

# MAP AND MAP DATABASE OF SUSCEPTIBILITY TO SLOPE FAILURE BY SLIDING AND EARTHFLOW IN THE OAKLAND AREA, CALIFORNIA

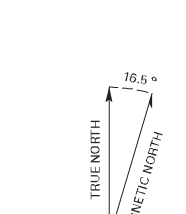
By

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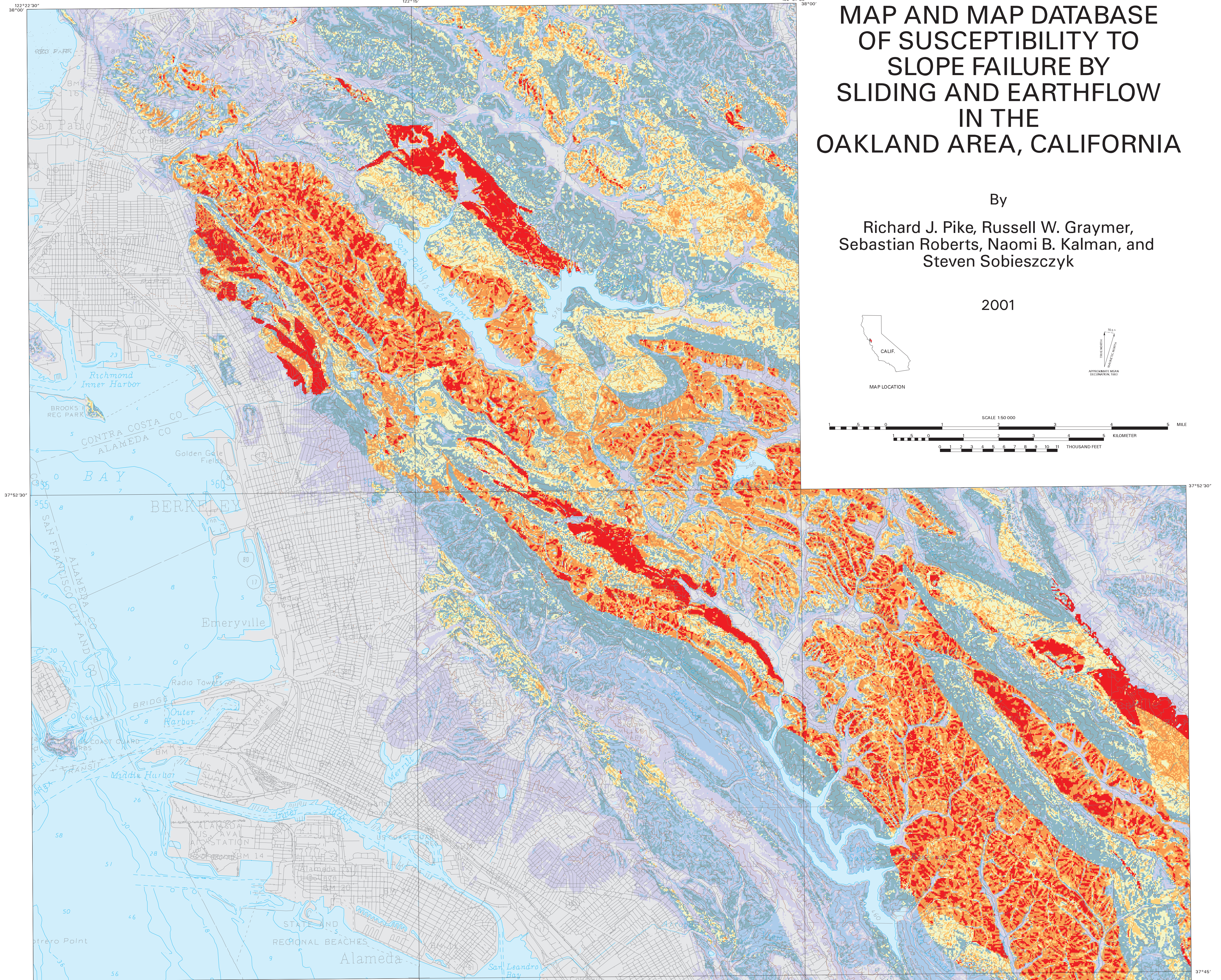
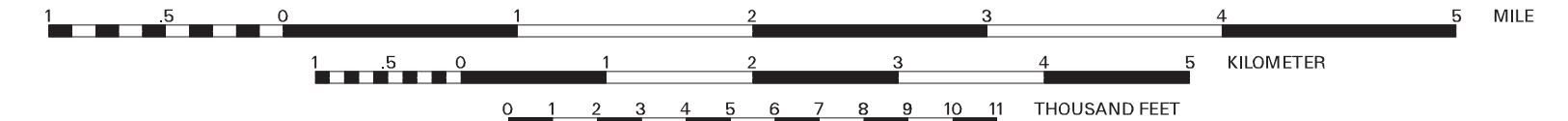
2001



