Selected Critical Facilities and Geologic Hazards, Weber County, Utah

Utah Geological Survey
a division of
Utah Department of Natural Resources

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UTAH EPICENTER
EARTHQUAKE PREPAREDNESS INFORMATION CENTER
Utah Division of Comprehensive Emergency Management

LEGEND

- Lakes and Wet Lands
- Landslides
- Holocene Fault
- Holocene Fault (submerged)
- Quaternary Fault
- Railroads
- Primary Roads
- Secondary Roads

Liquefaction Potential
(not determined for landslides labeled LS)

- H - High
- M - H - Moderate to High
- M - Moderate
- L - M - Low to Moderate
- L - Low
- VL - Very Low

- School
- Fire Station
- Hospital
- Dam
- Interstate Highway
- U.S. Highway
- State Highway

Liquefaction Hazard

Liquefaction may occur when water-saturated sandy soils are subjected to earthquake ground shaking. When soil liquefies, it loses strength and behaves as a viscous liquid rather than a solid. This can cause buildings to sink into the ground or tilt, empty buried tanks to rise to the ground surface, slope failures, lateral spreading, surface subsidence, ground cracking, and sand blows.

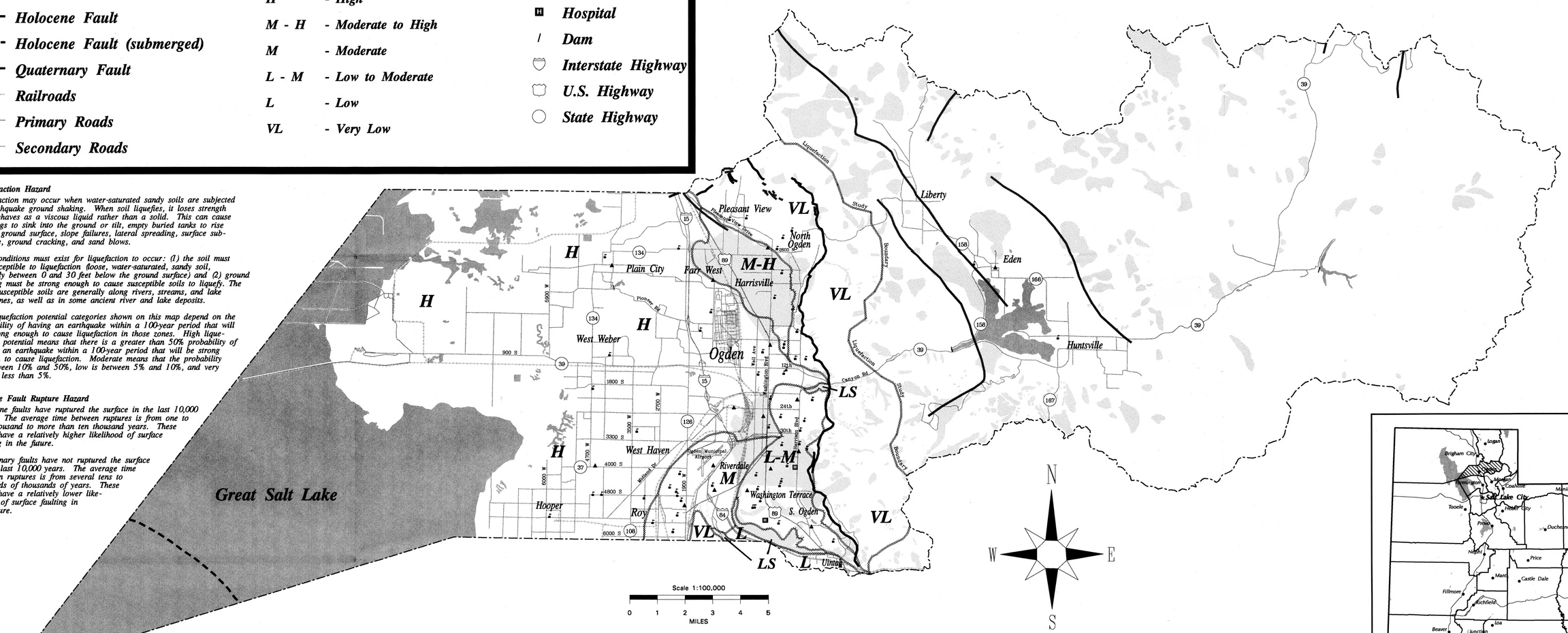
Two conditions must exist for liquefaction to occur: (1) the soil must be susceptible to liquefaction (loose, water-saturated, sandy soil, typically between 0 and 30 feet below the ground surface) and (2) ground shaking must be strong enough to cause susceptible soils to liquefy. The most susceptible soils are generally along rivers, streams, and lake shorelines, as well as in some ancient river and lake deposits.

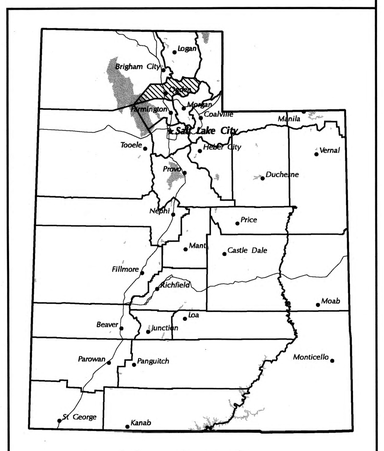
The liquefaction potential categories shown on this map depend on the probability of having an earthquake within a 100-year period that will be strong enough to cause liquefaction in those zones. High liquefaction potential means that there is a greater than 50% probability of having an earthquake within a 100-year period that will be strong enough to cause liquefaction. Moderate means that the probability is between 10% and 50%, low is between 5% and 10%, and very low is less than 5%.

Surface Fault Rupture Hazard

Holocene faults have ruptured the surface in the last 10,000 years. The average time between ruptures is from one to two thousand to more than ten thousand years. These faults have a relatively higher likelihood of surface faulting in the future.

Quaternary faults have not ruptured the surface in the last 10,000 years. The average time between ruptures is from several tens to hundreds of thousands of years. These faults have a relatively lower likelihood of surface faulting in the future.





Map Location

This map is for general reference only. Liquefaction information was modified from work done by L.R. Anderson, J.R. Keaton, and J.A. Bay in 1990 under U.S. Geological Survey Contract 14-08-0001-22015, and recently published as: Anderson, L.R., Keaton, J.R., and Bay, J.A., 1994, Liquefaction potential map for the northern Wasatch Front, Utah: Utah Geological Survey Contract Report 94-1, scale 1:48,000.

Fault information was modified from: Nelson, A.R., and Personius, S.F., 1993, Surficial geologic map of the Weber segment, Wasatch fault zone, Weber and Davis Counties, Utah: U.S. Geological Survey Miscellaneous Investigations Series Map I-2199, scale 1:50,000 and Personius, S.F., 1990, Surficial geologic map of the Brigham City segment and adjacent parts of the Weber and Collinston segments, Wasatch fault zone, Box Elder and Weber Counties, Utah: U.S. Geological Survey Miscellaneous Investigations Series Map I-1979, scale 1:50,000.

Landslide information was modified from compilations done by K.M. Harty and published as: Harty, K.M, 1992, Landslide map of the Ogden 30' x 60' quadrangle, Utah: Utah Geological Survey Open-File Report 247, scale 1:100,000 and Harty, K.M., 1992, Landslide map of the Promontory Point 30' x 60' quadrangle, Utah: Utah Geological Survey Open-File Report 245, scale 1:100,000.

Digital data provided by the State Geographic Information Database (SGID) and the Utah Automated Geographic Reference Center.