

## Storms leave their mark on the mountains and Highway 330



Rodrigo Peña / Special to The Press-Enterprise

Caltrans workers are calling the wipeout of a stretch of Highway 330 "The Big Slide." While the road washed out in December storms, the culvert beneath the highway didn't fail, says Caltrans spokesman Darin Cooke, above. "You can see the pipe. It's still there."

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The decision to close Highway 330 didn't take Henry Aldama long.

The Caltrans maintenance crew supervisor for Running Springs had been clearing debris off the mountain road for more than six hours on Dec. 22. By 4:30 a.m., his crew had been up and down the road, from Highland to the top of the mountain, clearing culverts and moving mud in the dark to keep the road passable.

The storms kept coming, as they had for four straight days. The constant beating of the rain on the road was broken by the sound of water pushing debris down the hillsides into the canyon below. A wet-earth smell permeated the air.

Aldama was two hours away from handing off the road to another crew, but he knew the 330 wasn't going to last that long.

"It was just too much," Aldama said. "There was nothing we could do. It just kept sliding."

Fearing someone would get hurt, he made the call to shut it down.

It was the right decision. Within hours, a 40-foot section of the highway had crumbled down the mountainside toward City Creek.

Officials remain in awe of what water can do. An estimated 40,000 cubic yards of mountain slid into the canyon -- the weight of nearly 13,000 Chevy Tahoe SUVs. Caltrans workers have taken to calling the spot "The Big Slide."

"It's a powerful, powerful thing," said Caltrans maintenance supervisor Mitch Martin.

Water can move mountains, he jokes.

Caltrans and a private contractor, Skanska USA, will spend much of 2011 putting back what five days of rain brought down.

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Running Springs waits, again

Workers started clearing the collapsed mountainside in late December. Rebuilding the slope will begin after a series of tests, plans and approvals are completed.

No matter how many repairs and improvements are done, Highway 330 -- a lifeline for the mountains -- always is at the mercy of pounding storms and unstable ground.

## RAINING DOWN

Aldama said he had never seen storms sit on the mountains like they did in December. Above and below the 330, the mountainsides were falling away in periodic crashes through the night of Dec. 21.

After closing the highway before dawn that Wednesday, Aldama sent his men from the top of the 330 near Running Springs back to their base at Dry Creek Highway Maintenance Station, east of town on Highway 18. His workers at the base of the mountain near Highland would have to circle around through San Bernardino and use Highway 18, past Crestline and through Rimforest and Running Springs to get to the maintenance station, a nearly 30-mile detour.

Aldama stayed at Dry Creek until the last person returned. Then, weary, he checked into a hotel rather than make his way home down the mountain.

By the time the sun rose, all but one of Caltrans' daytime workers on the mountain were clearing Highway 18. At least one road to the mountain communities had to stay open, and that's where crews could make a stand.

When the skies parted briefly in the late morning, Martin, Aldama's boss, set off south on the 330 from Running Springs. The road was ravaged, blocked by mounds of rock and dirt.

"I couldn't believe it," Martin said.

Two places would need major repairs. But he hadn't seen the worst yet.

Rounding a curve, Martin stopped. Where the road should have been, the mountain simply was gone. In the valley below, in a twisted jumble of earth and rock, pieces of asphalt and metal drainage pipe jutted from the mud.

## TOO MUCH, TOO FAST

Contrary to rumors swirling among mountain residents, the culvert beneath the highway didn't fail at The Big Slide.

"You can see the pipe," Caltrans spokesman Darin Cooke said on a tour of the construction site last month. He pointed up the scarred slope, to a spot just below where an excavator was lifting another load of dirt. "It's still there."

No one saw the collapse, but Caltrans officials said the most likely cause was simply too much water, too quickly.

"It probably was washing over the road, running off the side and down the slope," said Ray Wolfe, Caltrans District 8 director. "The slope probably got so saturated it slid, and took my road with it."

Wolfe and others at Caltrans were left with an engineering challenge: how best to put the 330 back together.

The prospects for an easy fix were remote. Wolfe, a bridge expert, and others feared that the hillside was unsteady; the safest thing might be to put a bridge where the mountain collapsed.

Doing so would have required boring into the mountain, setting firm foundations, and then spanning the chasm carved by water. Wolfe told elected officials in San Bernardino County that construction could take two years.

That worst case wasn't necessary. Geologists took core samples and found the solid rock needed as foundation for rebuilding the slope.

## CONSTRUCTIVE DESTRUCTION

In the first step, crews need to finish what the rains started and tear down the mountainside.

Skanska, contracted for two of the three projects needed to put the 330 back together, has spent the past eight weeks removing dirt, rocks and debris that slid downhill, taking the road with it.

Eventually crews will expose a 50-foot square of bedrock at the base of the mountain. That foundation is crucial to safely rebuilding the slope, which must be densely packed so it will not slide or collapse in the future, said Brian Hinman, the Caltrans senior transportation engineer overseeing the geology of the construction.

The mountain is being hauled away by the truckload so the good soil can be separated from the rocks, twisted drainage pipe and asphalt chunks. At turnouts along the 330, house-sized mounds of dirt sit ready to be sifted and stored.

Wolfe said about 70,000 cubic yards of dirt, rocks and debris will be removed, enough to cover a football field 40 feet deep.

Much of that soil will go back on the hillside. Trucks will haul it back up the road and dump it into the chasm. Using temporary dirt roads carved into the slopes, heavy equipment will compact each load, one on top of the other, to rebuild the mountain foot by foot. When the compacted earth lines up with existing highway, the missing section will be rebuilt.

Hinman, a career transportation engineer and geologist, said the technique is widely used to rebuild hillsides to prevent slopes from collapsing.

"I can tell you, this one will not fail again," Hinman said.

## ROAD TO RUIN

But the road, with its tight turns bordered by high rock walls and steep drops, always will pose a problem for mountain residents, emergency personnel and Caltrans.

Mike Olsen, battalion chief for the Running Springs Fire Department, just has to think back to December, when firefighters were sent to rescue motorists trapped between rockslides on the highway.

Olsen said he feels lucky his crew's 40,000-pound firetruck didn't break through the crumbling asphalt and soggy soil and go tumbling down the mountain.

"It was really hairy up there," Olsen said.

At the U.S. Forest Service station about six miles north of Highland, Olsen's crew and Linares, the Caltrans worker, came across drivers who were waiting out the storm.

Initially, they left behind one of the drivers, who reiterated his intention to stay put. But when Olsen saw the condition of the road, he and the crew returned and told the driver to follow them down.

Eventually, they reached a point where rocks and mud had covered the road. The slide had pinned a pickup truck to the guardrail.

Olsen climbed over the muck and debris, fearing the driver might be inside and injured, or worse, but the truck was empty.

Later, Olsen found out the driver made a run for it in the pouring rain, after a rock slammed into his windshield.

"That must have been wild," Olsen said.

Anyone in the mountains can tell you the 330 can be a wild ride. They'll also tell you they're certain it will happen again.

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