MAP LOCATION



SCALE 1:50,000



## EXPLANATION

MAP SYMBOL	INDEX OF SUSCEPTIBILITY	LIKELIHOOD OF FUTURE LANDSLIDING	UNDEVELOPED LAND	URBAN AND SUBURBAN LAND
[Red]	0.55 and up	HIGHEST		Modification of hillsides and flat land by grading and construction can alter, sometimes dramatically, the likelihood of landsliding. Depending on local conditions, all degrees of landslide likelihood may be present in any developed area.
[Orange]	0.40 - 0.549	↑		
[Yellow-Orange]	0.30 - 0.399			
[Yellow]	0.20 - 0.299			
[Light Green]	0.10 - 0.199			
[Green]	0.05 - 0.099			
[Light Blue]	0.01 - 0.049	↓		
[Blue]	under 0.01	LOWEST		

This map shows the likelihood of landsliding triggered by earthquake or high rainfall in the Oakland area. Likelihood is relative; that is, it predicts no specific number of landslides in a given time period. Nor does this map predict the debris flow hazard, the expected slope failures are by sliding and earthflow. The likelihood of landsliding varies according to an index of susceptibility computed for each 30 meter square in the map area. Values of this index number, shown by eight colors, span a range of likelihood; no further interpretation is implied. The eight levels of likelihood describe natural, unmodified terrain. These levels must be interpreted cautiously in urban or suburban areas, where grading of slopes for construction can alter the natural state of the terrain and the actual likelihood of landsliding may not correspond to the levels shown on this map. The true likelihood of landsliding in any developed area can range from lowest to highest depending on soil, slope, drainage, roads, buildings, and other local factors. This map indicates only the broad scale landslide hazard; a detailed site investigation should precede any development.

