

**Chapter 14.275**  
**Geologically Hazardous Areas**

Sections

- 14.275.010 Designation
- 14.275.020 Mapping
- 14.275.030 Exemptions
- 14.275.040 Critical area reports
- 14.275.050 Substantive Requirements
- 14.275.060 Decisions

**14.275.10 Designation**

- A. Geologically hazardous areas include areas in the City that are designated by the City Planner as potentially not suited to development based on public health, safety or environmental standards, because of such areas' susceptibility to erosion, sliding, earthquake, or other geological processes as designated by WAC 365-190-080(4).
- B. The City Planner may designate areas as geologically hazardous, including erosion, landslide, and seismic hazard areas, consistent with the following:
  - 1. Erosion hazard areas are areas identified by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a moderate-to-severe, severe, or very severe rill and inter-rill (sheet wash) erosion hazard.
  - 2. Landslide hazard areas are areas subject to landslides based on geology, soils, topography, and hydrology, including:
    - a. Areas delineated by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a severe limitation for building site

development;

- b. Areas mapped by the Washington Department of Ecology (*Coastal Zone Atlas*) or the Washington State Department of Natural Resources (slope stability mapping) as unstable (U or class 3), unstable old slides (UOS or class 4), or unstable recent slides (URS or class 5);
- c. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the U.S. Geological Survey or Washington State Department of Natural Resources;
- d. Areas where the following coincide: slopes steeper than fifteen percent, relatively permeable sediment overlying a relatively impermeable sediment or bedrock, and ground water seepage;
- e. Areas that have shown movement in the past ten thousand years or that are underlain or covered by mass wastage debris of that time frame;
- f. Slopes that are parallel or sub-parallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;
- g. Slopes steeper than eighty percent subject to rock fall during seismic shaking;

- h. Areas potentially unstable because of rapid stream incision, stream bank erosion, and undercutting by wave action;
  - i. Areas at risk from snow avalanches;
  - j. Canyons or active alluvial fans subject to debris flows or catastrophic flooding; and
  - k. Slopes of forty percent or steeper with a vertical relief of ten or more feet except areas composed of consolidated rock.
3. Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, lateral spreading, or surface faulting. One indicator of potential earthquake damage is a record of past earthquake damage. Settlement and soil liquefaction occur in areas underlain by cohesionless, loose, or soft-saturated soils of low density, typically in association with a shallow ground water table.
  4. Mine hazard, volcanic, and tsunami hazard areas (none known to be present in the City: see WAC 365-190-080).
  5. Other geologically hazardous areas including areas susceptible to mass wasting, debris flows, rock falls, and differential settlement.

**14.275.020 Mapping**

The following maps, which may be continuously updated, may be used as a guide for locating geologically hazardous

areas.

- A. U.S. Geological Survey landslide hazard, seismic hazard, and volcano hazard maps;
- B. Washington State Department of Natural Resources seismic hazard maps for Western Washington;
- C. Washington State Department of Natural Resources slope stability maps; and
- D. Locally adopted maps.

**14.275.030 Exemptions**

In addition to those listed in SMC 14.255.060, the following developments shall be exempt from this chapter:

- A. Additions of fewer than 250 square feet to single-story residences, provided that the City Engineer determines the addition will not increase the risk to the residence or adjacent development;
- B. Fences; and
- C. Other minor developments as determined by the City Planner consistent with the purposes of the Critical Areas Code.

**14.275.040 Critical Area Reports**

In addition to the requirements of SMC 14.255.080, critical area reports for geologically hazardous areas shall include, where applicable:

- A. Site history regarding landslides, erosion, and prior grading;
- B. Topography in suitable contour intervals;
- C. Height of slope, slope gradient, slope

stability, and slope retreat rate recognizing potential catastrophic events;

- D. Description of the geology (including faults), hydrology (including springs, seeps, and surface runoff features), soils (including, in seismic hazard areas, thickness of unconsolidated deposits and liquefaction potential), and vegetation;
- E. Type, extent, and severity of geologic hazard(s);
- F. Analysis of the proposal's risk from the geologic hazard and the proposal's potential for exacerbating off-site hazards or depositing sediment in wetlands or habitat areas;
- G. Recommended buffers and other conditions of approval. In areas of erosion or landslide hazard, the recommended conditions may include:
  - 1. Clearing, fill, and hard-surfacing limits, slope stabilization measures, and vegetation management plan;
  - 2. Limitation on clearing during the rainy season, generally from October 1 to May 1;
  - 3. Design parameters of foundations and retaining structures; and
  - 4. Drainage plan and erosion and sediment control plan in compliance with City stormwater management regulations.
- H. Overview of field investigations, measurements, references, and past assessments of the site.

#### **14.275.050 Substantive Requirements**

In addition to the substantive requirements of SMC 14.255.120, the following requirements shall apply to geologic hazard areas:

- A. Alteration of geologically hazardous areas and buffers shall be prohibited except as expressly allowed in this chapter;
- B. Proposed developments shall not increase the long-term risk of or exposure to a geologic hazard on-site or off-site;
- C. Hazard mitigation shall not rely on actions that require extensive maintenance;
- D. Development near an erosion or landslide hazard area shall:
  - 1. Observe a buffer from the edges thereof, of adequate width to comply with the substantive requirements;
  - 2. Not decrease the factor of safety for landslides below the limits of 1.5 for static conditions and 1.2 for dynamic conditions. Analysis of dynamic conditions may be based on a minimum horizontal acceleration as established by the International Building Code;
  - 3. Cluster structures and improvements as necessary to avoid hazard areas;
  - 4. Use retaining walls that allow the retention of existing natural slopes when possible rather than graded artificial slopes;
  - 5. Place utility lines and pipes in erosion and landslide hazard areas

only when no other alternative is available and when the line or pipe can be installed above ground in such a manner as to remain intact without leaks in the event of a slide;

property, or important natural resources is significant notwithstanding mitigation, the proposal shall be denied. (Ord. 2083, 2005)

6. Discharge water from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area only if:
  - a. Discharged at flow durations matching pre developed conditions, with adequate energy dissipation, into existing channels; or
  - b. Dispersed upslope of the steep slope onto a low-gradient undisturbed buffer of adequate infiltrate capacity without increasing saturation of the slope.
7. Locate any on-site sewage drain fields outside the hazard area and related buffers.

#### **14.275.060 Decisions**

- A. The City may approve, condition or deny development proposals in geologically hazardous areas based on the degree to which risks to public and private property and to health and safety can be mitigated.
- B. Conditions may include limitations of or on proposed uses, density modification, alteration of site layout and other changes to the proposal determined appropriate by the City Planner.
- C. Where the City Planner determines that potential adverse impacts cannot be effectively mitigated, or where the risk to public health, safety and welfare,