

BREAK THE ICE

Fend off temperature instability with equipment, materials, education



BY MICHAEL WAGNER, MBA, CSP, ASM

While many of us are experienced and trained in snow and ice management, temperature instability still catches us by surprise sometimes. Knowing how to prepare for any possible scenario, as well as learning from our experiences, is a key aspect in delivering a quality service to the client, as well as combating operational challenges.

Understanding temperature instability is a necessity when working in snow and ice management. As tricky as it can be to say whether

“normalcy” in severe weather is changing, we have seen more dramatic weather patterns and transitions happening in recent years due to a variety of factors, specifically environmental. While some of these characteristics are unexplainable, we must prepare for unexpected changes at any moment and be ready for the worst! As you move through the following sections, reflect on how you will work these strategies into your current operational practices and combat temperature-related obstacles.

Winter weather preparedness

Preparation and proactiveness is key to successfully carrying out your operations, even when the weather changes mid-storm. Forecasting is

important, but a difference in 10°F can change the game when it comes to snow properties and ice formation. Develop a plan for how you will respond to certain storms and have contingency plans that everyone is trained on and knows when to press the big red button!

Many ideas and templates can be used to develop a proper winter preparedness plan but remember that the effort you put in will directly affect the output of your operations and service. Take the time to plan and be honest.

While you may rarely hit a “Level 5” storm (most severe on a 1-5 scale), you must train for this potential occurrence. Regarding temperature instability, you may move from a Level 1 to a Level 5 storm within hours, and

Continued on page 46

WINTER WEATHER PREPAREDNESS

Consider temperature instability in planning. The swings can impact factors like precipitation type; snow's moisture content; response strategy and materials that should (and shouldn't) be used.

STORM FACTORS	← LEAST SEVERE → MOST SEVERE →				
	Level 1	Level 2	Level 3	Level 4	Level 5
Longevity of Storm (predicted)	Less than < 24 Hours	24-48 Hours	49-72 Hours	73-96 Hours	97 Hours < or more
Snow Totals (inches, predicted)	0-4"	4.1"-8.0"	8.1"-12.0"	12.1"-18.0"	18.1" < or more
Temperature Change (predicted, High to Low F)	15 F	20 F	25 F	30 F	31 F < or more
Wind-Chill (estimate)	20-35 F	10-20 F	0-10 F	(-10) - 0 F	(-11) or > below
Routes and Drivers to Deploy	Region 1, 2, 3	Region 1, 2, 3, 4, and all residential properties	All routes and all equipment/vehicles (full deployment)	All routes and all equipment/vehicles (full deployment)	All routes and all equipment/vehicles (full deployment)
Administrative Staff On-Hand	On-Call for contact with snow personnel	In-Office on rotation schedule until end of snow event	In-Office on rotation schedule until end of snow event	In-Office on rotation schedule until end of snow event	In-Office on rotation schedule until end of snow event

Identify storm qualities and make judgment on level of storm based on dominant factors. For instance, you may get 6.0" of snow, but have a 30 F temperature change and an 80-hour storm period. This would warrant a Level 3 or 4 Response, not a Level 2. It is beneficial to assign weights to categories as well which can help influence response decisions based on total scoring.

Continued from page 45

the entire operation must be changed. Consider the chart on page 45 in setting up your preparedness plan.

How you decide to carry out snow operations, such as equipment used, liquid and granular materials, and the timing, will all impact the potential formation and longevity of ice buildup.

How you manage clearing and removing snow as well as treating the surface can drastically affect how cohesive and adhesive ice becomes and may create potential risks during freeze-thaw events or the development of hardpack. Also, adhesiveness will determine the ice bond to the surface material (e.g., asphalt, concrete, stone) and may fluctuate quickly depending on temperature instability, which can include air and surface temperatures.

Without a plan to address the impact of temperature instability, you risk increased slip and fall incidents, vehicle or equipment incidents, opportunity for legal recourse, unhappy clients and unhappy communities.

Innovate and implement solutions

When you have ice, break through it! Now's your chance to find new ways of dealing with pesky ice. There are a few ways you can approach this, such as utilizing equipment, tools or special materials (liquid or granular) in attempts to break down the ice.

Equipment. There are so many options for powered equipment and attachments such as ice breakers, tines, teeth or cutting edges that may combat ice better than your current solution. Demo products supplied by vendors (they want to sell you their products, so they will let you try them) and run pilot programs of tools and attachments to determine feasibility, durability and cost effectiveness.

Keep in mind, there's no one tool best for every job! You may be pleasantly surprised by multiple options. When setting up a pilot program, use a chart like the one provided on this page to help you arrive at a decision.

