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Slides on Slopes

By *Sophie Braccini*

With the rainy season seriously upon us and dramatic news coming from countries where rain is causing severe problems, we asked the three Lamorinda Public Works Departments to talk about the effect of rain on our own hills. All three are on guard and will intervene any time a road is impacted. On private properties, it is the sole responsibility of the homeowners to organize slide prevention and cleanup.

"Since Moraga is built in the hills, we have a number of areas that are affected by slides," says Jill Mercurio, Moraga Public Work Director and Town Engineer. "During the huge storms we had five years ago, many of our hillsides slipped. The ones that tend to cause us the most ongoing maintenance are Bollinger Canyon Road, Camino Pablo, and Rheem Boulevard." Mercurio reports that so far this year Bollinger Canyon has had four slides that have each resulted in 50-100 cubic yards of rock at the base of the cliff and/or into the road. On site, the crews have installed the "sacrificial fence," an inexpensive intermediary solution that is there to retain the rocks, but will ultimately fail and need replacement.

Orinda's Director of Public Works and Engineering Services, Charles Swanson, reports that there have been no serious slides in Orinda in the last two years. "There are many areas throughout the city with homes and roads that have been constructed on very steep slopes that we pay a little more attention to when it rains," acknowledges Swanson. Past slide sites include Zander Drive, Canon Drive and La Espiral.

According to Lafayette Public Works Services Manager Ron Lefler, there haven't been slides in Lafayette since the storms of December, 1995 and January, 1996. "There were two significant slides within City rights-of-way during those storms; neither slide damaged private or public property," he says. "Pleasant Hill Road was temporarily blocked in the south bound direction for a short period of time. After the initial cleanup, temporary measures were taken to control and prevent additional sliding. The slide areas were monitored during the remainder of the rainy season. The slide areas were repaired the following summer."

The financial impact of sliding varies depending on the number of incidents. Mercurio indicates that each slide costs her department between \$3,000 and \$5,000, and that the average yearly cost is \$25,000. The responsibility for the slide falls on whoever owns the land. "If a slide damages a public road the city will respond and take appropriate action to either get the road open or close the road until a plan can be formulated," says Swanson, "Generally a slide will impact the road and the properties above it and below it. Responsibility will usually be determined after a geotechnical analysis has been performed."

Knowing the geological conditions of a terrain is key to evaluating the risk of slide. For example, the recurrent erosion in Bollinger Canyon happens because the cliff has alternating layers of sandstone and shale. The shale weathers at a different rate than the harder sandstone layers. While the sandstone retains its structure, a layer of shale behind it may weather away and undermine the sandstone, causing that portion to slip off. This type of slope failure typically results in moderately small areas of break-off at a time. "Since my crews are aware of this, we do monitor this roadway for debris on a regular basis, as do the police, and the residents are very helpful in calling the Town if they notice it first," says Mercurio.

Warning signs: Watch for rocks and other debris coming down off a hillside. Look for cracks in a road surface that form a semi-circle.

In the event of a slide, contact:

Lafayette: Public Works hotline, 299-3259, during business hours. After hours or in emergencies call police dispatch at 284-5010.

Moraga: 888-7026 during business hours; after hours call police dispatch, 284-2479.

Orinda: Call 253-4231 during business hours; after hours contact the Sheriff's Department at 646-2441.

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