

Amplification Susceptibility Map of the Salem East and Salem West Quadrangles, Marion and Polk Counties, Oregon

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Relative Earthquake Hazard Maps of the Salem East and Salem West Quadrangles,
Marion and Polk Counties, Oregon

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Plate 2

Explanation

- Category 5 Possible high susceptibility to amplification in areas of abrupt topographic changes
- Category 4 >1.6 amplification factor for peak rock accelerations
- Category 3 ≥1.4-1.6 amplification factor for peak rock accelerations
- Category 2 ≥1.2-1.4 amplification factor for peak rock accelerations
- Category 1 >1.2 amplification factor for peak rock accelerations
- Category 0 No susceptibility (stable bedrock at or near the surface), with possible exceptions in small, localized areas

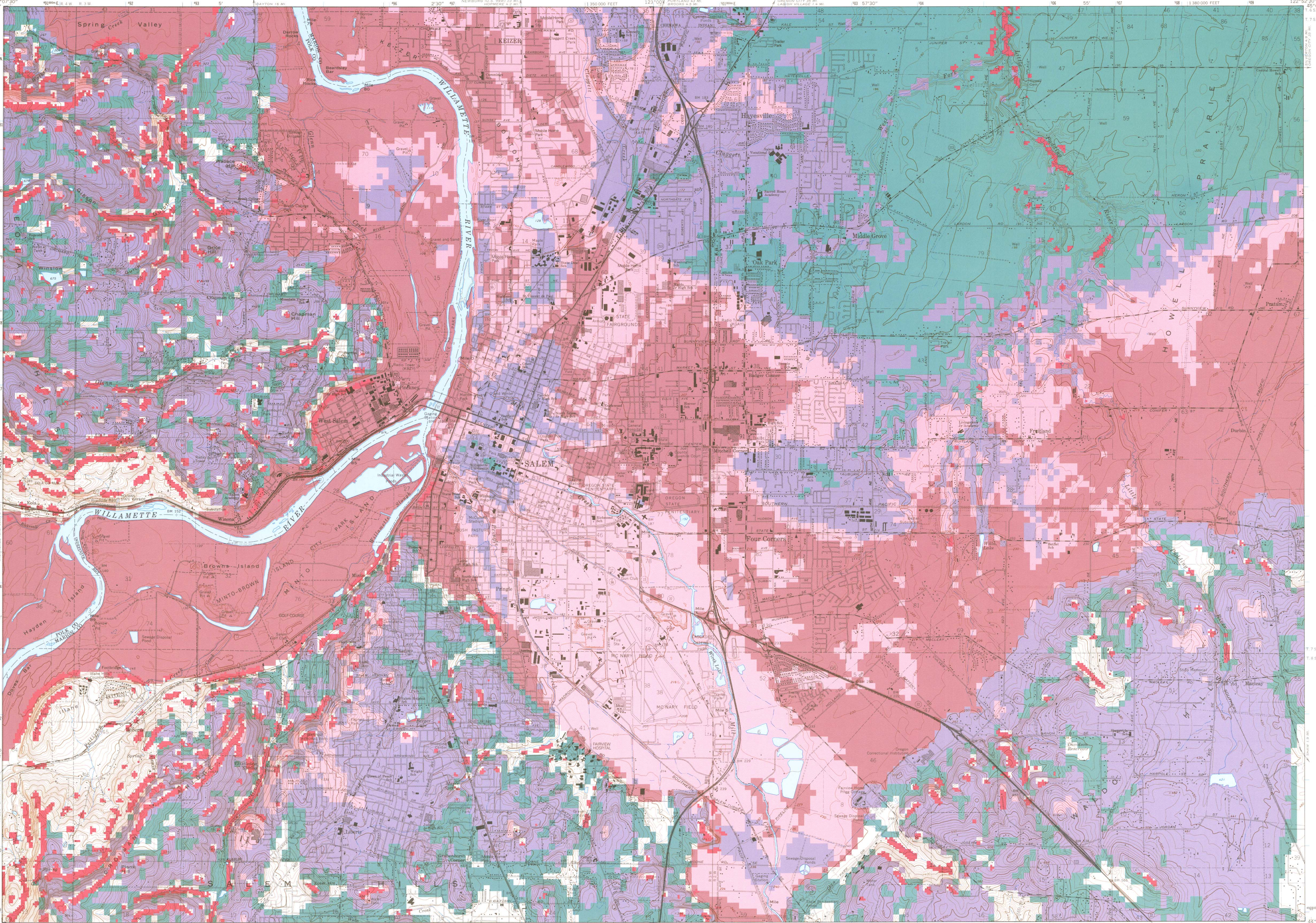
This amplification susceptibility map depicts six categories identifying levels of susceptibility to amplification of peak rock accelerations associated with earthquake shaking. Refer to the companion text, which explains details of the amplification hazards associated with this map and of the different categories. The six categories of susceptibility to amplification range from category 0, where no susceptibility is expected because of stable bedrock at or near the surface—with possible exceptions in small, localized areas—to category 5 with possible high but unquantified susceptibility to amplification in areas of abrupt topographic changes. For categories 1-4, susceptibility is based on calculated amplification factors for peak rock accelerations.

