

Low Salt Design Concepts

Salt Week 2026

January 29, 2026



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Low Salt Strategist

What I learned from the plow drivers: *We don't design for winter*



Time to fix that oversight!



Basic Concepts of Low Salt Design

**Speed up
pavement recovery**



Fast

Reduce the repeat offenders

Blowing Snow



Slow

Meltwater Sprawl

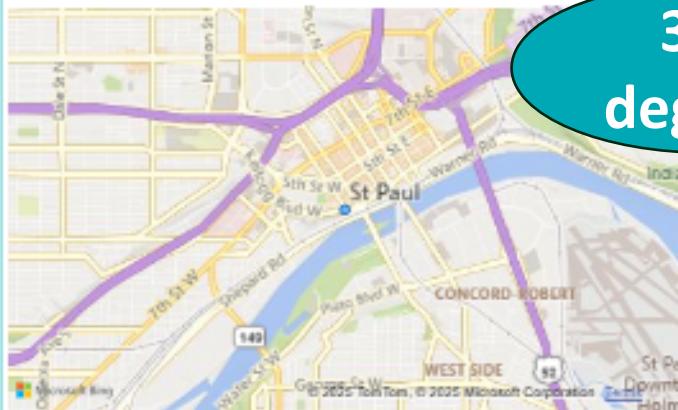


Use Local WINTER Weather

Find a Location of Interest

St. Paul

Location



300
degrees

Snowfall Statistics

Determined using 30 years of National Snow Analyses published by NOAA's National Operational Hydrologic Remote Sensing Center. Storage Footprint is based on plowed area.

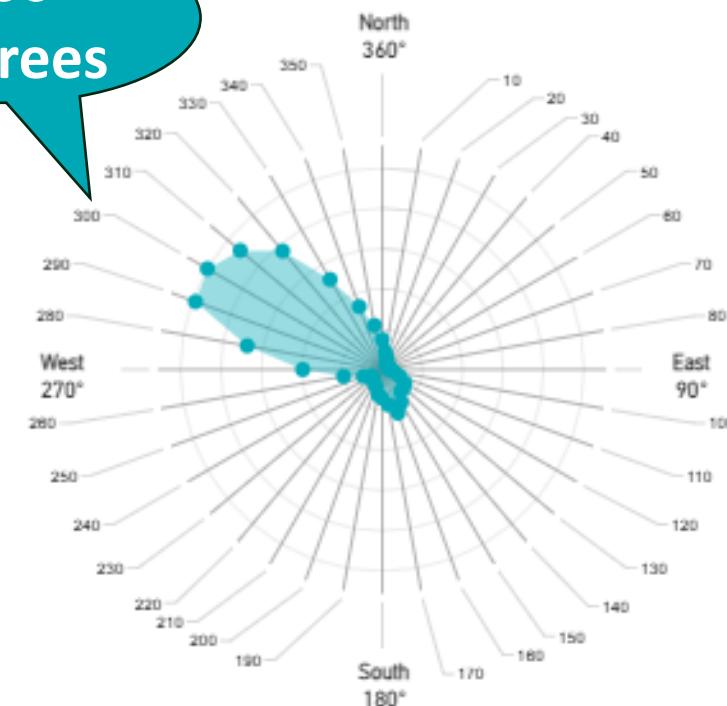
16%

Percentile	Inches of Snowfall	Storage Footprint (Beta)
90th	66.60	27.8%
80th	56.70	23.6%
70th	47.10	19.6%
60th	41.90	17.5%
50th (Median)	38.80	16.2%
40th	36.00	15%
30th	32.50	13.5%
20th	29.90	12.5%
10th	24.30	10.1%

Wind Directions

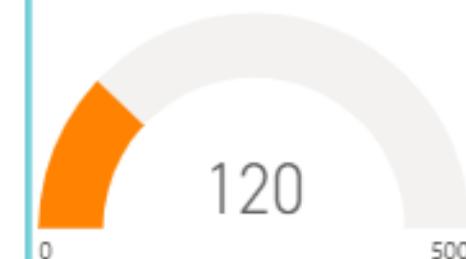
The proportion of time that strong winter winds blow from a given direction. The value 360 represents geographic North, 90 indicates East, and so on.

