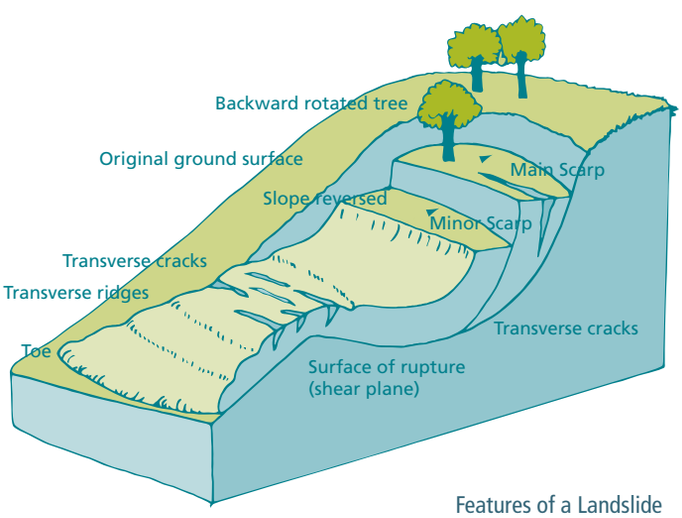
Landslide Hazard

This fact sheet describes hazards and risks associated with landslides in the Wellington Region.

What is a landslide?

A landslide is the movement of rock and soil down a slope. Landslides are also called rock falls, avalanches, mud flows, debris flows or slope failures. They vary in size from a single boulder in a rock fall to huge volumes of rocks and soil that can cover many kilometres. Landslides can occur naturally after rain, floods, earthquakes, volcanoes or even vibrations from thunder. They can be caused or made worse by human activity such as vegetation removal, steep roadside cuttings or leaking water pipes.

A large landslide looks a bit like a snow avalanche. It makes a loud rumbling noise, and can have enough force to wipe out anything in its path. Many landslides happen in remote areas and don't affect people, but others can be a danger to life and property. Fast moving landslides can cause damage and even the slow creep of rock and soil down a slope can be destructive over time.



Features of a Landslide

Too much water

A small amount of rain dampens the soil and helps particles stick to each other. Too much rain can cause the soil particles to lose contact with each other. Then the heavy waterlogged soil starts to move. Small surface slips after rainstorms are common in the Wellington Region.

Earthquake!

Ground shaking during an earthquake can cause steep hills to fail. An earthquake greater than magnitude 5 on any of the major active faults in the Wellington Region could trigger landslides. The extent of slope failures would be greater if the earthquake followed wet weather.

Where do landslides occur in the Wellington Region?

The Region has a rugged landscape with many homes built on hillsides that are vulnerable to landslides. Many roads go through steep gorges that are landslide-prone. A storm in 1976 caused widespread landslides in Wellington City and the Hutt Valley. One landslide took out 3 houses in Ngahere St, Stokes Valley. An old landslide triggered by the 1855 Wairarapa earthquake can be seen on the western side of the Hutt motorway, just north of the BP service station. The 1855 earthquake also triggered a very large landslide that temporarily blocked the Ruamahanga River and formed the Hidden Lakes at Kopuaranga, north of Masterton.

The areas of highest risk from large landslides in the Wellington Region are:

- Steep slopes (greater than 35°), such as gorges and coastal cliffs where rock falls are common.
- Slopes that have been altered, such as cuttings along roads and quarries, or where vegetation has been removed.
- Underlying weathered or shattered rocks that weaken slopes.
- Active landslides or old landslides that might start moving again.

What can you do?

1. Find out if there have been landslides in your area and where they might happen again.
2. Check for signs that the ground might be moving:
   - Sticking doors and windows, and gaps where frames are not fitting properly.
   - Decks and verandas tilting or moving away from the main house.
   - New cracks or strange bulges in the ground, roads or footpaths.
   - Leaning trees, retaining walls, or fences.
   - Springs, seeps, or waterlogged ground in areas that are not usually wet.
3. Have an emergency evacuation plan and a kit of emergency supplies for your family.

What should you do in a landslide?

If you think a landslide is about to happen:

1. Evacuate and take your emergency kit and important documents.
2. Contact your local fire, police, or civil defence emergency management officer.
3. Warn neighbours who might be affected.
4. Do not return until the site has been inspected.

For more information, check the Yellow Pages or contact a civil defence emergency management advisor at your local council.

Further reading

Brabhaharan, P. Hancox, G.T. Perrin, N.D. Dellow, G.D. 1994. *Earthquake Induced Slope Failure Hazard Study, Wellington Region.* Study areas for Wellington City, Hutt Valley, Porirua and Kapiti. View at Greater Wellington.

Hicks, G. & Campbell, H. 1998. *Awesome forces: the natural hazards that threaten New Zealand.* Wellington: Te Papa Press.

Kingsbury, P. A. & Hastie, W.J. 1995. *Seismic Hazard Map Series: Earthquake Induced Slope Failure.* Map sheets and notes for Wellington City, Porirua, Hutt Valley and Kapiti. View or purchase at Greater Wellington.

CONTACTS AND INFORMATION

Greater Wellington
Regional Council
Wellington Office
P O Box 11646
T 04 384 5708
F 04 385 6960
W www.gw.govt.nz