

# PEAK ACCELERATION FROM MAXIMUM CREDIBLE EARTHQUAKES IN CALIFORNIA (ROCK AND STIFF-SOIL SITES)

1990

(Prepared for Internal Use by Caltrans)

By

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## DISCLAIMER

This is an interim map of California showing expected levels of earth shaking. It was produced exclusively for use by the California Department of Transportation according to their specifications and criteria. General use of this product for seismic hazard evaluation is not recommended because the map does not take into account the probability that a particular level of shaking will occur.

The likelihood of experiencing levels of ground motion shown on this map varies by orders of magnitude because the level of seismic activity of individual seismic sources varies dramatically. The variable activity across the state is not fully addressed during the preparation of this map.

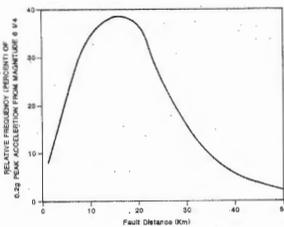
Refer to notes on the map and the accompanying text for a correct understanding of the information portrayed on this map. The levels of shaking portrayed are subject to change according to analysis, and understanding of peak accelerations from California earthquakes.

## EXPLANATION

- REPORT LAKE (6 3/4) Name of fault/seismic source (moment magnitude of the maximum credible earthquake)
- Fault/seismic source
- Special seismic source (see text for explanation)
- Contour of peak acceleration in fraction of  $g$  ( $g = 980.665 \text{ cm/sec}^2$ )

## NOTES

- This map was prepared for the California Department of Transportation specifically for the design of highway bridges and overpasses, and should be used in conjunction with the accompanying text.
- The faults/seismic sources are generalized from the Fault Map of California and other sources.
- Relative degrees of hazard are not indicated on this map. The return period of the maximum earthquakes varies from about a hundred years on the more active faults (e.g., the San Andreas system) to thousands of years on some of the other faults/seismic sources shown on the map.
- Magnitude estimates of the maximum credible earthquakes presented are subject to change as new supporting data warrant. Improved geologic and seismologic knowledge may refine the methods and procedures for estimating the Maximum Credible Earthquake.
- Peak acceleration attenuation relationship adopted for this map is subject to change as results of new studies warrant. Locations of acceleration contours on this map contain inherent uncertainty and variation. An illustration of such variation with distance from fault for the 0.2g acceleration contour from magnitude 6-7/4 earthquakes is given below:



- Postulated subduction zone events and volcanic earthquake sources were not considered in the preparation of this map. Historic volcano-related earthquake sources were treated here in the same way as tectonic earthquake sources in accordance with current knowledge of geology of California.
- The following factors were not considered in estimated ground shaking on this map:
  - Geometry (dip and width) and style of fault
  - Site (soil and topographic) effects
  - Asperities and barriers of fault
  - Radiation pattern and directivity of fault rupture
  - Duration and spectral content of ground shaking
- The data presented on this map were compiled on a base map having a scale of 1:750,000 from sources of information available as of June, 1989. These data will change as new information is available.
- This map may be subject to future revision as the need arises. Comments on this map are welcome.

