

What Are The CHANCES?

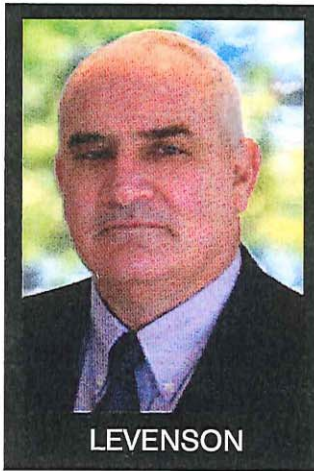
How to apply a more statistical and practical approach to the budgeting and forecasting of winter weather. BY SHAUN LEVENSON

By now you have all but thrown your hands in the air and given up trying to figure out the vagaries of winter weather and the cost of removing snow and ice from your many facilities. Opinions on the upcoming snow season are as diverse as ever, and vendors who were punished by the last snow storms are jittery. Because of the impending winter challenges, your budget is under pressure, and that ache in your knee is trying to tell you something.

For a moment, let's place the ice dice to the side and apply tested weather science. It's a bit nerdy and I do rely on my friends at Planalytics to do the

statistical gymnastics (who, by the way, take the term "weather nerd" as a compliment). If you like this stuff, then this article is for you, as it will help you impress the boss, friends or your mother, who like mine, is always asking, "What is it you do exactly?"

In applying a more statistical and practical approach to the budgeting and forecasting of winter weather, you need to understand two concepts: (1) de-weatherization — or in plain speak — statically removing weather volatility from historical results; and (2) matching contracts with your market's risk profile. Weather is the fundamental building block for constructing an accurate snow removal budget. All too often, retailers ignore this fundamental fact, exposing their organizations to unnecessary risk while forfeiting an opportunity to control costs and save money.



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THE SPECULATIVE TRAP

The answer to building a successful snow removal budget is to not allow yourself to get trapped in the speculative game and make knee-jerk (there is that aching knee again) or emotional decisions based on "what happened last year." It is important to understand that weather, especially snow events, from a statistical standpoint repeat less than 20% of the time year-over-year in any individual market.

Simply stated: If you plan your snow removal budget based on last year's weather, you are potentially at risk of missing directionally 80% of the time!

To avoid this mistake, many attempt to de-risk their budget by averaging the total annual snow fall over a 5- or 10-year period. Although a step in the right direction, it does not equate to a more accurate or actionable variable for building your budget.

STEP 1: TAKE THE WEATHER OUT – DE-WEATHERIZE

The first step in creating a more accurate and actionable variable is to utilize de-weatherization, the method of objectively and statistically removing weather's volatility from your historical results. The value of this step allows you to plan and budget from a "weather-neutral" position. The result is a more accurate plan built upon the statistical reality that weather events one year to the next will trend directionally back to the "norm." Figure 1 illustrates the value of de-weatherization when comparing the 2009/2010 season to the 2010/2011 season across three markets. Those that relied on the (2009/2010) data were in for a rude awakening, having budgeted 27% more than was necessary.

Figure 1.

City	2009/10 Season Actuals	Cost @ implied \$1,000 per inch	De-Weatherized for 2010/11 modification %	What you should have budgeted	2010/11 Actual	What you spent
Baltimore, MD	80.7 inches	\$80,700	-73%	\$21,789	15.1 inches	\$15,100
Buffalo, NY	74.1 inches	\$74,100	19%	\$88,179	110.5 inches	\$110,500
Pittsburgh, PA	77.4 inches	\$77,400	-44%	\$43,344	56.7 inches	\$56,700
		\$232,200		\$153,312		\$182,300

per event. This places you in a better position to figure out what contract is best and how much you should budget to spend. By the way, the fancy chart at the end of this article (Figure 3) is for you to show to your mom. When she asks what you do, you can now say you're a meteorologist. **RFB**

STEP 2: MATCH MARKETS WITH CONTRACTS AND RISK PROFILE

Step two takes de-risk operations to the next level. "How?" you say between groans. Simple: Utilize statistical information and review the number of events and the type of precipitation that occur over a season. This will help you mitigate the risk by contracting for your particular market, e.g. seasonal, per-event, per-push or, dare I say, time and materials. A season's snowfall is not the primary driver of the cost of snow removal (though it is obviously correlated). Cost associated with snow removal is a function of the number of events per year (typically more than 2 inches per event) and how much snow falls during those events.

Figure 2.

Amount	Probability
2-4"	25.13%
4-6"	6.78%
6-8"	1.89%
8-10"	0.53%
10-12"	0.15%
12-14"	0.04%
16-18"	0.01%
18-20"	0.004%

An example follows for Nashville, Tennessee. Figure 2 gives the conditional probabilities for exactly one snowfall event.

Pretty simple stuff, huh? Using proper information and historical data, you'll know what the weather should be without all the hysteria of last season, the number of events that are typical, and the probability of inches

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Figure 3.

