

Brine on Tahoe roads the new norm for storms



Brine leaves streaks on the road Jan. 1 at the end of North Upper Truckee Road on the South Shore. Photo/John Adamski

By Kathryn Reed

While there hasn't been much snow to clear from roads this winter, crews in the Lake Tahoe Basin have been busy putting brine on streets when the threat of weather has been in the forecast.

This salt-water solution that is designed to prevent icing on the roads leaves a white film behind. It's been more noticeable this season than in the past because more entities are using it.

Nevada Department of Transportation was one of the first

agencies to go in this direction. They have more issues with snow storage so the less snow that sticks to the road, the less that has to be cleared.

“In the Tahoe basin we’ve done a lot of changes to winter maintenance,” NDOT spokeswoman Meg Ragonese told *Lake Tahoe News*. “We reduced the use of sand for winter road traction quite a bit since the 1990s. In the Tahoe basin specifically, NDOT has reduced winter road maintenance-related sand use from 4,300 cubic yards per year in 1990 to approximately 850 cubic yards, and reduced salt usage by 70 percent.”

Brine is a preventative treatment. If cars pack the snow down before a plow gets to it, the snow is released easier and doesn’t form a thick layer of ice.

Brine allows agencies to use less sand and salt, two substances that are deemed harmful for the environment.



NDOT street sweepers strive to remove salt and sand from roads within four days after a storm. Photo/Kathryn Reed

Through the years road crews have experimented with different products to keep the roads safe.

“When the snow begins, the brine is also mixed with a 75 percent sand and 25 percent salt combination to produce a wetter, heavier sand that will not as readily be thrown off roadway surfaces,” Ragonese said.

Agencies say improved equipment, mixture of products and weather forecasting allows for better application of all materials, and less need for the more harmful products.

“Brine would go on before a storm, sand during storm for traction, then salt or brine after to help melting process,” Steve Nelson with Caltrans told *Lake Tahoe News*. “Salt brine treated highways and bridges will resist frost for several days per application, reducing the time chain controls are in effect and the amount of traction sand used, significantly reducing chain control and sweeper employees’ exposure to moving traffic. Salt brine anti-icing techniques save time, are cost-effective and safer for workers and motorists, and they are more environmentally friendly than other methods.”

This report shows the increased use in brine for Caltrans’ Tahoe City and South Lake Tahoe maintenance yards. Brine is typically applied by tanker trucks at a rate of 50 gallons per lane mile.

When salt is applied, its rate is 200 to 500 pounds per lane mile, according to Caltrans. Caltrans went from averaging about 16,000 tons of sand in the basin each winter in the 1990s to 2,953 tons in 2012-13. Here is a chart of the amount of sand used from 1993-94 through 2012-13.

Tahoe Regional Planning Agency officials said they have no policy for what is applied to roads. Lahontan Regional Water Control Board takes a big interest on the California side. This is because they care about ends up in the lake.

Lauri Kemper with Lahontan said her agency supports the use of brine. Salt does not adversely affect lake clarity. But scientists don’t know what the affect on aquatic life is.

While road crews don’t want to hurt the lake or trees, the whole purpose of putting anything on the roadway is to help drivers.

“Public health and safety trumps everything,” Brendan Ferry, principal planner with El Dorado County, told *Lake Tahoe News*.

His people must balance safety with environmental concerns when it comes to deciding what goes on the roads.

Two years ago the county switched from using volcanic rock to decomposed granite. That switch has meant a 90 percent reduction – or 50,000 pounds – in fine particles reaching the lake, Ferry said.



South Lake Tahoe aims to have sweepers out two days after a storm. Photo/Kathryn Reed

With granite being a native material, if it does reach the lake, it isn't as detrimental as the coarser, foreign volcanic material.

“We focus a lot on roadway maintenance strategies. It's one of the bigger things that is linked to Lake Tahoe's clarity loss – ultra fine particles,” Ferry said. “Roadway abrasives are a primary source of those types of materials.”

The abrasives are used to help with traction. The county uses brine – which is usually a 27 percent salt, 73 percent water solution – on primary roads like Pioneer Trail and North Upper Truckee.

"We use that so we don't need to use as many abrasives," Ferry explained.

For years salt was applied to roads in and around the basin. But as the trees along the highways became tinged with a rust color it was determined the salt was the cause. It was distributed in hoppers, with much of the product ending up on the edge of the road and not having any affect on making the driving surface safer.

Then volcanic rock started to be used. Nearly everyone has followed El Dorado County's lead and is using decomposed granite.

South Lake Tahoe doesn't use brine because it has not seen the need nor does it have the equipment to do so. The city's two sander trucks come out to drop Washoe sand at key intersections, routes to Barton Hospital and schools during storms.

The city is shopping for a sander truck that will likely cost about \$350,000. It is a multiuse vehicle.

"The new one will have computerized distribution system. It will calculate how much sand to put down and where," Jim Marino, assistant public works director, told *Lake Tahoe News*. "From the seat of the vehicle you will know how much you've put down. Two days later we'll determine how much is picked up from an intersection."

That's the other environmental component. As part of Lahontan's regulations, jurisdictions must report how much abrasive material is put down and then how much is collected either from sweeping or by cleaning storm drains. This way everyone knows how much was left in the environment or tracked into garages via tires.