● Frequency by Direction



Blowing Snow Hours per Year

Calculated based on strong winter wind direction and average winter snow cover. The observed maximum is 500 hours.



50

Thaw-to-Freeze

Annual Count and Trend based on satellite analysis.

50 Count per Year 0.15 Rate of Change



Low Salt Issues & Solutions Icons

Low Salt Issues icons



Drainage



Outsmart the Wind



Pavement Considerations



Plow Access



Salt Storage



Snow Storage



Use the Sun



Vegetation

Low Salt Solutions icons



Drainage



Outsmart the Wind



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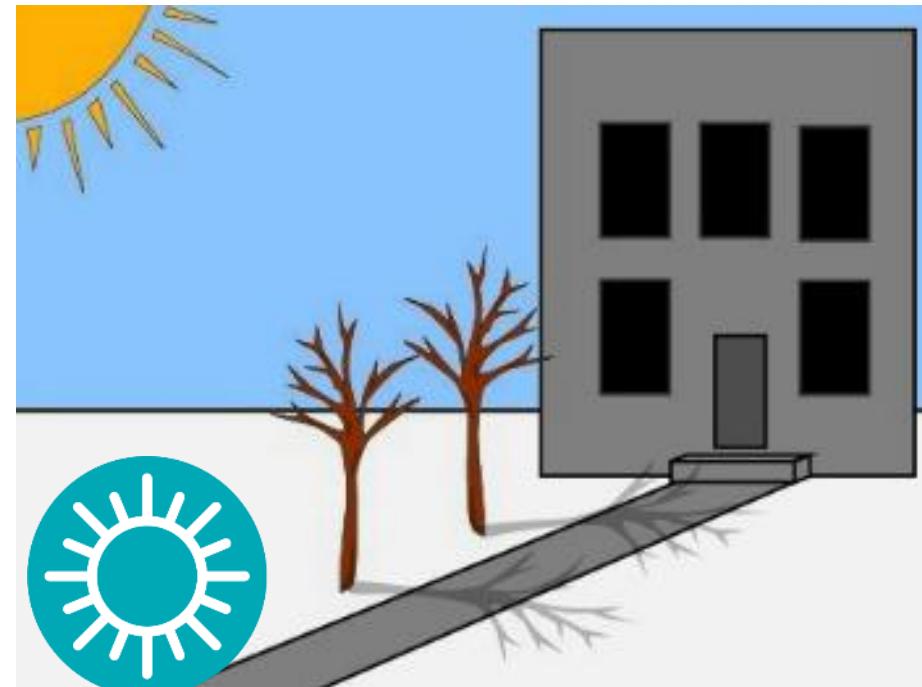
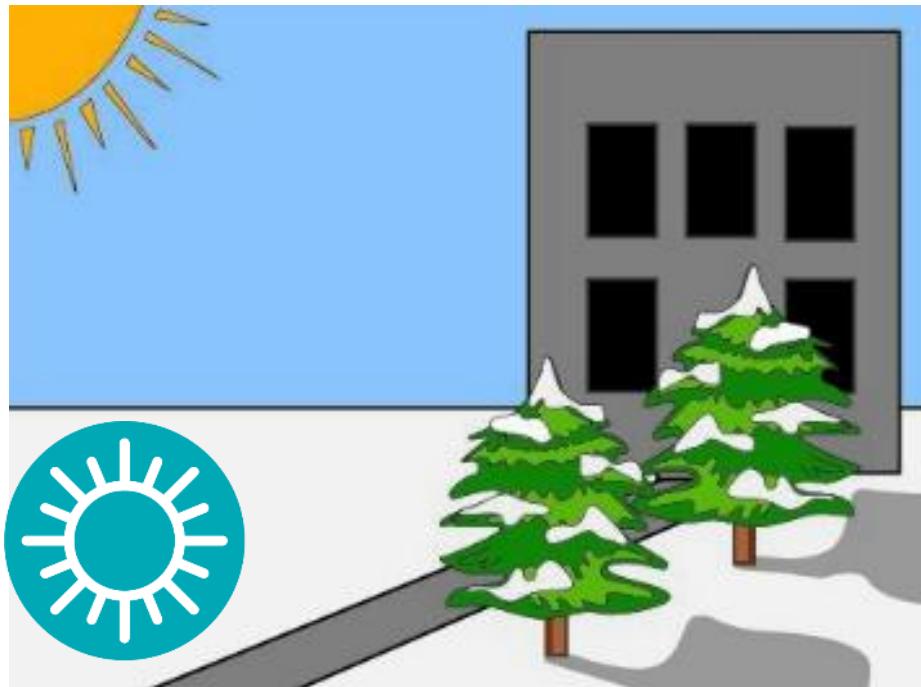
Vegetation

