAZARD REGULATIONS

Multnomah County first adopted Hillside Development zoning maps and associated development regulations in 1991. Those provisions are referred to today as the Geologic Hazard regulations which continue to apply to lands identified on the county’s slope hazard map or on lands with average slopes of 25 percent or more. The Geologic Hazard provisions require that an Oregon licensed Engineering Geologist or Geotechnical Engineer certify the development will be built on stable ground and will not cause land stability problems.

The Land Use Planning program typically issues less than 10 Geologic Hazard permits in any given year which accounts for ~2% of total annual land use permit activity. The Geologic Hazard permit application fee is currently \$969 and it follows the Type 2 land use review process, which takes 4-6 months, on average, to process.

As stated on page 7-3 of the Comprehensive Plan, “Since the Hillside Development Overlay Zone was put into effect, newer data has become available from the Oregon Department of Geology and Mineral Industries (DOGAMI) that identifies other locations that also may be susceptible to landslides, such as locations of previous landslides and/or other areas where soil conditions increase susceptibility.”

SECTION 3.0 DOGAMI LANDSLIDE MAPS SUMMARY

Since 2015, DOGAMI has released updated landslide maps through three different publications focusing on different portions of unincorporated Multnomah County:

1. **Bull Run Watershed in Eastern Multnomah County - Surficial and Bedrock Engineering Geology, Landslide Inventory and Susceptibility and Surface Hydrography of the Bull Run Watershed, Clackamas and Multnomah Counties, Oregon. Special Paper 46 (2015).**
2. **Western, Central, Eastern and Southern Portions of Eastern Multnomah County - Landslide Inventory Maps. Open File Report 0-17-03 Plates 1-4 (2017)**
3. **Central and Western Multnomah County – Landslide Hazard and Risk Study, Interpretive Map 57 (2018)**

Combining the maps from these three study areas helps form a picture of landslide hazards in Multnomah County according to the best available scientific data. Landslide susceptibility maps from these three publications are shown in following on-line map viewer, which also displays the county’s existing Geologic Hazards maps for comparison: <https://bit.ly/2jRgJpr>

The information below summarizes staff’s key findings after comparing the existing to the newer landslide maps:

SNAPSHOT OF MULTNOMAH COUNTY’S PLANNING JURISDICITON¹

Total Area (unincorporated lands)	272 square miles (174,359 acres)
Total Tax Lots (unincorporated lands)	7,401
Total Buildings (unincorporated lands)	10,031 ²

SUMMARY OF EXISTING COUNTY REGULATIONS

Below is a summary of key observations from a detailed GIS analysis of the landslide maps conducted by Multnomah County (see Attachment B for detailed GIS analysis results).

Existing County Geologic Hazard Maps

- 13% jurisdictional coverage by area (36 square miles)
- Cover 934 buildings (9.3% of the buildings in county jurisdiction)
- Cover 2,980 tax lots (both full and partial tax lot coverage) which equates to 40% of the tax lots in county jurisdiction

Slopes \geq 25% Falling Outside Geologic Hazard Areas in County Planning Jurisdiction

- 71.8 square miles which equals 26% jurisdictional coverage.
- Include 338 buildings (3.3% of the buildings in county jurisdiction)
- Include 1,085 tax lots (both full and partial tax lot coverage) which equates to 14.6% of the tax lots in county jurisdiction

Key Summary: Non-exempt development within a Mapped Geologic Hazards Overlay or on slopes greater than or equal to 25% is currently subject to Geologic Hazards Permit. Therefore, the current Geologic Hazard regulations (mapped overlay + lands $\geq 25\%$) apply to 39% of the county jurisdiction, and includes 1,272 buildings, and 4,065 tax lots.

SUMMARY OF DOGAMI LANDSLIDE MAPS

DOGAMI Landslide Maps (Includes Landslide Deposits and Susceptible Lands of Medium and High Risk)³

- 42% jurisdictional coverage by area (115 square miles/74,153 acres)
- Include 4,811 buildings (47% of the total buildings in our jurisdiction)
- Cover 6,239 tax lots (either full or partial tax lot coverage) which equates to 84% of the total number of tax lots

Key Summary: Comparing DOGAMI Landslide Maps³ to existing county Geologic Hazards regulations reveals the following:

- DOGAMI landslide maps increase mapped regulated areas by 3% (7.2 square miles) - from 39% to 42% jurisdictional coverage;
- DOGAMI landslide maps increase the number of tax lots partially or fully within mapped areas by 2,174 tax lots (from 4,065 to 6,239 tax lots); and
- DOGAMI landslide maps add another 3,539 buildings to the mapped areas (from 1,272 to 4,811 buildings).

SECTION 3.0 ATTACHMENTS

ATTACHMENT A April 12, 2018 Oregonian Article “Study Finds 37,000 Multnomah County Residents Live in Landslide Zones” (Elliot Njus)

ATTACHMENT B Detailed GIS Analysis of Landslide Map Data Conducted by Multnomah County Asset Management, 2018

¹*Includes lands regulated by Multnomah County Land Use Planning: Rural Planning Areas, Pleasant Valley and Interlachen. Excludes urban unincorporated lands managed by cities.*

²*Building footprints obtained from Metro data. Building layer information collected in 2008 and does not show post-2008 development.*

³*Includes landslide deposits (pre-historic deposits, historic deposits, and scarp flanks) and includes shallow and deep susceptible areas of medium and high risk of landslide. Areas of low landslide susceptibility risk areas are excluded.*