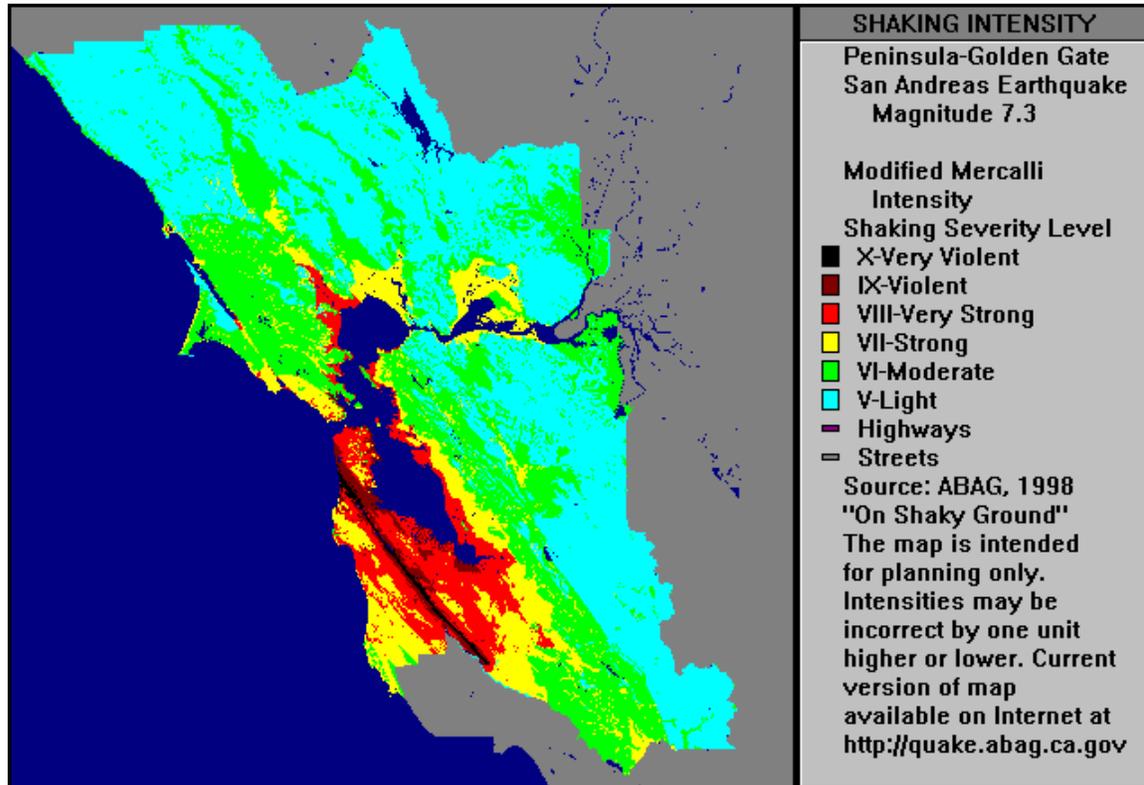


San Andreas Earthquake – Peninsula-Golden Gate Segment -- Impacts

The Scenario

This scenario earthquake is for a magnitude 7.3 earthquake on the Peninsula-Golden Gate segment of the San Andreas fault extending from near Lexington Reservoir in the south to off the Golden Gate.



Distribution of Closures

An earthquake along the Peninsula-Golden Gate segment of the San Andreas fault would cause approximately **828 road closures**. Of these closures, most (43%) are predicted to be within San Francisco. Most of the rest of the total forecasted closures are predicted to be in San Mateo (31%), Santa Clara (14%), and Alameda (7%) counties.

It is important to note the differences in the types closures that we are predicting. In San Francisco, over two thirds of the closures are expected to be generated by building damage; in San Mateo County, almost half of the closures are expected to be due to fault rupture. The existing degree of urbanization and the location of the fault relative to existing land use within each area plays an important role in determining the type of closure within each county.

