

Review of SNIC Material Usage by Province and Other Municipalities

As part of Edmonton's SNIC program, Administration uses a wide range of winter maintenance tools including salt, sand, brine and mechanical means. A review of similar jurisdictions found that most municipalities use some form of liquid brine and varying combinations of sand and salt (in addition to mechanical means) for their winter maintenance practices. Detailed results from the jurisdictional scan were shared June 26, 2019 in CR_6851.

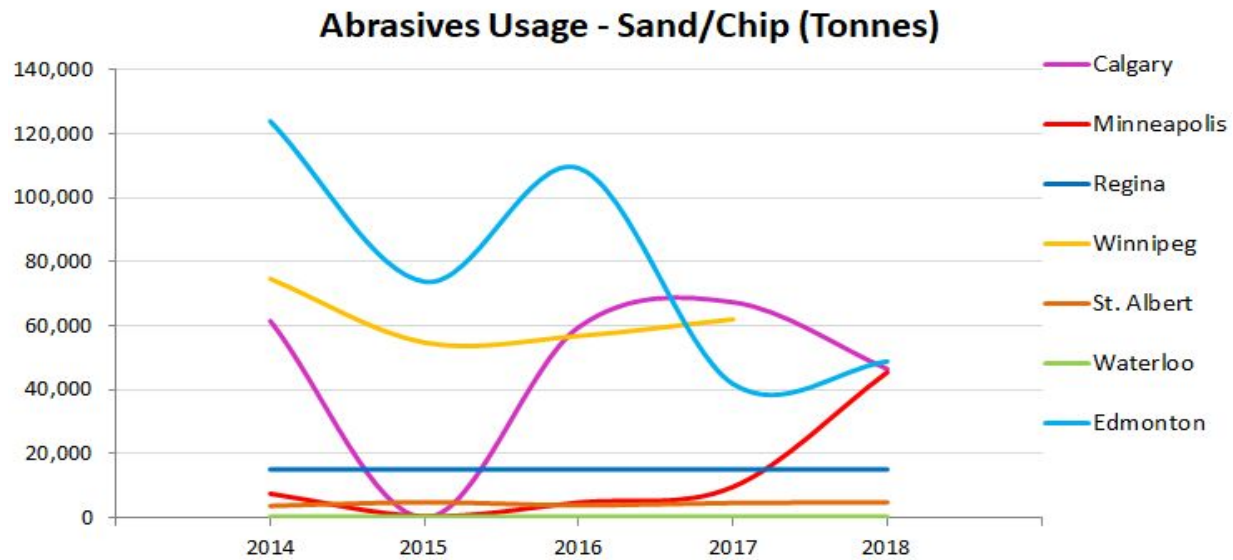
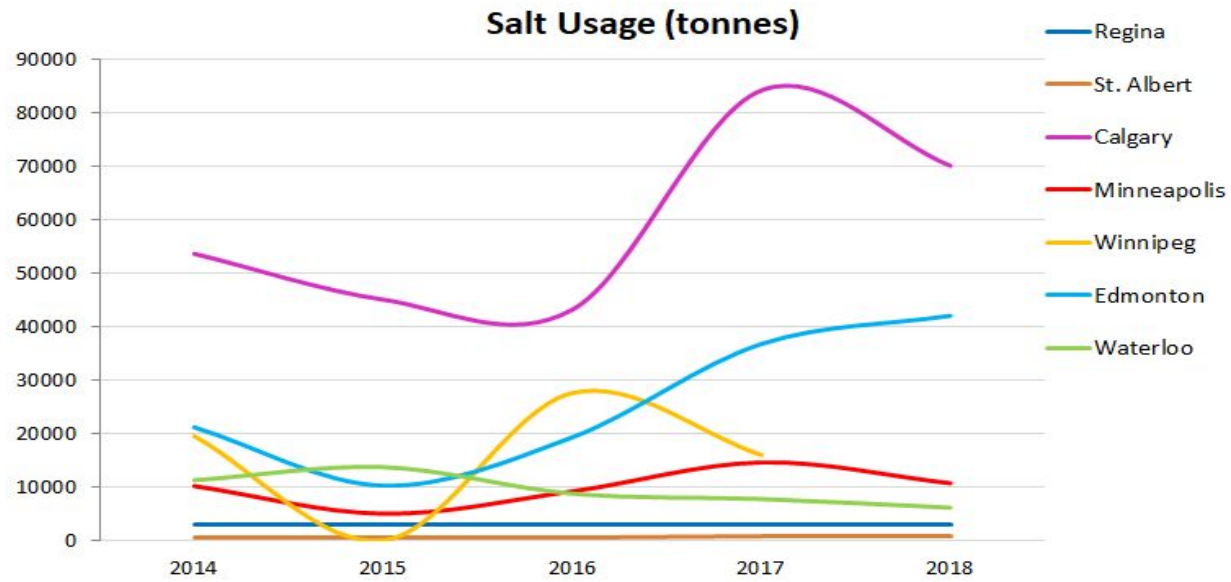
Council requested further information about the application rates and material quantities for these municipalities and Alberta Transportation, which maintains provincial highways and the Anthony Henday drive.