Digital data and cartography using ArcInfo 8.0.2 running under Solaris 2.8 on a UNIX workstation.  
This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions. Therefore, scale and proportions may not be true on plots of this map.  
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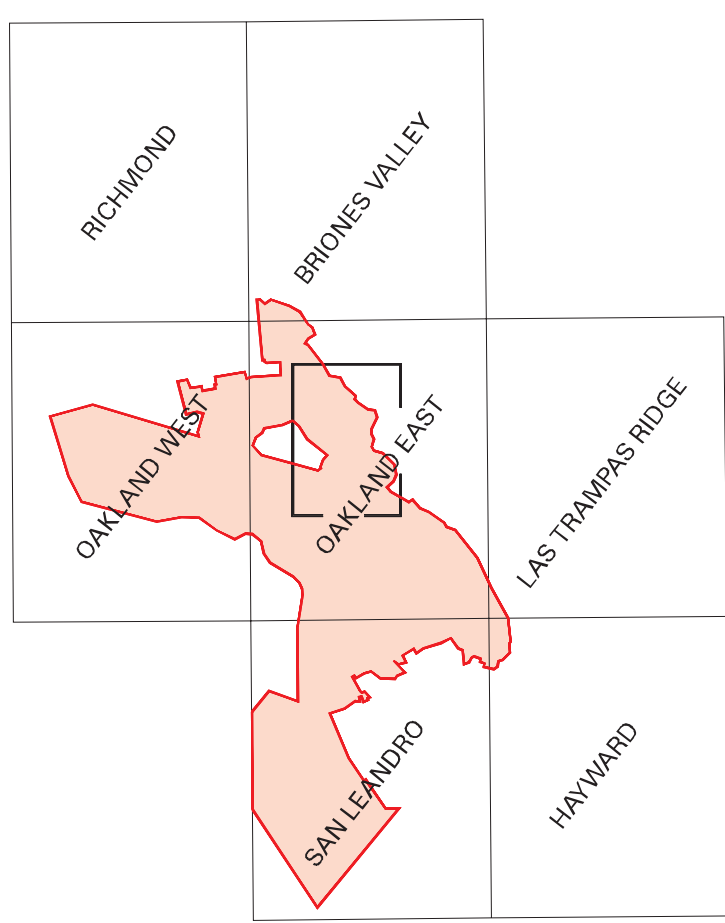
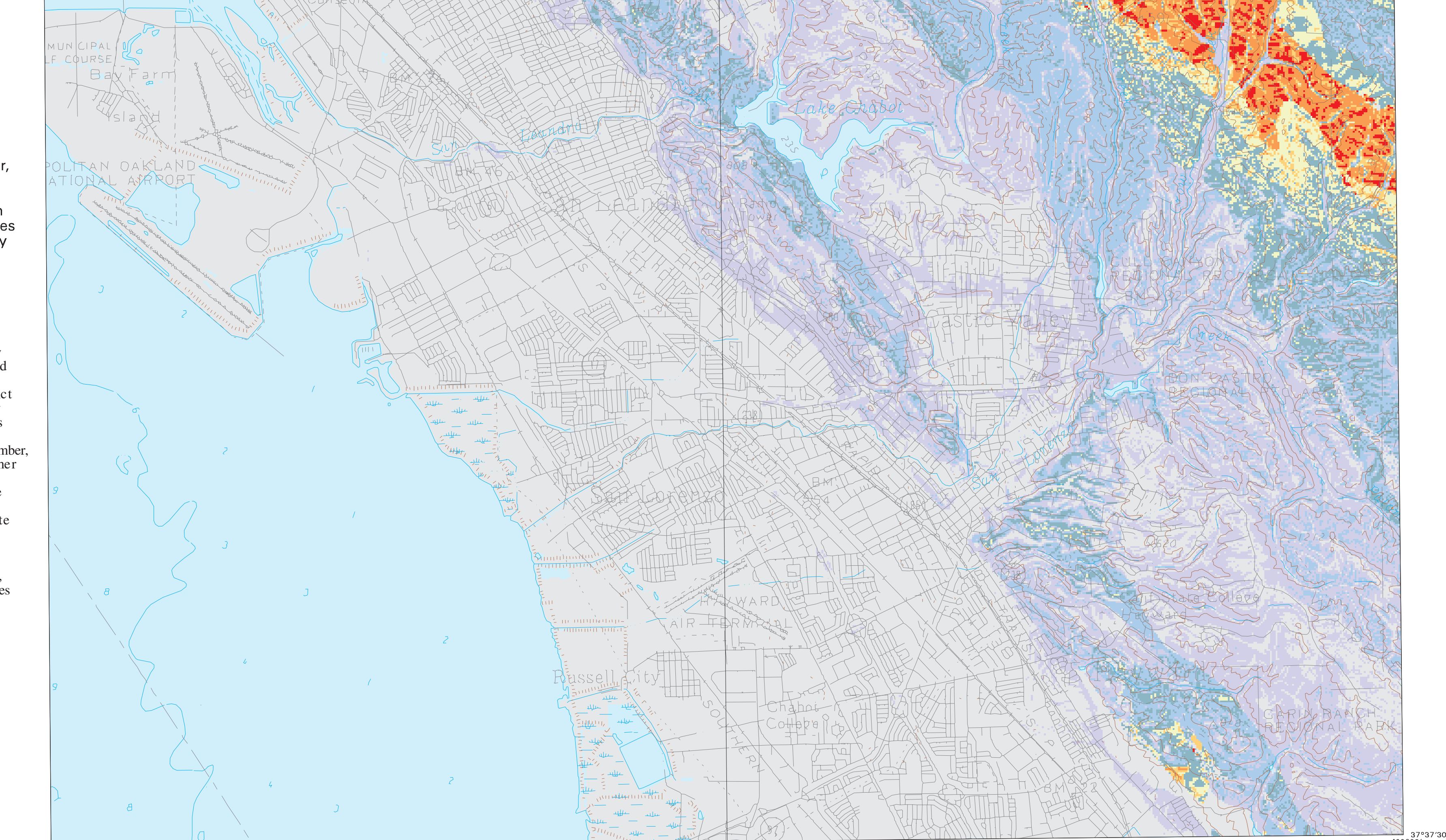


Figure 1. The seven 7.5' quadrangles in this report. Red outline is Oakland city limit. Unshaded area within Oakland East quadrangle is city of Piedmont. Rectangle within Oakland East quadrangle is area shown in figures 2-4.



