

Background

Region 1

Q&A: ODOT Winter Preparations & Operations—Portland



1. What type of bad weather equipment does ODOT have (# of snowplows, gravel droppers, etc)?

In the Portland metro area, including Mount Hood, I-84 to Hood River, U.S. 30 through Clatskanie and the Sunset Highway past Manning: 120 maintenance personnel (plus additional others who used to be in maintenance and still volunteer, when needed!); 50+ dump trucks mounted with (a) snow plow; or (b) sand spreader; or (c) chemical de-icing agent spreader; or (d) some combination of the other three. ODOT also has about a half dozen road graders, used in the winter to plow snow and remove ice. And, to nitpick a point: ODOT doesn't spread gravel; we spread sand. Please see #3 & footnote!

2. What roads create the most problems for drivers when the weather is icy or snowy?

In the Portland metro area, four sections of roadway traditionally see the most trouble from ice, snow and extreme cold:

- a. **Sylvan Hill on U.S. 26**, both directions—but people have more trouble going uphill;
- b. **Breeze Hill on northbound Interstate 5**—the area where there’s an extra truck lane from Oregon 99W up and over the hill toward that long straight-away before you get into the Terwilliger Curves; and
- c. **The Terwilliger Curves on Interstate 5**, both directions, because people DON'T SLOW DOWN! Some people just ignore the speed limit 50 signs.
- d. **Bridges and on-ramps, off-ramps and transition ramps** ice up more quickly than other segments of roadway because they’re more exposed. In the Portland area, the traditional trouble spots are the bridges and bridge approaches on I-5, I-405 and I-205:
 - ◆ Marquam Bridge
 - ◆ Fremont Bridge
 - ◆ Interstate Bridges
 - ◆ Glenn Jackson Bridge



3. How many tons of gravel go down on nights with snow or ice in the forecast?



In the Portland metro area, it’s not gravel, but sanding material—or sand. That’s not ODOT playing with words; that’s the technical quarry-industry definition. Its size is in-between beach sand and gravel, called “quarter/ten.”† ODOT only rarely spreads sanding material before an expected snowstorm. It’ll just be blown away—wasted. We will spread anti-icing chemicals ahead of expected snowstorms, ice storms or very cold weather. We spread sanding material after the snow falls.

† “Quarter/ten” is sanding material that meets the following constraints:

- ▶ A minimum of 85% of the material must pass through a 3/8" opening; AND
- ▶ No more than 2% can pass a #10 sieve—a square mesh grid with 10 openings per inch.

Coarse sand is smaller—it must pass through a 1/8" opening. And gravel is bigger.

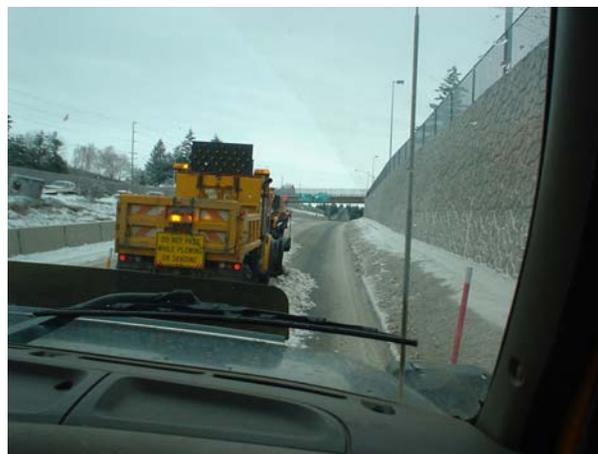
4. How about gallons of de-icer?

In most instances, ODOT applies winter maintenance chemicals at an average rate of **30 gallons/lane mile**, which is about **one ounce per square yard on the road**. After applying the chemical, it takes very little additional precipitation to dilute the chemical completely. So applying the chemicals while it's raining is virtually useless—it's diluted very quickly.

