Snow and Ice Control— A Critical Look at Its Critics

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ABRIDGMENT

•MUCH is written and said in the public media each winter about the effects on autos and roadside environment of the chemicals used to provide safe driving surfaces. Little is reported of their benefits to the snow-belt economy and to individual motorists.

Salt is the principal tool in a highly essential operation financed with tax funds. A recent survey of 1, 250 city public works agencies showed that all use salt for deicing.

Tremendous growth in deicing salt use—now over 6 million tons annually in the United States and nearly 1. 5 million tons in Canada—is the result of public demand for safe, bare pavements for winter driving.

Most commonly voiced criticisms of deicing chemicals are outlined in the following paragraphs.

Salt causes auto corrosion. The fact is that salt does not corrode, but may attract moisture to an auto metal and thus speed corrosion. But if motorists take adequate care of vehicles there is no need for serious rust damage to modern autos. One automobile manufacturer has announced that its products will withstand rusting for ten years. Other automakers have made similar strides. Corrosion is caused by many factors, including atmospheric pollutants and ordinary moisture from whatever source.

Salt kills trees, grass and shrubs. The fact is that deicing chemicals rarely cause permanent harm to vegetation. Deicing chemicals have been used by the hundreds of thousands of tons for decades, and there are no barren, brown roadsides, devoid of plant life. Public safety is more important than sustaining plantings very near the pavement edge, which are themselves a safety hazard. The Bureau of Public Roads says the "desired roadside" should be clear of all nonessential obstacles—including trees—at least 20 feet beyond the road shoulder. This would solve the problem of effects of deicing chemicals on trees that in some cases actually touch the pavement.

Salt pollutes water supplies. Records of the U. S. Geologic Survey and the Public Health Service show little or no change in chloride concentrations in major drainage areas of the northeast United States, hence no effects on these drainage basins from salts used for deicing. Water flow is so large that the dilution factor decreases chloride levels to an acceptable point.

Deicing salts can pollute local wells, ponds, small aquifers and streams where the dilution factor is not enough to lower the chloride level sufficiently. Most pollution problems result from improper storage of deicing salt. This is a local problem, and can usually be solved by proper placement of storage piles, covering stockpiled materials, and ditching to discharge runoff to suitable drainage points. Chemical producers stand ready to assist public works officials in planning storage facilities to avoid problems of local pollution.

In design and construction of new highways, plans should take into account future maintenance needs, and location of small watersheds and acquifers.

It is easy to overlook the positive aspects of deicing salt use. Here are a few facts about the benefits of current deicing programs to motorists.

In Massachusetts between 1930 and 1936, before straight chemicals were used, there was an annual average of 21 fatalities and 1, 635 injuries due to skidding accidents. Be-

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tween 1940 and 1950, after officials began using straight chemicals, there was an average of only 9 deaths and 736 injuries annually because of skids.

A study by Ohio Department of Highways showed that 35.4 percent of all rural traffic accidents occurred while roads were covered with snow and ice. With no plowing or chemical application, it was estimated there would have been another 22,735 accidents, costing over $14 million. The Ohio researchers said that, conservatively, every dollar spent for snow and ice removal saved road users over two dollars.

In a 1965 study, the Citizens Traffic Safety Board of Chicago found that rain and snow caused 33,000 accidents in that city each year. In 6,000 of these accidents, someone was injured. In 45 of them, someone was killed. A snowfall of less than one-half inch can bring an accident rate ten times that for the same hours when pavements are dry. Streets that got low-priority salting in Chicago had nearly half of all accidents caused by snow, although they carried only about 20 percent of the traffic. Local streets had 8,934 accidents, nearly half the 18,251 that occurred on the more heavily traveled major routes that were quickly salted by street crews. The Traffic Safety Board concluded that Chicago's snow removal program—including use of salt—prevented 15,250 accidents that would have cost $3.71 million. Chicago has now adopted a policy of salting all streets.

Ten years ago, New York's director of engineering said a one-hour disruption of normal traffic flow from an average of eight winter storms would cause an economic loss of over $30 million. That figure would be much higher today.

Detroit's commissioner of public works once put that city's potential losses from winter storms at over $103 million per winter.

Motor fuel tax revenue figures show that fuel consumption has increased just as rapidly in the snow-belt states as in all others; drivers in northern states have not been handicapped by icy pavements in their year-around dependence on motor vehicles, thanks to modern winter maintenance practices that include heavy chemical applications to provide bare pavement conditions in all weather.