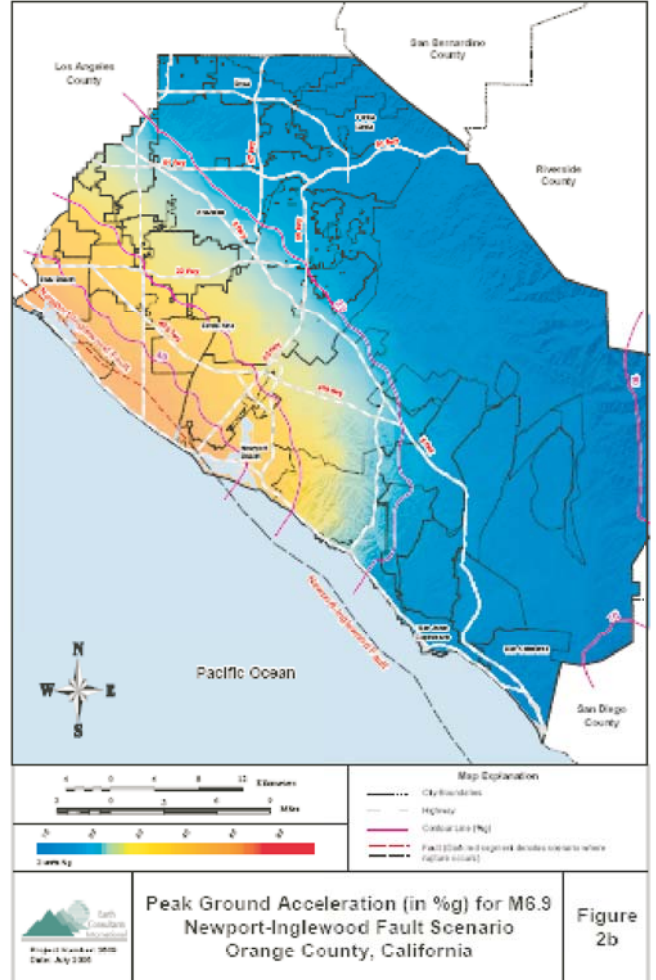




SCENARIO EARTHQUAKE ANALYSIS OF WATER INFRASTRUCTURE VULNERABILITY in Orange County, Southern California

PROJECT DESCRIPTION

Earth Consultants International (ECI) was retained by the Metropolitan Water District of Orange County (MWDOC) to assist them in evaluating the seismic vulnerability of their water infrastructure in northern Orange County, California. The District needed easily understood graphics to help convey the level of hazard and risk to its water customers and its own internal Board of Directors. Working with *ECI's* seismic team, MWDOC decided that scenario earthquake maps would most clearly link the hazard to specific faults that are most familiar to the public. The scenario maps would portray the resultant ground motions across the county, showing both the Peak Ground Accelerations (right) for engineering analyses, and the Seismic Intensities (below) for public communication.



SOLUTION

Five earthquake scenarios were used, developed around faults with the highest public recognition, using magnitudes appropriate for each fault's length, area, and structural style:

- 1) A M6.9 earthquake on the Newport Inglewood fault
- 2) A M6.8 earthquake on the Peralta Hills thrust
- 3) A M7.5 earthquake on the Puente Hills thrust
- 4) A M6.6 earthquake on the San Joaquin Hills thrust
- 5) A M6.8 earthquake on the Whittier fault

The ground motions were calculated on a 2.5-km grid using EZ-FRISK by Risk Engineering Inc., and contoured using MapInfo GIS software.

