



# Orange County Fire Authority

[www.ocfa.org](http://www.ocfa.org)

## Mudslides



[www.nws.noaa.gov](http://www.nws.noaa.gov)

<http://www.usgs.gov/>

Stay informed  
and be  
prepared to  
evacuate  
quickly

Stay tuned to  
news, radio, TV,  
or Internet  
sources for  
information!

According to the US Geological Survey, some landslides move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Fatalities, injuries, and property damage from debris flows commonly occur in low-lying areas such as canyon floors and near the mouths of canyons.

### Areas at Risk

#### Areas that are generally prone to landslide hazards:

- On existing old landslides.
- On or at the base of slopes.
- In or at the base of minor drainage hollows.
- At the base or top of an old fill slope.
- At the base or top of a steep cut slope.
- Developed hillsides where leach field septic systems are used
- Areas downslope and downstream of recent wildfire burns
- Areas shown on "soil-slip susceptibility maps" (See [www.usgs.gov](http://www.usgs.gov))

#### Areas that are typically considered safe from landslides:

- On hard, non-jointed bedrock that has not moved in the past.
- On relatively flat-lying areas away from sudden changes in slope angle.
- At the top or along the nose of ridges, set back from the tops of slopes.

**Orange County has a History of Mudslides:** On February 25, 1969, following a series of rainstorms, a devastating mudslide struck the fire station in Silverado Canyon. Flooding caused widespread damage, and the Silverado mudslide caused at least five fatalities.



Silverado Canyon in  
Orange County  
California, February 1969

## What to do and look for during and after heavy rains

### For further information on landslides in your area:

For a detailed analysis, contract with a private consulting company specializing in earth movement.

Contact your State Geologist or Forest Service Hydrologist

Contact Orange County Grading/Geo-Tech Unit.

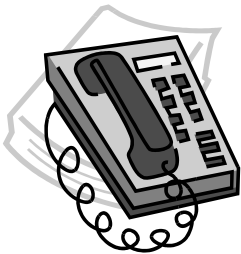
- 714/834-5534
- 949/587-5811

### Information in this bulletin provided by:

*State of California Dept. of Conservation*

*U.S. Geological Survey, National Landslide Information Center*

*National Weather Service*



### Features that might be noticed prior to major landsliding:

- Springs, seeps, or saturated ground in areas that are not typically wet.
- New cracks or unusual bulges in the ground, pavement or sidewalks.
- Soil moving away from foundations.
- Decks and patios tilting and/or moving relative to the main house.
- Tilting or cracking of concrete floors and foundations.
- Broken water lines and other underground utilities.
- Leaning telephone poles, trees, retaining walls or fences
- Offset fence lines.
- Sunken or down-dropped road beds.
- Rapid increase in creek water levels, possibly accompanied by increased turbidity (soil content).
- Sudden decrease in creek water levels, although rain is still falling or just recently stopped.
- Sticking doors and windows, and visible open spaces indicating jambs and frames out of plumb.

### Stay Alert and Stay Awake:

- Residents should stay awake and alert because many debris-flow fatalities occur when people are sleeping.
- During periods of heavy rain, residents should monitor local National Weather Service Flash-Flood advisories, which will contain more detailed information on specific times and places of concern for debris-flow activity.
- Listen for rushing water, cracking trees, or rolling boulders.
- Be prepared to move quickly
- Be especially alert when driving: road cuts and embankments are often susceptible to debris flows and rock falls. Watch for fallen trees.
- Do not attempt to cross flooded areas or drive around barricades.

### What to do if you suspect imminent landslide danger:

- Contact your local fire, police, or public works department.
- Inform affected neighbors
- Evacuate

### Emergency Information Sources

Flash Flood Advisories: [www.nws.noaa.gov](http://www.nws.noaa.gov) (Click on Warnings)

Mudslides: [www.usgs.gov](http://www.usgs.gov) (Click on Newsroom, News Releases)

Or call 800/654-4966