Download Our Issues
& Solutions Icons

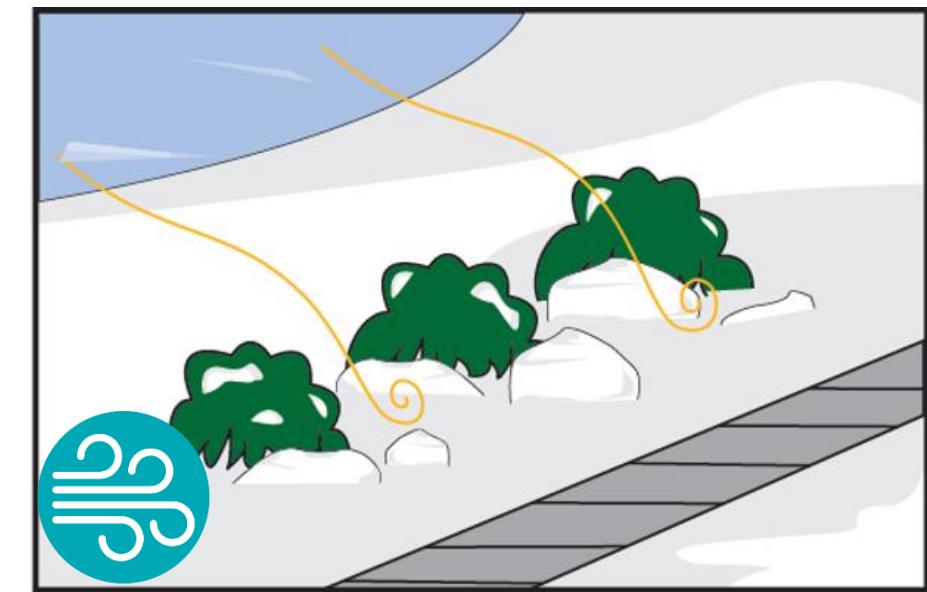