Base from Aitken, 1997  
Universal Transverse Mercator projection  
Zone 18  
Datum NAD83

Digital cartography by Sebastian Roberts, Naomi Kalman, and Steven Sobieszczyk  
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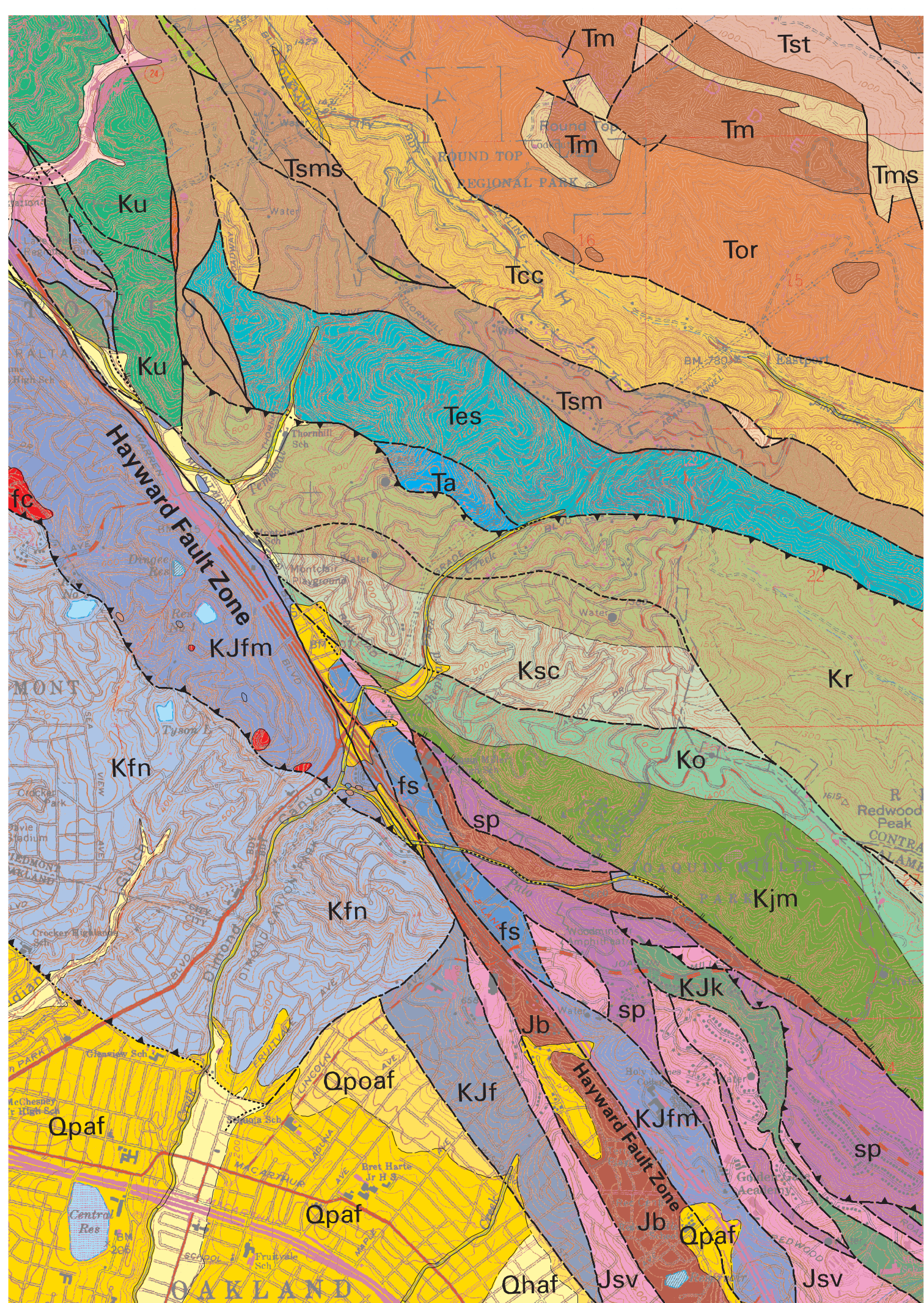


Figure 2. Geologic map, one of the three ingredients of the susceptibility map. The various colors show the extent of different types of bedrock and unconsolidated (loose) materials. This area within the Oakland East quadrangle (see fig. 1) shows the NNW striking Hayward Fault Zone and the geologic complexity of metropolitan Oakland. Geology compiled and mapped by Graymer (2000). Symbols identify geologic units named in table 1. Map area represented is 5.35 km across.