Materials. While granular may not be the most effective approach in tackling ice problems, it can be helpful

SNOW EQUIPMENT PILOT PROGRAM

Snow and ice equipment can be expensive. Make sure you have the right tools in place that will provide reliable service and deliver the best return on your investment. Your calculations should include initial cost, total hours utilized, cost per hour used and revenue generated from use as shown in the table below.

Product Type	Plow Blade (Light Duty)			
Start Date	10/1/2022			
Evaluation Date	2/1/2023			
Conducted by	Manager			
	Product 1	Product 2	Product 3	Product 4
Installation Date	10/1/2022	10/2/2022	10/3/2022	10/4/2022
Initial Cost (Parts and Labor in Dollars \$)	\$ 2,500.00	\$ 2,850.00	\$ 2,487.00	\$ 3,300.00
Installation Time	4.5 hours	1.8 hours	2.7 hours	3.1 hours
1st Date of Service and Work Order Number	11/18/2022 (WO #887)	11/19/2022 (WO #895)	11/1/2022 (WO #785)	11/3/2022 (WO #792)
2nd Date of Service and Work Order Number			12/18/2022 (WO #842)	
3rd Date of Service and Work Order Number			1/5/2023 (WO #895)	
4th Date of Service and Work Order Number				
Total Hours Utilized	542	449	331	551
Cost Per Hour Used	\$ 4.61	\$ 6.35	\$ 7.51	\$ 5.99
Revenue Generated from Utilization (per hour)	\$ 100.00	\$ 100.00	\$ 100.00	\$ 100.00
Return of Investment (ROI)	\$ 95.39	\$ 93.65	\$ 92.49	\$ 94.01
Greatest ROI	X			

if it's used in high-vehicle traffic areas where you're getting compaction and ice dissolution. Granular materials can help provide traction and will work its way into the ice to begin activating and breaking down the ice.

A second option is liquid materials. While many small to mid-sized businesses are experimenting with brining and chemical solutions, there's an opportunity to learn from your local Department of Transportation since they may have experimented and used multiple chemical solutions to combat snow and ice at different temperature thresholds. Also, they are keenly aware of temperature instability in the use of chemicals and understand when to apply, how much to apply, and which ones to use.

Identify a few chemicals you would like to try; or if you're making brine, develop a variety of solutions and head out to icy spots and try them! This is a great deicing solution; and if you want to anti-ice, you will apply pre-

storm and monitor the performance throughout and after the storm.

Educate and be informed

There are many opportunities to learn about proper snow and ice management efforts in mitigating the effects of temperature instability.

Being connected to industry-leading associations creates opportunities for learning from the best in the business, and those who've successfully navigated the unforeseen for many years.

While we use the term successful, many industry leaders have learned through challenging or failed experiences; but it's what they do with the feedback and outcomes to alter how they perform in the future that makes them so successful. Lean on the shoulders of your peers if you're just getting started or you're faced with a challenge you've never met. More than likely in a professional snow association, someone has dealt with the same or a similar situation before.



TEMPERATURE'S IMPACT ON SNOW & ICE

➔ Temperature instability affects the amount of water coating the snow particles, which in turn influences other properties of snow, including its:

- Density
- Adhesiveness
- Compressibility
- Hardness
- Cohesiveness

These variables then impact snow operations in terms of:

- Equipment choice
- Ice management decisions
- Time needed to complete service

Don't be afraid to ask ... this is why people network and get involved in groups of like-minded professionals.

Be a continuous learner

As most people in the snow and ice management industry are experiencing extreme and challenging winter weather events, one of our greatest tools for learning and continuing to provide an exceptional service is through our dedication to improve our knowledge and skills while developing a competitive edge for the organizations we work for.

No matter the size or structure of your organization, you're working at developing a world class Level of Service that benefits your local business community and economy, and that enhances the safety of people during uncontrollable weather events. It is difficult to improve from your current state if you and others stay the same, or maybe don't approach situations with open-mindedness. With the resources at your fingertips, and opportunities to grow within your market (not only in size and revenue, but also quality and effectiveness), don't miss the chance to invest in yourself and others to improve upon your current characteristics and qualities. **SB**

Michael Wagner, CSP, ASM, MBA is director of company operations for Designscapes Colorado Inc. Contact him at 303-328-5554 or mwagner@designscapes.org.



Frost Inc
Spray Technology Products

SPACE SAVER | COMPACT SYSTEM ALLOWING MORE SPACE IN YOUR TRUCK BED FOR OTHER WINTER GEAR.

See more liquid ice control equipment on our website!

WWW.FROSTSERV.COM

JOHN BLUE
SINCE 1886

▪ **GUARANTEED TO DO THE JOB** ▪

If you need a de-icing pump that's **portable, durable, and affordable**, John Blue's lightweight poly-pump is just what you need.

PSP-3240-FLG (shown)

FIND YOUR LOCAL DEALER
johnblue.com

1-800-253-2583 • info@johnblue.com