Amplification of peak rock accelerations from earthquake motions can produce severe damage to the built environment, such as to buildings and lifelines (e.g. water, wastewater, electricity, gas, communication, and road systems). Amplification generally occurs in unconsolidated, younger soils as opposed to harder, older bedrock. Amplification, however, may occur in bedrock areas with abrupt topographic changes, such as in ridges and swales. Amplification can greatly increase the danger of building damage and nonstructural damage, such as broken windows, fallen ducts, or overturned bookcases.

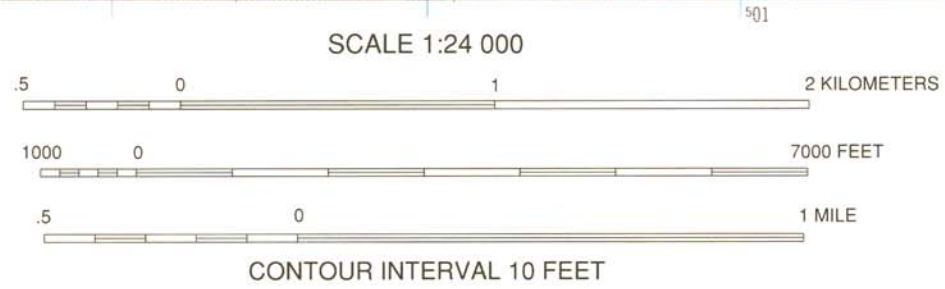
This amplification susceptibility map may be used to gain an understanding of the ground shaking amplification hazards in the higher frequency (or shorter period) response domain and is especially useful for structures with short periods. It provides a basis for steps to be taken to reduce the risk to life and property through planning policy and other mitigation measures. User groups include but are not limited to local jurisdictions, building officials, land use planners, emergency preparedness and response planners, engineering and geology consultants, lifeline managers, developers, realtors, insurers, and private citizens.

This map was developed to serve as a regional planning tool and does not have site-specific accuracy. All areas shown on the map are susceptible to earthquake shaking, regardless of the assigned hazard zone.

Please note:
Information provided in this publication should NOT be used in place of site-specific studies. The relative hazard zones are not intended to replace site-specific evaluations, such as for engineering analysis and design. Site-specific earthquake hazards should be assessed through geotechnical or engineering geology investigation by qualified practitioners.



Base map by U.S. Geological Survey
Control by USGS, USC&GS, and State of Oregon
Polyconic projection, 1927 North American datum
10,000-foot grid based on Oregon coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks,
zone 10, shown in blue



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Cartography by Paul E. Staub

The hazard information on this map is available in digital formats