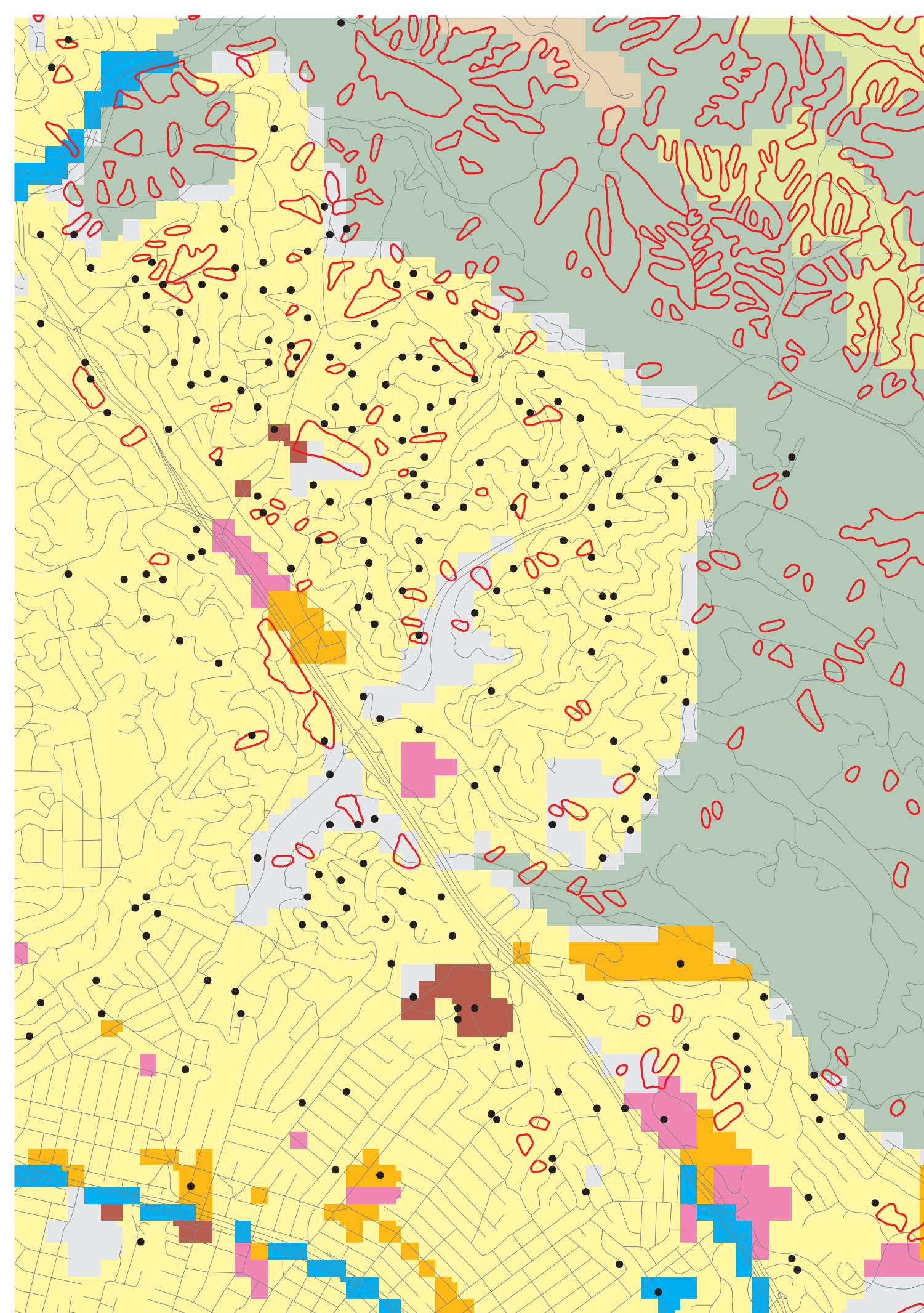


Figure 3. Landslide inventory map, one of the three ingredients of the susceptibility map. Old landslide deposits (red polygons) and locations of post-1970 damaging landslides (black dots) are shown on a colored land use base (100 m square; ABAG, 1996). Green, forest; light green, rangeland; tan, scrub; yellow, residential; orange, commercial; pink, schools; blue, major infrastructure; brown, public institutions; light gray, mixed urban uses and open space. Road network in dark gray. This area is within the Oakland East quadrangle (see fig. 1).

