Landslide susceptibility in fine-grained sediments

- Slope less than 5 percent.
- Slope equal to or greater than 5 percent.

Landslide susceptibility in other sediments

- Slope less than 5 percent.
- Slope equal to or greater than 5 percent.

Slope

Slope is the primary driving force for landslides and earth movements. Slope is defined as the inclined surface of the land. The steeper the slope, the larger the shear stress produced by the weight of the materials and the more susceptible the slope is to failure. For this map, a slope of 5% or greater is considered a risk factor.

Slope aspect

Slope aspect is the direction toward which the surface of the soil faces. South-facing slopes undergo more extensive freeze-thaw cycles in winter months than slopes with other aspects. Repeated freeze-thaw cycles preferentially reduce the shear strength of the shallow soil material and increase the likelihood of shallow soil slumps. Ultimately, small movements may steepen the slope and lead to larger slope failures. For this map, a slope aspect facing between South 45° East and South 45° West is considered an additional risk factor.

Curvature (concave shape)

Hill shape influences landslides by its effects on soil and water distribution. Concave surface topography will tend to concentrate the flow of surface water and ground water, raising ground-water pore pressures and reducing the shear strength of the soil. As a result, concave slopes are more susceptible to failure than straight slopes or convex slopes. For this map, a concave shape is considered an additional risk factor.

Local relief (slope height)

As the thickness of the potential landslide block increases, the shear stress on the lower section of the block increases and the block (or slope) is more susceptible to failure. As a consequence, thicker sections of surficial materials will be more susceptible to failure and possibly deeper and larger failures. For this map, local relief greater than 6 meters (approximately 20 feet) is considered an additional risk factor.

Sources of information used to make this map

- Topographic maps were used to support the interpretation and field investigations.
- Extended data layers were used to support the interpretation and field investigations.

Limitations of the data

This map may be used to identify areas that are susceptible to landslide activity. Based on the risk factor analysis, if a landslide or earth movement does occur, it is very likely to be in the areas containing one or more of the geomorphic risk factors shown on this map, but it is not possible at this time to predict whether a landslide or earth movement will occur.

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