Also, ODOT uses the least amount of chemical necessary to maintain the road: we apply chemicals and sanding material primarily on **hills, curves, structures and known trouble spots**. So, when driving, it's important to drive at speeds appropriate to the conditions, especially in **straight sections that may not be treated**.

ODOT both “anti-ices” and “de-ices”—the difference being **when** we do it. Spreading chemicals defensively before the storm is anti-icing; spreading chemicals on top of already-formed ice is de-icing. Obviously, we have to do both to be effective.

In either case, the objective is to break or prevent the bond between the ice and the pavement.



5. Why not use salt?

Since the January 2004 storms, ODOT has received many questions about salt. Oregon “de-ices:”

- ◆ **Magnesium chloride** is less corrosive and better for the environment than rock salt; because it's a salt compound, it includes a rust inhibitor to protect vehicles
- ◆ **Calcium magnesium acetate** is a salt-free melting agent made from dolomitic limestone and acetic acid (the main compound in vinegar), with little impact on plants or animals

Oregon does not use rock salt because it is corrosive to vehicles and reinforcing steel in concrete. Also, chloride in any amount is toxic to some endangered fish species found in Oregon's waterways. In other states, salt is sometimes regarded as a panacea for snow- and ice-related problems. But in some situations, particularly those that western Oregon is likely to face when there is a large amount of moisture along with fairly cold temperatures, **salt—and any other chemical—is simply overwhelmed and ineffective**. Let's discuss five myths surrounding the use—or non-use—of salt.

- A. Myth:** The use of salt would have opened up Interstate 84 much sooner during the big storm(s) of January, 2004.

Fact: *Nothing* will open a road in the middle of a blizzard with 40 mph sustained winds and 60 mph gusts, falling snow and whiteout conditions. Salt wouldn't have melted the icy road in those conditions—it was too cold and too windy.

- B. Myth:** No other state closes interstate highways for storms—they just salt it and it stays open.

Fact: How many times have you seen pictures of blowing snow on the interstates in the Midwest—Illinois, Iowa, Nebraska, Kansas—and closed gates? Just like Oregon.



- C. Myth:** Truckers were “stuck” at the Troutdale Truck Stop—freight movement stopped—because Oregon didn't use salt.

Fact: A detour was established and publicized. It's the same detour every time, so truckers are quite familiar with it. Many trucks used it. And ironically, it was in much better condition than the Gorge or even downtown Portland. The tried-and-true detour is U.S. 26, the Mount Hood Highway, over the mountain to Oregon 35, and then north to rejoin Interstate 84 at Hood River; the alternate, when Oregon 35 is too icy or is under blizzard conditions, is to take U.S. 26 past Oregon 35 to U.S. 97 and then north to rejoin Interstate 84 at Biggs.

- D. Myth:** If we only use salt every few years, for the big storms, then there won't be any environmental problems and we'll open the roads much faster.

Fact: This sounds good, until you really think about it. Define “big.” Won't there be pressure to use salt EVERY time? If the storm lasts into a second day, won't there be cries to use salt—like it's somehow going to end the storm?

And if we're supposed to have salt at the ready, just in case, that means we're stockpiling salt somewhere in some pile—an environmental hazard all by itself, as years of weather hit that stockpile and flush it into the groundwater and streams. That will also add pressure to use it, because “some part of the environmental damage is being caused whether we use it or not, so let's just use it.”

- E. Myth:** There isn't any cost associated with using salt.

Fact: Cars still rust in those states that use salt. If your car doesn't last as long, and you have lower trade-in value because of corrosion, it's costing you money right out of your pocket. Just as bad is the damage done to the interstate infrastructure itself—bridges, ramps, concrete: all are corroded by salt. So the infrastructure ages faster and must be replaced sooner. And Oregon lately has learned just how much money it costs to replace aging infrastructure—we're in the midst of a \$1.3 Billion dollar overhaul of 500 cracked bridges.