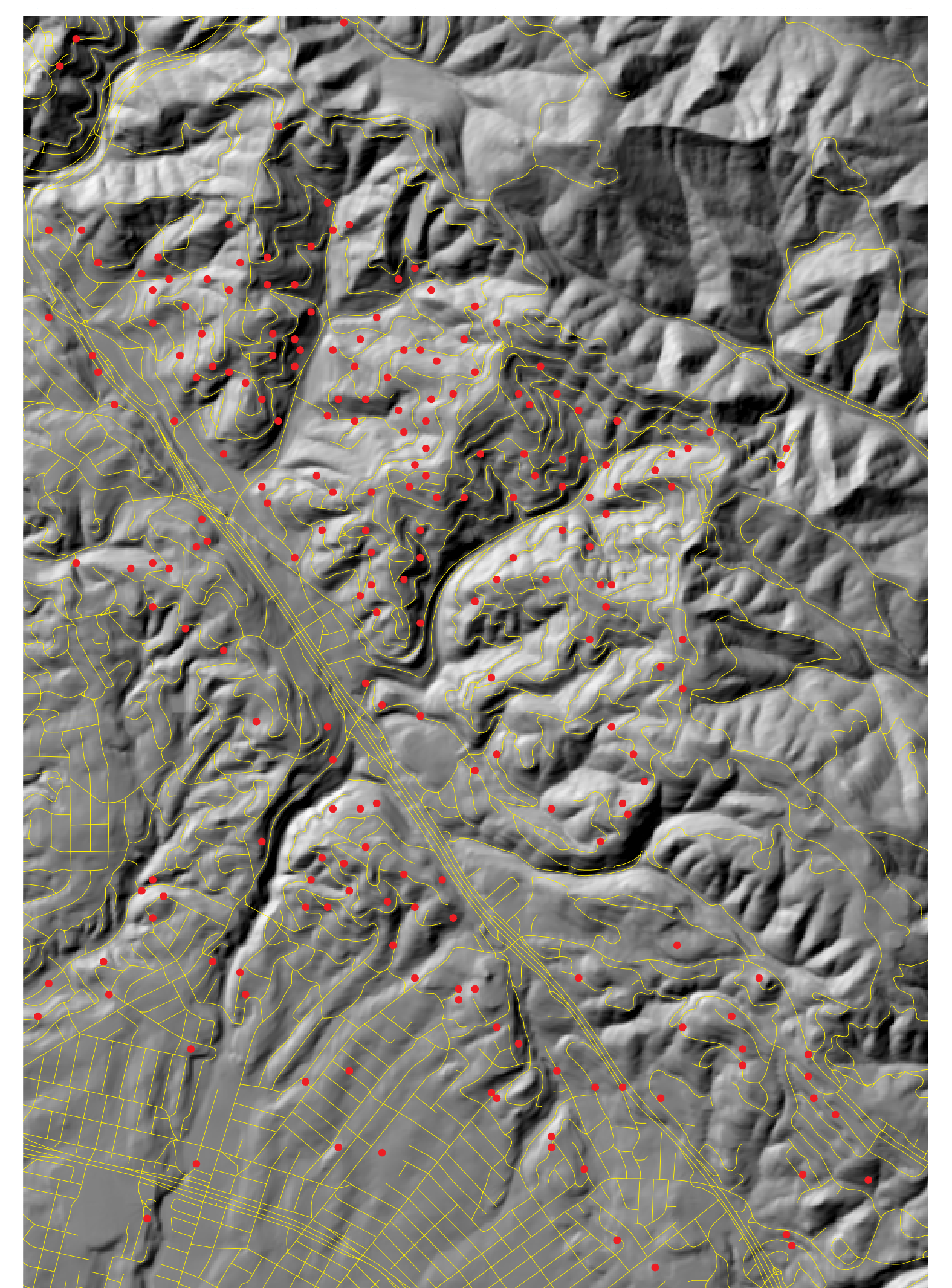


Figure 4. Shape of the land surface, one of the three ingredients of the susceptibility map (the specific measure used in the calculations is slope angle). Shaded relief map (created from 10 m digital elevation model) of topography surveyed in 1947 (revised 1958), showing hilly uplands east of the Hayward Fault Zone and the low hills and gentler terrain to the west. Red dots are the locations of post-1970 damaging landslides shown in fig. 3, on map. Road network in yellow. This area is within the Oakland East quadrangle (see fig. 1).