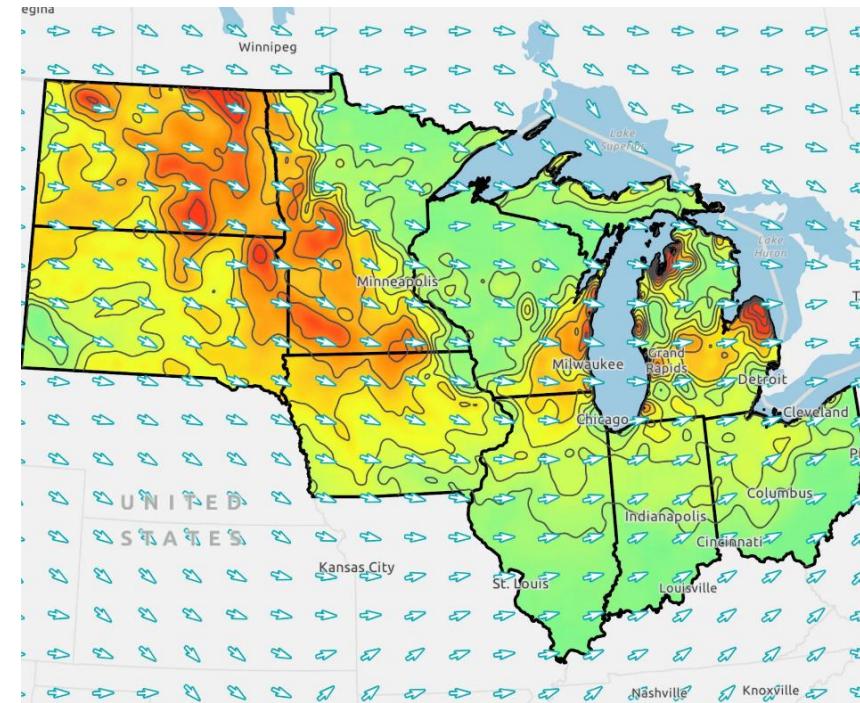
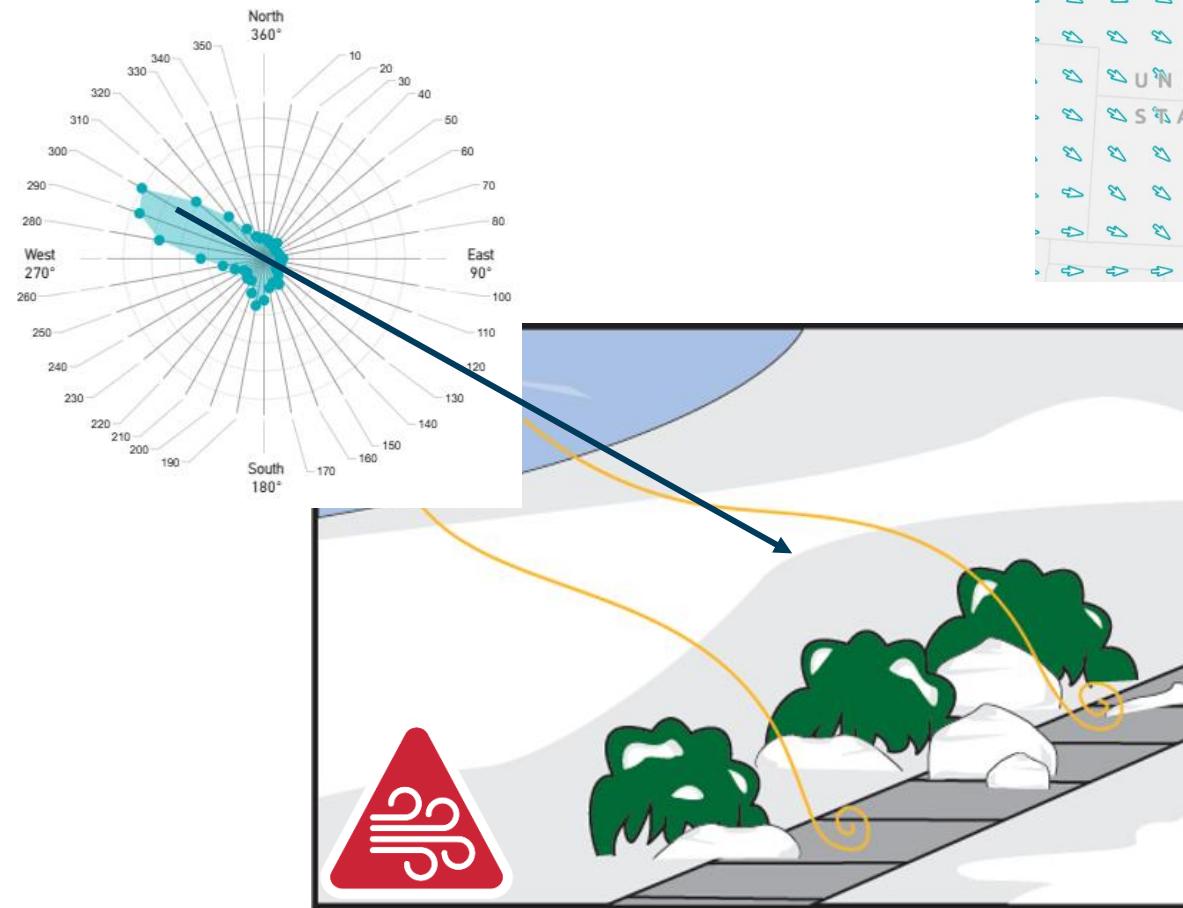


