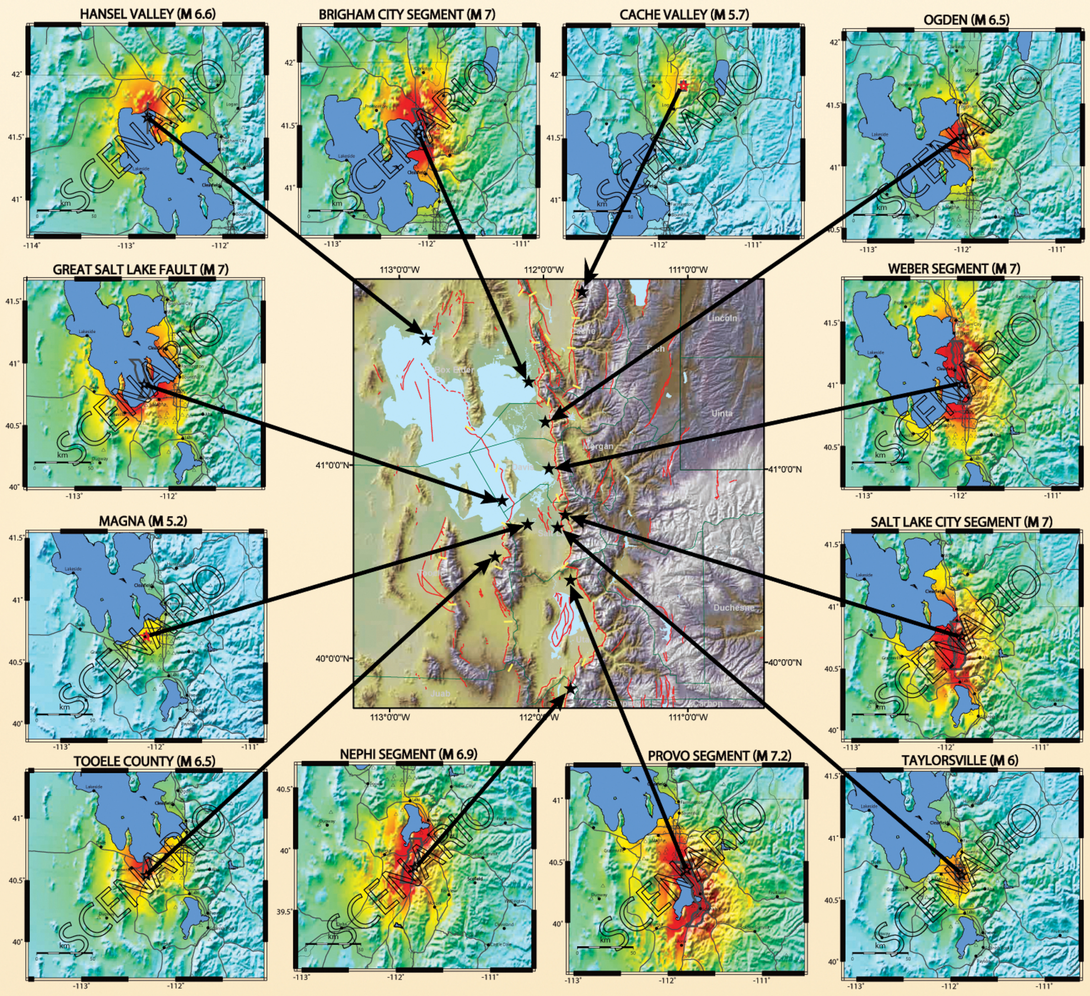
ShakeMap-Based HAZUS®MH Loss Estimation Maps

Intermountain Seismic Belt, Utah

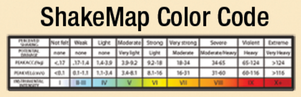
ShakeMap Scenario → HAZUS-MH → Risk Maps

Earthquake Scenario ShakeMaps



Scenario Name	Fault or Historical Earthquake	Epicenter Lat.	Epicenter Long.	Magnitude
Brigham City Segment	Wasatch Fault	41.45	-112.1	7
Cache Valley	1962 M5.7 Event	41.92	-111.73	5.7
Great Salt Lake Fault	Great Salt Lake Fault	40.83	-112.26	7
Hansel Valley	1909 M6+ and 1934 M6.6 Events	41.66	-112.8	6.6
Magna	1943 M5 and 1962 M5.2 Events	40.71	-112.09	5.2
Nephi Segment	Wasatch Fault	39.85	-111.8	6.9
Ogden	Weber Segment and 1914/1984 Events	41.24	-111.98	6.5
Provo Segment	Wasatch Fault	40.43	-111.8	7.2
Richfield	Elsinore Fault and 1910/1921 Events	38.77	-112.08	6.5
Salt Lake City Segment	Wasatch Fault	40.76	-111.83	7
San Rafael Swell	1988 M5.3 Event	39.13	-110.89	5.3
Taylorsville	Salt Lake City Segment	40.7	-111.88	6
Tooele County	Oquirrh Fault	40.54	-112.31	6.5
Washington Fault	Washington Fault	37.1	-113.55	6.5
Weber Segment	Wasatch Fault	41	-111.95	7