**TRANSPORTATION SYSTEM CLOSURES DUE TO AN EARTHQUAKE ON
THE PENINSULA-GOLDEN GATE SEGMENT OF THE SAN ANDREAS FAULT**

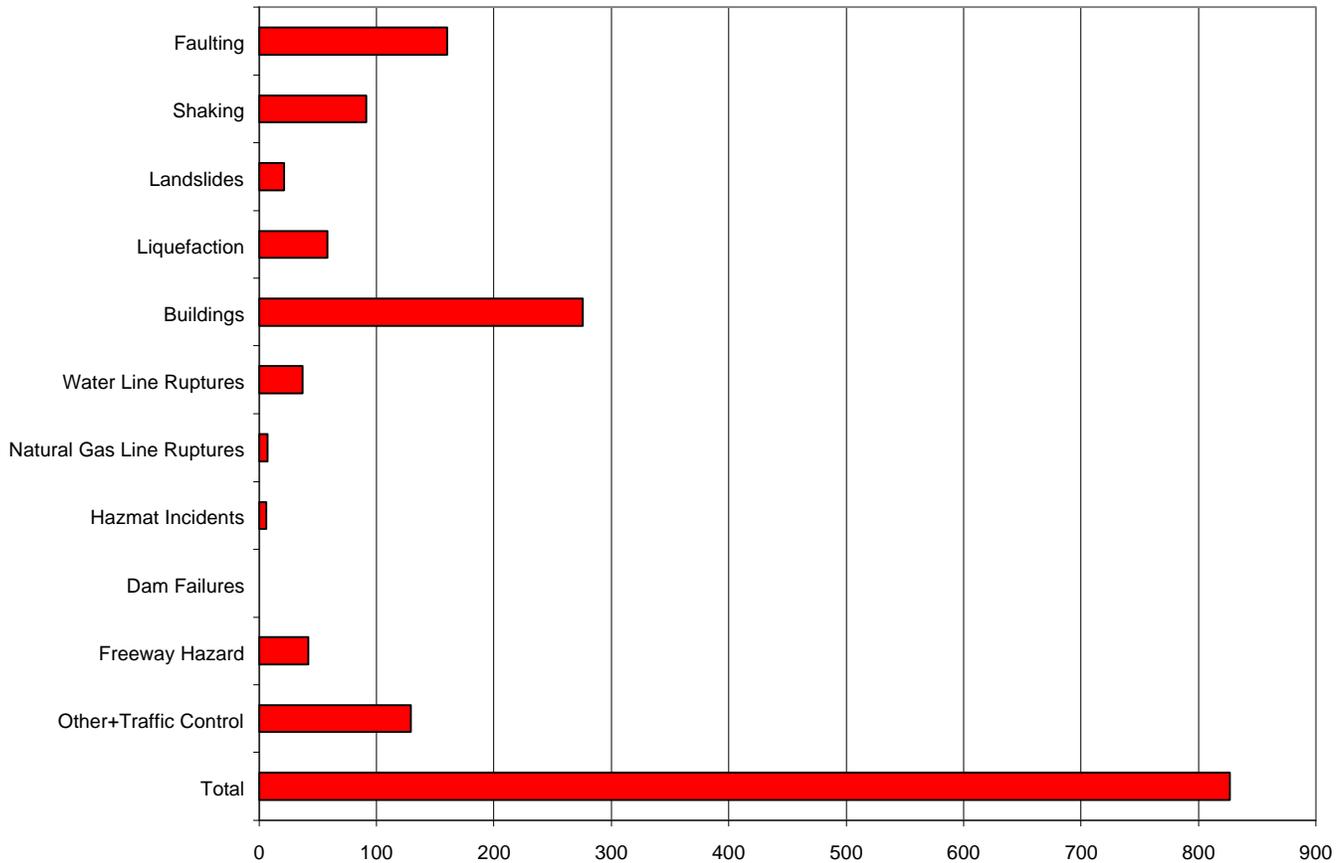
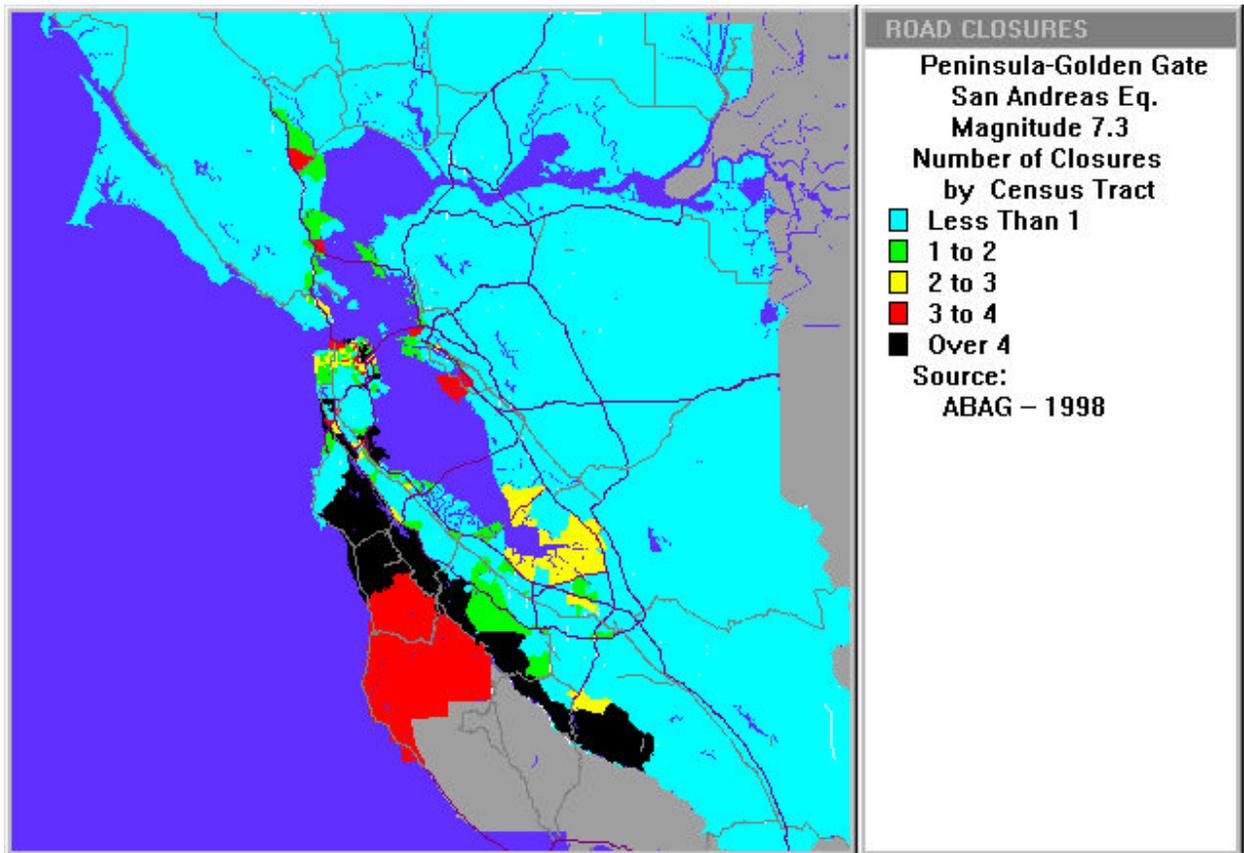