Use the Sun

*Shade = slower
pavement recovery*



Outsmart the Wind



Snow Removal Made Easy

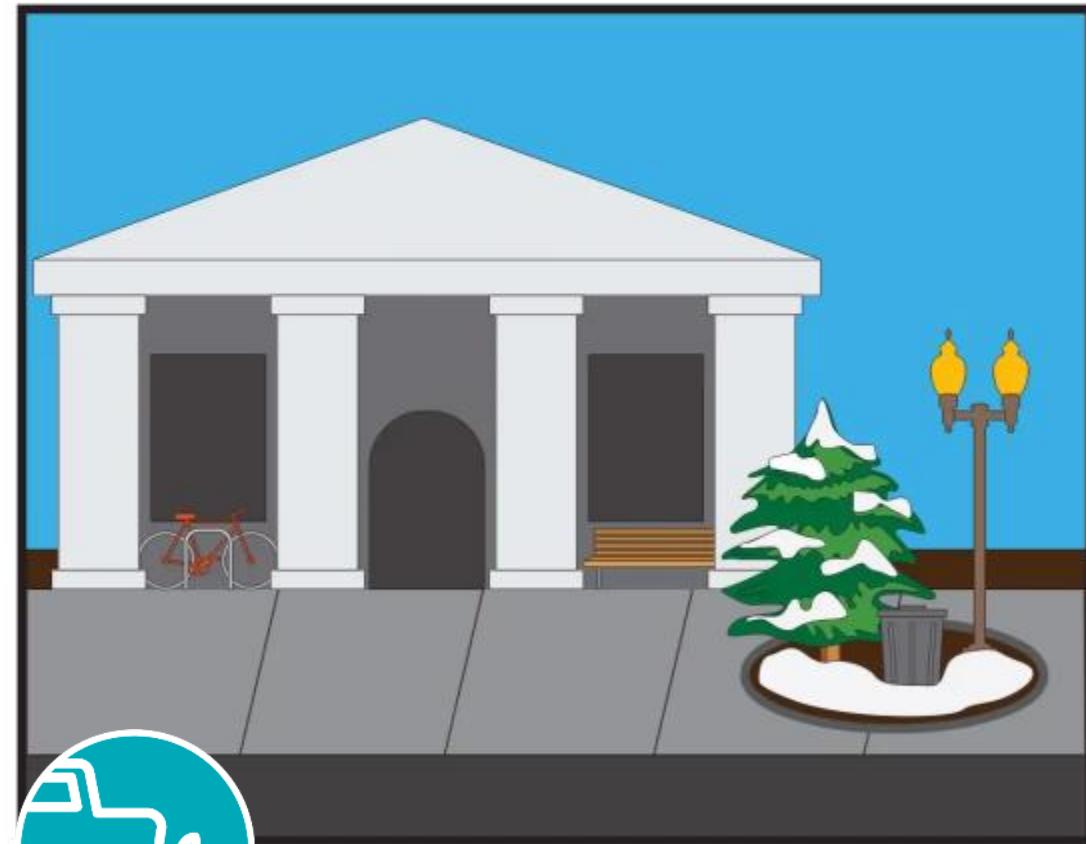
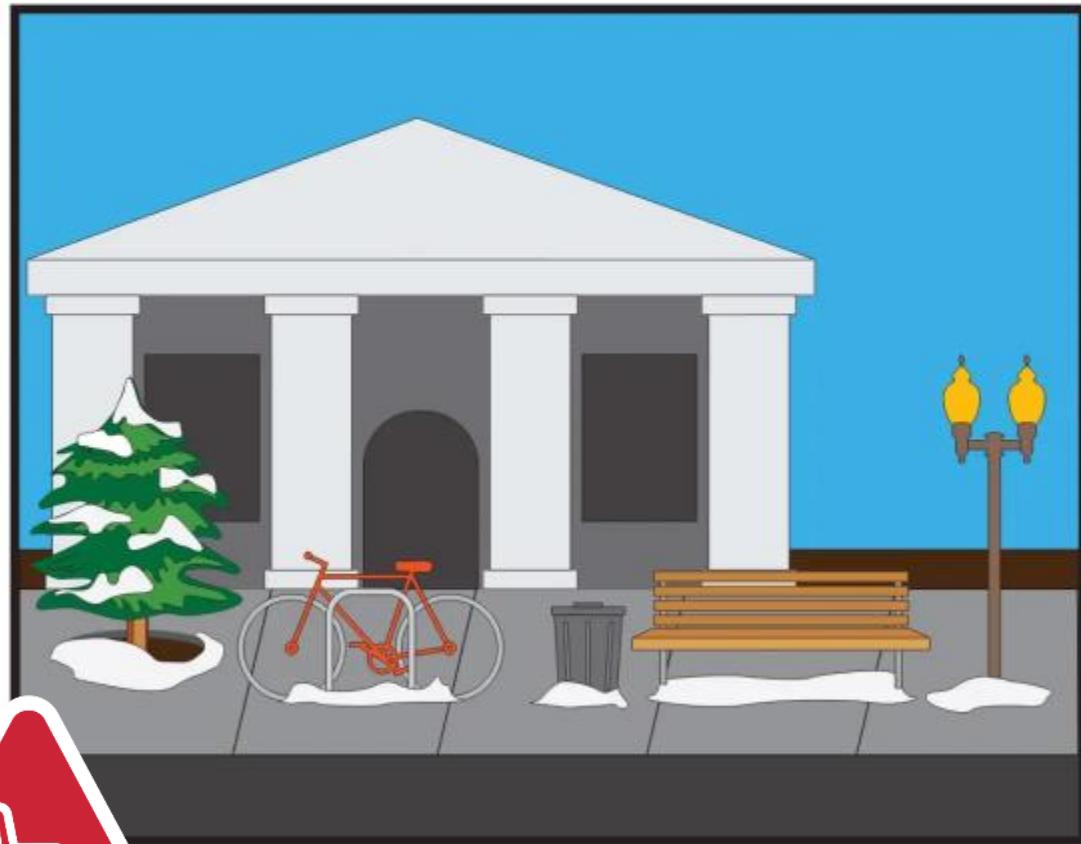