ShakeMap Color Code



Legend

This Federal Emergency Management Agency (FEMA)-sponsored project produced a catalog of loss estimation map products based on an earthquake scenario called ShakeMaps using HAZUS-MH, FEMA's risk assessment methodology. ShakeMaps provide the ground-shaking intensity in an area to facilitate effective emergency response in the event of a catastrophic earthquake. The addition of preliminary loss estimates will allow emergency personnel to respond more appropriately to the areas of immediate need.

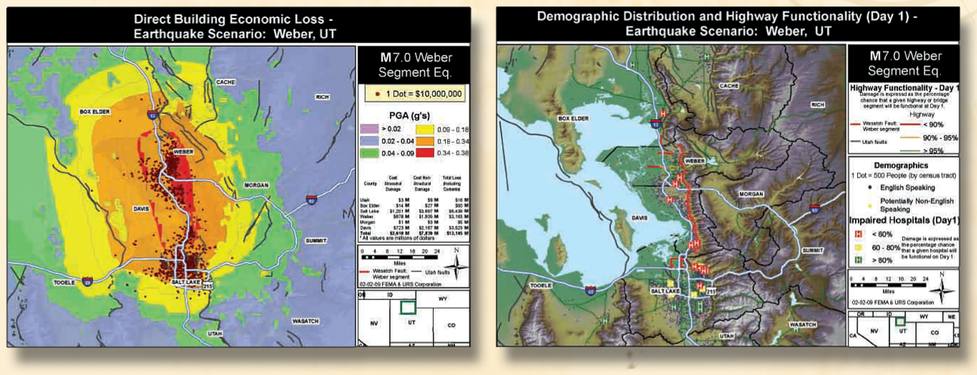
Fifteen earthquake scenarios, ranging from magnitude 5.2 to 7.0, along the Wasatch fault and other Utah faults in the Intermountain Seismic Belt were developed and input into HAZUS-MH to produce 12 maps. These maps consist of estimates of functionality and damage to lifelines and transportation corridors, location and severity of areas of predicted liquefaction and strong ground shaking, economic loss forecasts, shelter needs, estimates of severe injuries, building inspection needs, locations of utilities, and other potentially vulnerable facilities.

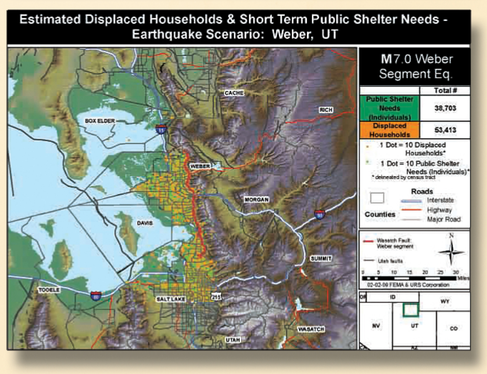
This information will be used by the Utah State Office of Emergency Services and made publicly available for both pre- and post-disaster scenarios, and during-the-event planning and exercises. First responders will be able to use the resulting loss estimation maps to guide them in emergency response in advance of any post-earthquake analysis.

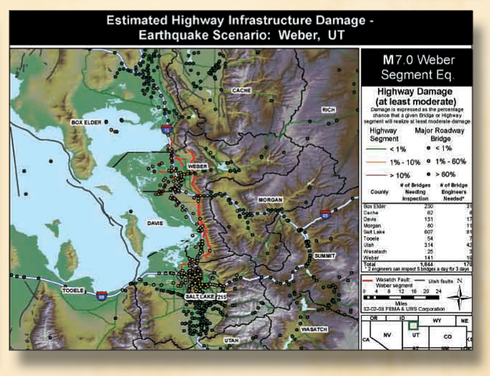
HAZUS-MH information: www.fema.gov/plan/prevent/hazus
HAZUS-MH Earthquake Methodology information: www.fema.gov/plan/prevent/hazus/hz_eq.shtm
ShakeMap information: www.seis.utah.edu

