City of Claremont Leads the Way in Prescriptive Salt Spreading

By Scott Kinmond, Technical Specialist | UNH T2 Center/NH LTAP

At the 2025 NH Salt Symposium, City of Claremont Assistant Public Works Director Ted Wadleigh shared how the city's adoption of prescriptive spreading technology has transformed its winter maintenance operations—reducing salt use, lowering costs, and improving roadway safety across its 126-center line mile network, of which 9.5 miles are gravel and 6.1 miles are recycled asphalt.

From Manual Controls to Smart Technology

Before 2019, Claremont's trucks used manual "two-knob" spreader controls that provided limited consistency in salt output. Seeking greater precision and environmental benefit, the city began upgrading its fleet with Cirus SpreadSmart Rx electronic spreader control systems. By the spring of 2021, two additional trucks were retrofitted with the technology, including Vaisala temperature sensors that provide ±1°F accuracy. Today, five of the city's trucks—ranging from International 7400s to Ford F-550s—are fully equipped with the system, and all future replacement vehicles will include it.

How Prescription Spreading Works

Prescription spreading uses predefined operational scenarios to automatically regulate material output based on vehicle speed, air temperature, and road surface temperature. Operators simply select a scenario—such as Pretreat, Snowing, or Black Ice—and the spreader adjusts the salt rate automatically. The system even pauses when the truck stops, and can apply a controlled "blast" for intersections or steep grades.

Scenario-Based Rates:

Scenario	Typical Application Range (lbs/lane mile)	Purpose
Pretreat	50–120	Prevents bonding before a storm
Dusting	125–225	For light snow or dusting events
Snowing	135–250	Maintains traction during snowfall
Black Ice	175–300	Treats icy or freezing rain conditions
Sand	Up to 500	Used primarily on gravel roads

Integrating Prewetting and Real-Time Data

Claremont prewets with Magic Minus Zero, a magnesium chloride solution blended with molasses. The prewet activates at 32°F, applying between 2–14 gallons per ton depending on conditions. This helps salt adhere to pavement, reducing bounce and scatter. The city also integrates Verizon Connect and Fleetpaths GPS tracking for real-time spreading data, route completion, and storm documentation—providing valuable accountability and public transparency through its plow progress map.

Measured Results and Environmental Benefits

Since full implementation, Claremont reports saving approximately 500 tons of salt per year, equating to about $44,000 in annual savings. Calibration data show older two-knob systems averaged ~350 lbs/lane mile, while SpreadSmart achieves equivalent results using roughly half that amount, all while maintaining the same service levels.

Claremont performs annual sander calibrations each fall to ensure every unit remains within target discharge ranges. The Truck #8 calibration sheet (shown below) illustrates how carefully controlled discharge rates are established for different speeds and settings—critical for data-driven decision making and consistent performance.

Truck Sander Calibrations

Truck # 8
Date: 10/27/24
Whom: TW
Gate Opening: 1 "
Material: White Salt

Control Setting	Shaft RPM	Discharge/ REV lbs.	Discharge/ Minute lbs.	5 MPH	10 MPH	15 MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH
1	0.75	7.72	6	69	35	23	17	14	12	10	9	8
2	4	7.72	31	371	185	124	93	74	62	53	46	41
3	7.75	7.72	60	718	359	239	179	144	120	102	90	80
4	11.75	7.72	91	1089	544	363	272	218	181	155	136	121
5	15.75	7.72	122	1459	730	486	365	292	243	208	182	162
6	19.5	7.72	151	1806	903	602	452	361	301	257	226	200
7	23.25	7.72	179	2154	1077	718	538	431	359	307	269	239
8	26.5	7.72	205	2455	1227	818	614	491	409	350	307	272
9	30	7.72	232	2779	1390	926	695	556	463	396	347	308
10	32.5	7.72	251	3011	1505	1004	753	602	502	429	376	334
11	33.25	7.72	257	3080	1540	1027	770	616	513	439	385	341

Claremont Truck #8

Cost and Scalability

Initial upfitting occurred during new truck builds, while retrofits were self-installed at roughly $7,500 per unit in 2021. Current retrofit costs average $10,500 per truck, depending on temperature sensor type. The city views this as a smart long-term investment, both financially and environmentally.

Looking Ahead

Claremont's prescriptive spreading program represents a growing shift toward data-informed winter maintenance across New Hampshire. With fewer materials used, less chloride entering

waterways, and reduced operator workload, the approach has been well received by both veteran and new drivers.

Ted Wadleigh summarized the city's success best:
"We're maintaining the same service levels with less salt, less waste, and less stress on operators. The technology does the thinking—our job is to keep the roads safe."

For more information on winter maintenance innovations or NH DES Green SnowPro training, contact:
UNH T2 Center/NH LTAP
Phone number: (603) 862-1362 | Website: https://t2.unh.edu