

STATE OF CALIFORNIA
California Geological Survey
Earthquake Zones of Required Investigation
Carrizo Mtn. Quadrangle
2012

PURPOSE OF MAP

THIS MAP SHOWS BOTH ALQUIST-PRIOLO EARTHQUAKE FAULT ZONES AND SEISMIC HAZARD ZONES, IF EVALUATED.

This map shows the location of Alquist-Priolo (AP) Earthquake Fault Zones and Seismic Hazard Zones, collectively referred to here as Earthquake Zones of Required Investigation. The Geographic Information System (GIS) digital files of these regulatory zones released by the California Geological Survey (CGS) are the "Official Maps". GIS files are available at the CGS website www.conservation.ca.gov/cgs. These zones will assist cities and counties in fulfilling their responsibilities for protecting the public from the effects of surface

fault rupture and earthquake-triggered ground failure as required by the AP Earthquake Fault Zoning Act (Public Resources Code Sections 2621-2630) and the Seismic Hazards Mapping Act (Public Resources Code Sections 2690-2699.6). For information regarding the general approach and recommended methods for preparing these zones, see California Geological Survey (CGS) Special Publication 42, *Fault-Rupture Hazard Zones in California*, and Special Publication 118, *Recommended Criteria for Delineating Seismic Hazard Zones in California*.

For information regarding the scope and recommended methods to be used in conducting the required site investigations refer to CGS Special Publication 42, Appendix C: *Guidelines for Evaluating the Hazard of Surface Rupture*, and CGS Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. For a general description of the AP and Seismic Hazards Mapping acts, the zoning programs, and related information, please refer to the website at www.conservation.ca.gov/cgs/.

MAP EXPLANATION

EARTHQUAKE FAULT ZONES

Active Fault Traces
Faults considered to have been active during Holocene time and to have potential for surface rupture; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by fault creep.

ZONES OF REQUIRED INVESTIGATION

Earthquake Fault Zones
Zones are areas delineated as straight-line segments that connect encircled turning points encompassing active faults that constitute a potential hazard to structures from surface faulting or fault creep such that avoidance as defined in Public Resources Code Section 2621.5(a) would be required.

SEISMIC HAZARD ZONES

Liquefaction
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

OVERLAPPING ZONES

Overlap of Earthquake Fault Zone and Liquefaction Zone
Areas that are covered by both Earthquake Fault Zone and Liquefaction Zone. Note: Mitigation methods differ for each zone - AP Act only allows avoidance; Seismic Hazard Mapping Act allows mitigation by engineering/geotechnical design as well as avoidance.

Overlap of Earthquake Fault Zone and Earthquake-Induced Landslide Zone
Areas that are covered by both Earthquake Fault Zone and Earthquake-Induced Landslide Zone. Note: Mitigation methods differ for each zone - AP Act only allows avoidance; Seismic Hazard Mapping Act allows mitigation by engineering/geotechnical design as well as avoidance.

REFERENCES USED TO COMPILE FAULT DATA

- Carrizo Mtn. Quadrangle
- Clark, M.M., 1982. Map showing recently active breaks along the Elsinore and associated faults, California, between Lake Hemshaw and Mexico: U.S. Geological Survey Miscellaneous Investigations Series Map I-1329, 2 sheets, 1:24,000.
- Rymer, M.J., Treiman, J.A., Kendrick, K.J., Lienkaemper, J.J., Weldon, R.J., Bigham, R., Wei, M., Fielding, E.J., Hernandez, J.L., Olson, B.P.E., Irvine, P.J., Knopoff, N., Siolek, R.R., Tong, X., and Stern, M.E., 2011. Triggered surface slips in southern California associated with the 2010 El Mayor-Cuzco, Baja California, Mexico, earthquake: U.S. Geological Survey Open-File Report 2010-1333 and California Geological Survey Special Report 221.
- Smith, D.P., 1979a. Part of the Elsinore fault: California Division of Mines and Geology, Fault Evaluation Report FER-84, 14p., in Fault Evaluation Reports Prepared Under the Alquist-Priolo Earthquake Fault Zoning Act, Region 2 - Southern California California Geological Survey CGS CD 2002-05 (2002).
- Treiman, J.A., 2012. Faults of the Yuha Desert and the southeastern portion of the Elsinore Fault Zone, Imperial County, California: California Geological Survey Fault Evaluation Report FER-254, 54p. (unpublished).

For additional information on faults in this map area, the rationale used for zoning, and additional references consulted, refer to unpublished Fault Evaluation Reports on file at regional offices of CGS.