TABLE 98-1: Transportation System Closures by Hazard Type and County

Hazard Type	Alameda	Contra Costa	Marin	Napa	San Francisco	San Mateo	Santa Clara	Solano	Sonoma	TOTAL
Faulting	0	0	0	0	0	125	35	0	0	160
Shaking	17	2	5	0	11	29	25	0	1	91
Landsliding	1	0	1	0	3	12	5	0	0	21
Liquefaction	12	2	10	0	30	2	1	0	1	58
Buildings	6	0	2	0	245	17	7	0	0	276
Water Line Ruptures	2	0	1	0	6	16	12	0	0	37
Natural Gas Line Ruptures	0	0	0	0	1	3	2	0	0	7
Hazmat Incidents	0	0	0	0	1	3	1	0	0	6
Dam Failures	0	0	0	0	0	0	0	0	0	0
Freeway Hazard	8	1	3	0	5	13	11	0	0	42
Other	9	1	4	0	56	41	18	0	1	129
TOTAL	55	7	27	0	358	260	117	0	3	828

MAP OF PREDICTED ROAD CLOSURES



Concentrations of Closures and General Planning Implications

As can be seen from examining the above map, most of the closures are expected to occur in San Francisco and on the west side of the San Mateo peninsula. The rural areas around Half Moon Bay, San Gregorio and Pescadero are expected to experience severe damage. The major access routes for these rural areas are State Routes 1, 9, 35, 84 and 92. It is important to note that these roads are located in heavily impacted areas and are not redundant. Access to some of the rural communities along them is likely to be severely impaired.

Interstate Highway 280 runs parallel to the fault source for this earthquake, and also is likely to be affected

Within San Francisco, most of the disruptions to the local transportation system are expected to occur in landfill areas adjacent to the Bay and in areas of high density residential and commercial buildings. The high urban density of these areas coupled with their soil type make them areas which are highly susceptible to earthquake damage and to disruptions to the local streets.

***Specific Planning
Considerations
Roads***

San Andreas Earthquake – Peninsula-Golden Gate Segment

- ◆ State Routes 1, 9, 35, 84, and 92 are critical access routes for rural communities in western San Mateo and Santa Clara counties. For planning purposes, it should be assumed that all of these routes may have one or more major closures. Routes 1 and 92 will be affected by fault surface rupture, while Routes 37, 85, 101, 237 and 380 may be affected by damage to unretrofitted interchanges.
- ◆ I-280, which runs parallel to the fault source, may also be affected by this earthquake. Many highways and roads near the fault source are also susceptible to landsliding. I-880 near the Oakland Airport may be impacted by an unretrofitted interchange.
- ◆ The local roads in the eastern portions of San Mateo County and along the southern Hwy. 101 corridor will probably only experience scattered road closures. The 101 corridor from the San Francisco Airport north to Marin County is more vulnerable.

Bridges

- ◆ The Golden Gate, Bay, San Mateo, Dumbarton, Richmond and Carquinez Bridges are key links between the heavily impacted areas on the Peninsula and the North and East Bay. For planning purposes, it should be assumed that all of these bridges are closed, at least for a few days. In addition, emergency planners should expect that approaches to these bridges, as well as local roads feeding the bridges, will be affected.
- ◆ In addition, non-retrofitted local roadway bridges on local roads should be considered a weak link along transportation routes.

Airports

- ◆ San Francisco and Oakland International Airports, as well as the Half Moon Bay and Palo Alto airports, are likely to be affected by road closures servicing their facilities. However, the Half Moon Bay Airport services an area that may be isolated except for this facility. Therefore, this airport could serve as a point of delivery for emergency supplies.
- ◆ Alternative air facilities at San Jose International Airport, Moffett Field, and other smaller airports (such as San Carlos) may be more accessible. Therefore, minimally affected airports should plan for increased air and vehicle traffic, both immediately and long term, should the major airports be impacted.

Ports

- ◆ The Ports of Oakland and San Francisco are expected to be affected by road closures after an earthquake. Oakland's facilities for large container ships are non-redundant in the immediate Bay Area. The Port of Kobe, Japan, experienced similar impacts following the Hyogo-Ken Nanbu earthquake in 1995. These facilities may be able to unload ships but not transport cargo out of the impacted area immediately following the earthquake. Other ports, such as Richmond, Redwood City, and Benicia, may not be as affected, but do not have equivalent facilities.
- ◆ Ports in southern California and along the entire west coast may experience increased shipping traffic should these ports be heavily impacted by an earthquake.