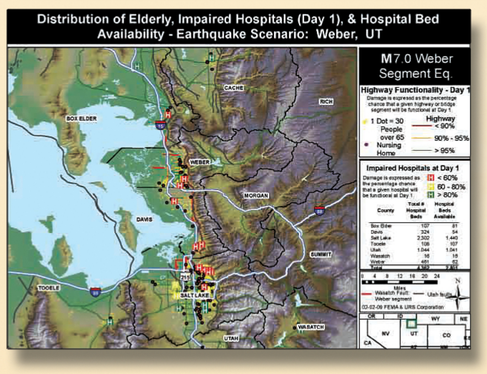
FEMA

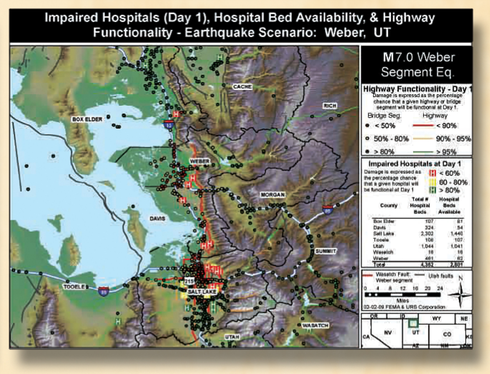
Earthquake Scenario Risk Maps

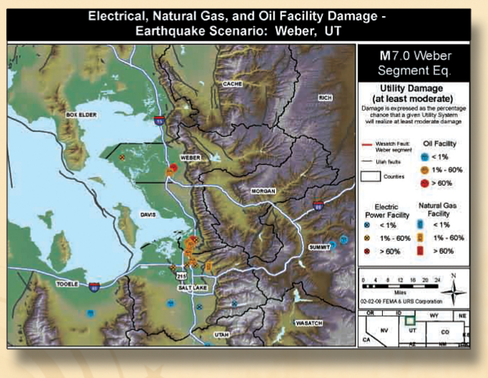


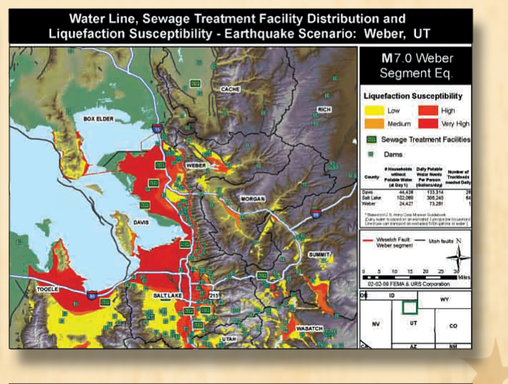


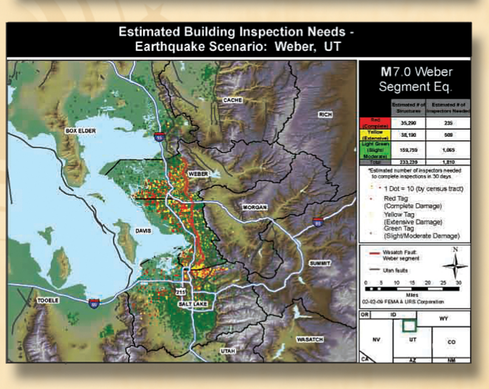


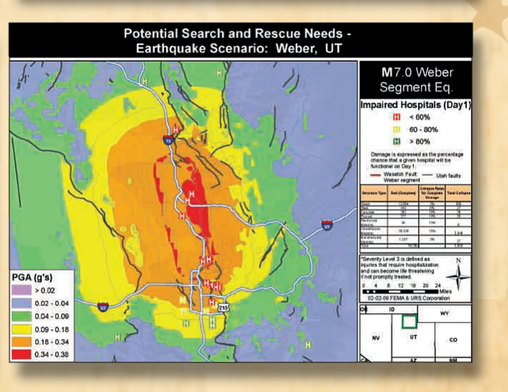


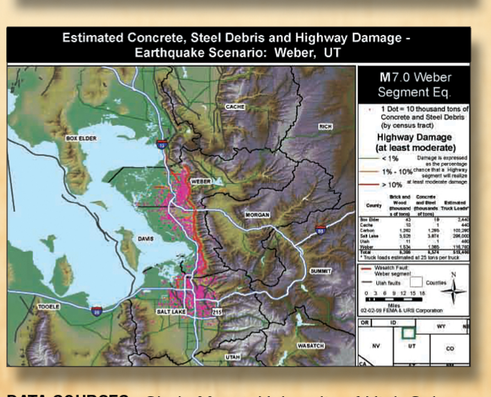


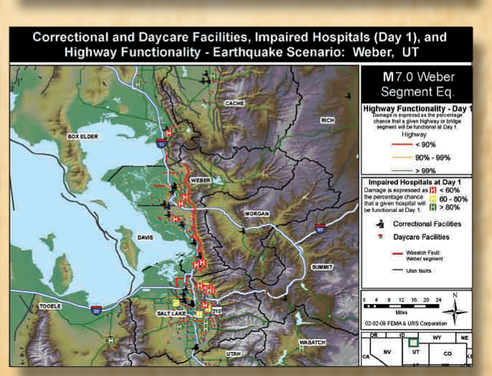












DATA SOURCES: ShakeMaps: University of Utah Seismograph Stations; U.S. Geological Survey.
Risk Maps: HAZUS-MH (Loss Estimation Software developed by FEMA); Homeland Security Infrastructure Program Gold; Salt Lake County Assessors office.