EARTHQUAKE FAULT ZONES

Delineated in compliance with
Chapter 7.5 Division 2 of the California Public Resources Code
(Alquist-Priolo Earthquake Fault Zoning Act)

CARRIZO MTN. QUADRANGLE

REVISED OFFICIAL MAP

Released: September 21 2012

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STATE GEOLOGIST

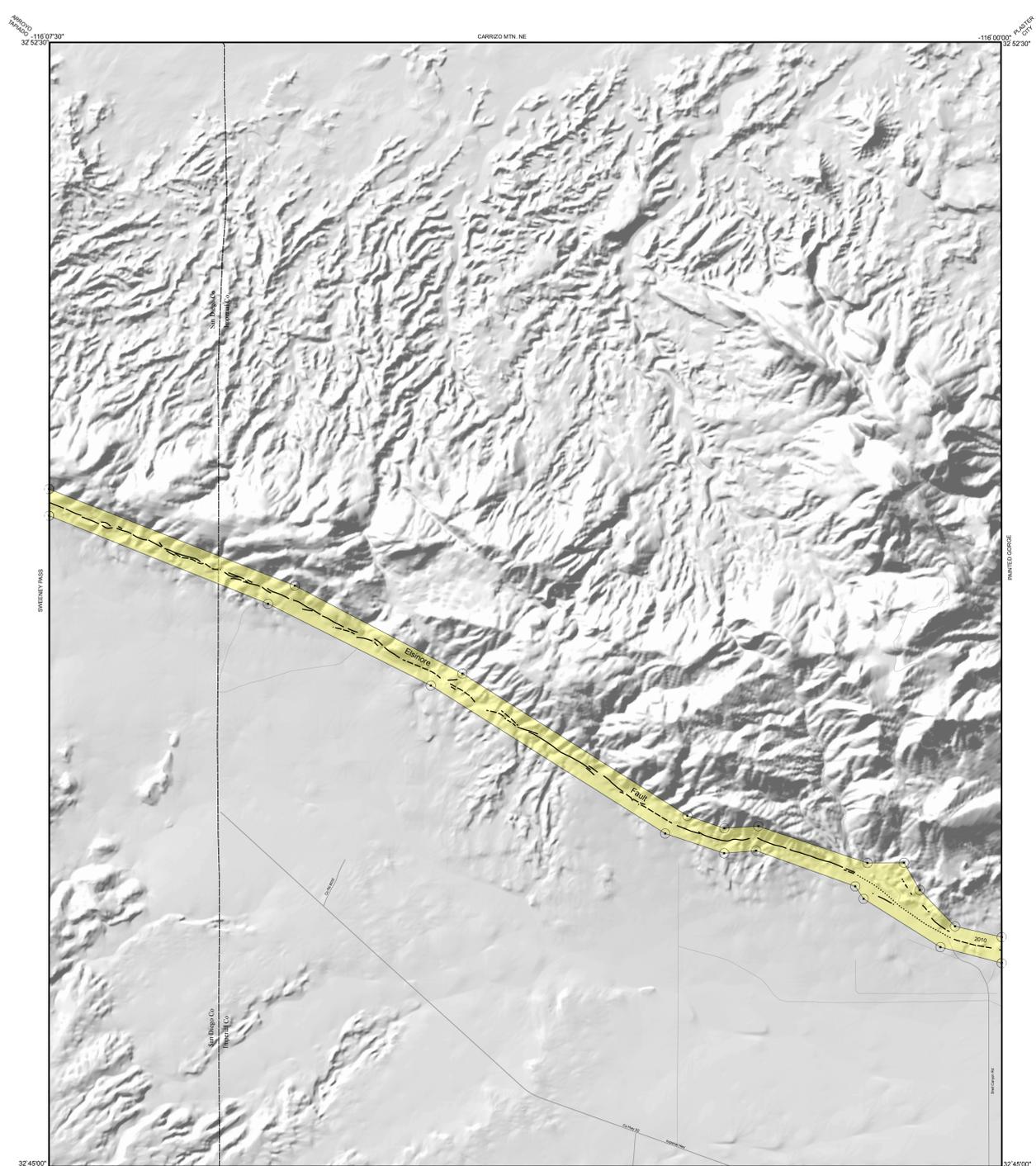
SEISMIC HAZARD ZONES

Delineated in compliance with
Chapter 7.8 Division 2 of the California Public Resources Code
(Seismic Hazards Mapping Act)

CARRIZO MTN. QUADRANGLE

AREA NOT EVALUATED

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Projection: Universal Transverse Mercator, Zone 11 North, GCS North American Datum of 1983
Shaded topographic relief derived from USGS 10 meter NED.
Scale 1:24,000
0 0.25 0.5 1 1.5 2 2.5 Miles
0 1,000 2,000 4,000 6,000 Kilometers
0 0.25 0.5 1 1.5 Kilometers



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