

SLICE THE ICE

Weather, operating nuances determine correct approach



BY MICHAEL WAGNER, CSP

Not only is the environment we live in changing every day, but how a company chooses to approach the practice of ice management depends on many variables.

Such variables include humidity, water equivalency in the snow, equipment selection, different roadway compositions and client expectations. While one's experience will help them create practical solutions, sometimes it may take networking and experimentation to identify more progressive alternatives.

Understand your region

While this may be obvious, sometimes you may be surprised as to the regional differences that determine how to manage an event. Some climates don't have high variances in humidity and water equivalencies, whereas some change multiple times

throughout one snowstorm.

For instance, in more humid climates such as the Northwest, Midwest and Northeast, you may encounter more storms where snow falls at a much higher water equivalency (more water content in the snow), which can influence the more rapid buildup of ice at temperatures below freezing on the road surface.

This drastically alters the way ice is managed versus management strategies in far less humid climates such as the Rocky Mountain Region or some central areas in the United States.

Less humid climates influence a much lower water equivalency in snow, which makes it more resistant to liquid and granular applications, especially at subzero temperatures.



While the snow may not bond quickly with the surface due to the lack of adhesion qualities, over time the snow becomes more cohesive and creates a stronger bond, including during any melt-refreeze processes. *(Sidebar: Snow-to-water ratios, Page 28)*

Being able to identify when ice will form, how it forms, how it bonds to different road surfaces such as asphalt, concrete or stone, and what chemicals and materials are widely used and available in your region are vital to your role of managing ice.

Equipment options

With the vast equipment options to choose from to perform anti-icing and deicing operations, do your research wisely and network with others to determine possible solutions. Using the wrong type of equipment to rid the surface of ice can potentially cause costly repairs to the equipment, road surface or the environment.

Liquids. Starting off with liquid spraying equipment, choose equipment that can handle the corrosive effects of the liquid you're using, while also sizing the system properly to not only be cost effective, but manageable in the space you're given to clear the ice. Whether you're using a liquid spraying system or a pre-wetting system for granular material, make sure you understand the solubility in its interaction with snow, ice and water to reduce and prevent ice buildup.

Granular. Next, the granular materials. There are many options for spreaders from push-type spreaders to municipal V-box spreaders to disperse granular materials. Be careful to not oversize your load, whether it's the combination weight of the vehicle, attachments and material weight, or having too large of equipment to

manage it safely and effectively on site.

Applying granular materials may not provide the quickest melting of ice, but it provides greater traction on the ice until the chemicals activate with the water in the ice and begin the melting process. This practice is much more common in less humid climates.

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MECHANICAL REMOVAL:

Mechanical removal can reduce reliance on salt (left); and in storms where you can't get ahead of it, new options that can break up ice are available.



ICE MANAGEMENT // TACTICS

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One last tip, supplementing the granular dispersion by prewetting with liquid is very effective in reducing ice cohesion to the surface.

Mechanical options. Lastly, you may have to manage ice without liquid or granular materials; and in this case, there are a variety of options for ice-breaking attachments and cutting edges for equipment and trucks to break up and remove ice. Attachments for skid steers and loaders can be extremely helpful for breaking up large sections of ice, especially in gutters and drains. Also, special cutting edges can be purchased for light to heavy duty plows that have greater content of carbide to decrease the premature wear of edges, but you must also seek out those products that allow for greater heat dissipation from the scraping process of ice and the roadway.

It's important to spec and test equipment based on the type of



SNOW-TO-WATER RATIO EXPLAINED

The snow-to-water ratio is basically the amount of snow produced by 1 inch of water. A typical storm may have a ratio close to 10-to-1; but most often the ratio varies greatly from storm to storm.

- Storms that occur during very cold weather in the middle of the winter and originate from western Canada, such as from an Alberta Clipper, may bring a few inches of snow from a mere few tenths of an inch of water. This is a 20-to-1 ratio. Snowfall of this nature can be easily swept away with a broom or blown off a vehicle with a leaf blower.
- Storms such as a Nor'easter may have a snow-to-water ratio of 15-to-1. One to 2 inches of water may bring 15 to 30 inches of snow that pile up fast.
- During the spring, much more moisture is usually available to storms, but the temperature is higher. It is not uncommon for spring snowstorms to have a 5-to-1 ratio or lower, which results in snow that is heavy, slushy and difficult to shovel.

Source: AccuWeather

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Ice is one of the leading causes of slip and fall injuries in our nation, and it can also harm the reputation of the ice management company, the client or any subcontractors involved if not managed properly.

climate you have, the material you use, your operators' capabilities and the site at which you'll be operating.

Managing client expectations

Ice is one of the leading causes of slip and fall injuries in our nation, and it can also harm the reputation of the ice management company, the client or any subcontractors involved if not managed properly.

There are a few steps you should take in creating a partnership with the client to manage ice correctly:

- Examine the prospective property and identify areas where ice formation is highly probable and make a plan for how you can help use anti-icing or deicing strategies to mitigate it.
- Discuss the equipment that can be used on their property, as well as material and chemical treatment options.
- Explain the importance of properly managing ice, and that the safety of the client and anyone on their property is the most important value within your service offering.

While there may be times when you encounter clients who are reluctant to agree to the said service, don't provide a partial service or enter into a contract that places your business in a questionable state of accountability or that creates excessive or unnecessary risk.

Continuous improvement

Whether you're reflecting on your processes, the financial condition of your organization or meeting client expectations, every snow and ice management business must focus on how it is continuously working to improve upon its service and inclusive value.

Foster idea generation and problem-solving among your personnel since those performing the work and handling the everyday challenges of the jobs are often the ones best positioned to identify a potential improvement. With that said, those in leadership and management roles should work with these employees to determine the practicality and feasibility of any proposed solutions and begin developing a plan for testing and implementation.

Continuous change and improvement not only can help you provide better service to your clients, but it will also directly influence the competitive advantage your company holds within its respective market, which can attract new talent and retain your creative and successful workforce. **SB**

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