Plow Access

MAKE IT EASY TO PLOW

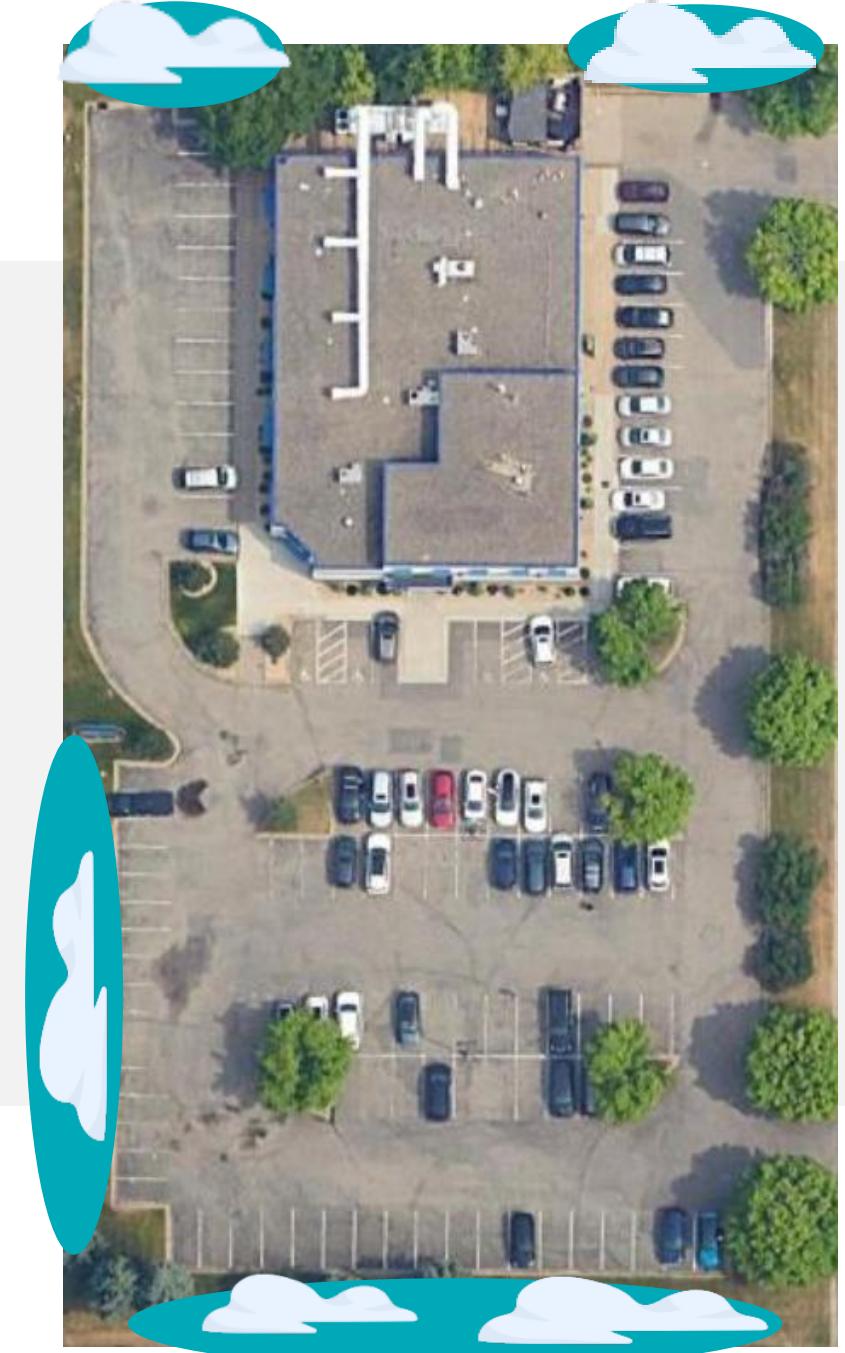
Group Obstacles



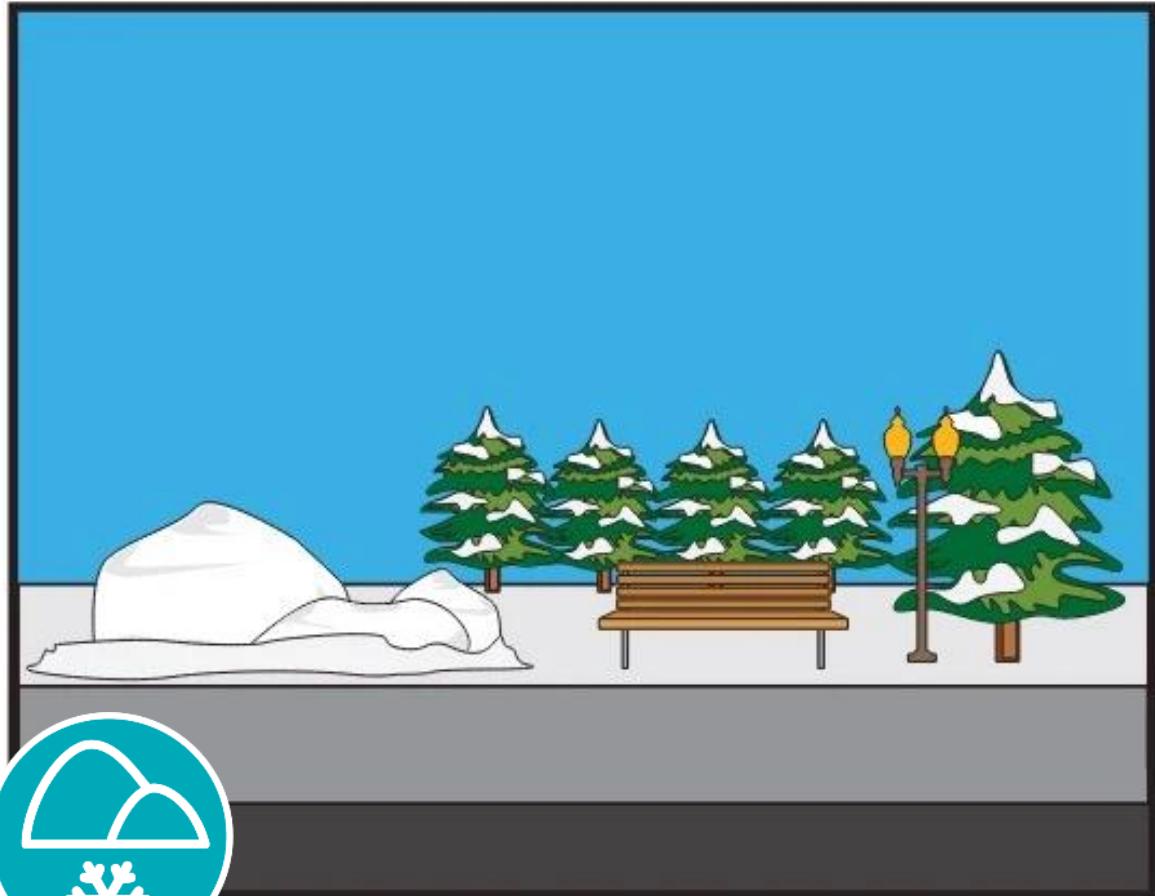
Snow Storage

Properly sized

- Mankato MN needs **~16%** of plow shed
- For an average snowfall winter



Design in space for Snow Storage



Horizontal Drainage

Reduce meltwater footprint



St. Paul