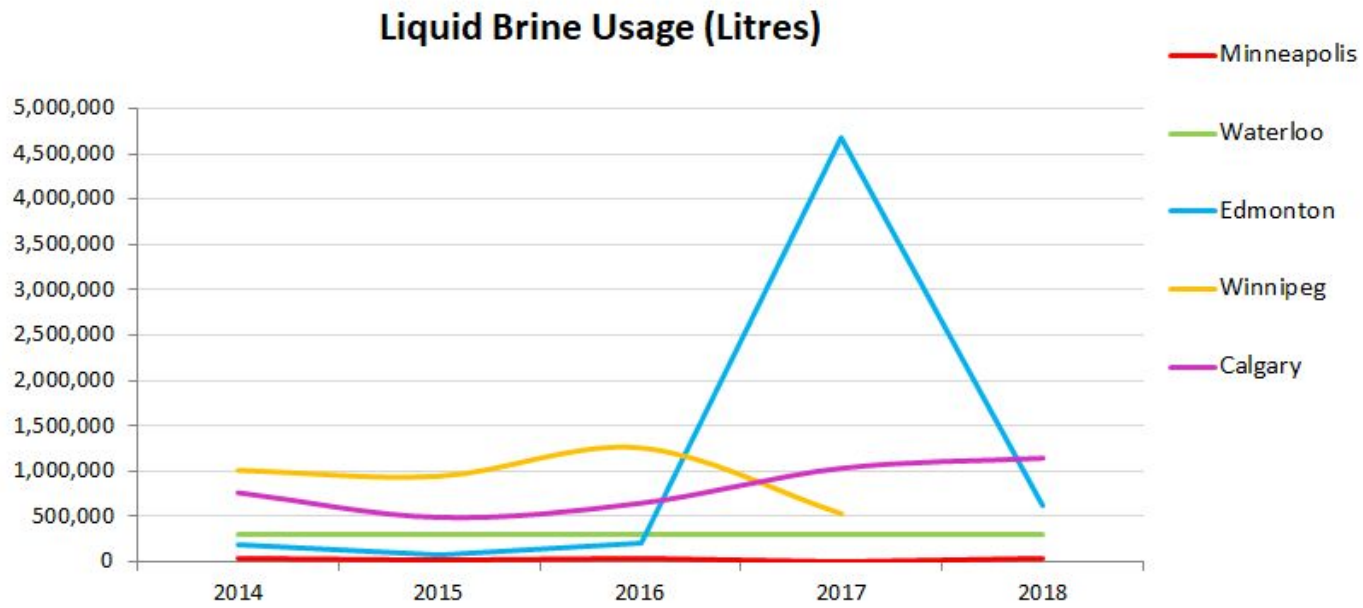
In 2018-2019, the amount of brine used in Edmonton was significantly lower compared to 2017-2018, while the amount of salt and sand used was slightly higher due to extreme weather conditions. The application rates for the sand-salt mix and the brine was significantly reduced in 2018-2019 compared to 2017-2018.

A review of application rates and materials used by other municipalities indicated that:

- The application rates and quantities used are dependent heavily on the local weather conditions, the size of each municipality and their size of road inventory.
- Calgary and Edmonton, being the two larger municipalities, use relatively larger amount of materials while smaller municipalities like Regina, Waterloo and St. Albert use relatively smaller quantities.

The graphs below show the five-year historical usage for salt, abrasives and brine for the municipalities that responded.





Application Rates of Materials

	Abrasive	Anti-icing Brine	Salt
Edmonton	50 - 300 kg/lane km	50 - 100 litres/ lane km	N/A
St. Albert	300 - 400 kg/pass km	Pre-wet only	N/A
Calgary	50 - 600 kg/lane km	80 - 140 litres/lane km	50 - 300 kg/lane km
Waterloo	95 - 113 kg/lane km	Currently unavailable	N/A
Winnipeg	320 kg/lane km	80 litres/lane km	80 - 160 kg/lane km
Minneapolis	28 kg/lane km	71 litres/lane km	113-169 kg/lane km
Montreal	150 kg/km (2 lane)	N/A	N/A

- All the municipalities mix abrasives with varying quantities of salt depending on the weather conditions.
- Calgary, Winnipeg and Minneapolis have specific application rates for salt if the weather allows salt to be used alone.
- Minneapolis uses a minimal amount of sand, applying only on hills, curves and intersections. Their application rate for sand is the lowest among all the other surveyed municipalities.

Provincial Usage

Administration also reached out to Alberta Transportation to get more information about their material usage and application rates on provincial highways and ring roads (such as the Anthony Henday Drive). The province contracts all its snow removal and ice control services to different contractors around Alberta.

The Anthony Henday Drive is maintained by three different contractors. Alberta Transportation has an approved list of products that can be used on the roadways but the province does not further specify which products should be used on what road type or their application rates. The evaluation of contractors is performance-based, meaning the time to bare pavement is monitored, not the material usage. Every contractor has their own specifications and submits proposals to the province, but that information is confidential in nature.

Sand, salt and brine are all used on Anthony Henday Drive in varying degrees, depending on weather and pavement conditions.