Thaw-to-Freeze

Annual Count and Trend based on satellite data analysis.

50
Count per Year

0.15
Rate of Change

Mankato

Thaw-to-Freeze

Annual Count and Trend based on satellite data analysis.

55
Count per Year

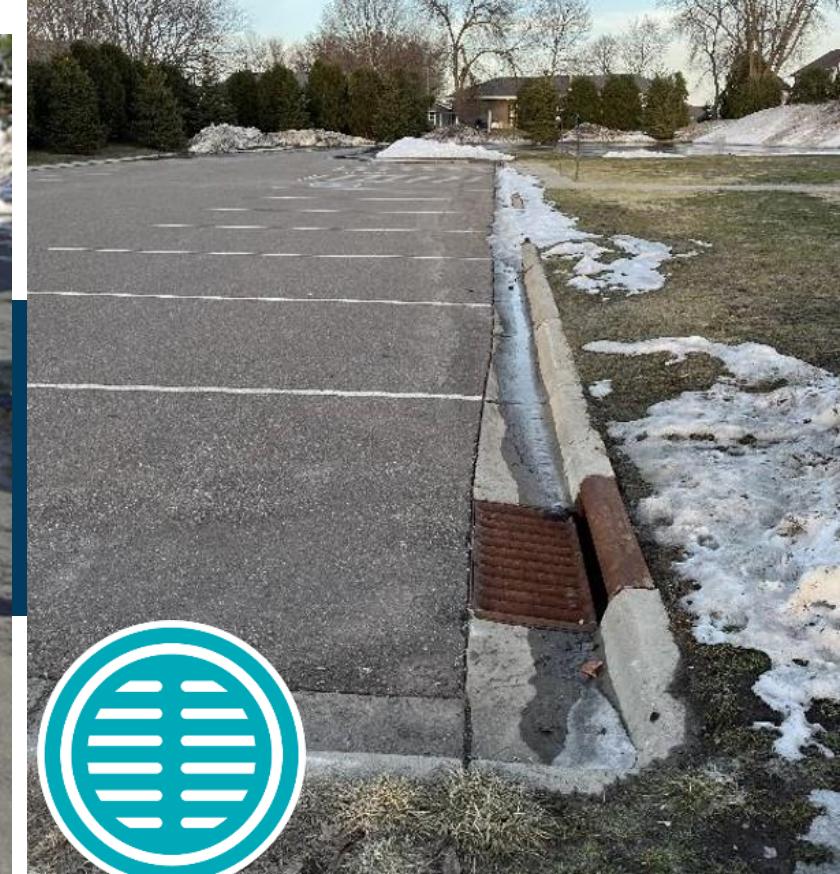
0.30
Rate of Change



Control meltwater sprawl



High Salt



Low Salt



Vertical Drainage





Low Salt Design Guide

A Guide to Winter Infrastructure Design



Join us in building more
resilient communities.

Download your free copy:



Thank You!

We can outwit
winter!



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INTELLIGENT WINTER MAINTENANCE

Wilf Nixon

Director of Public Works

City of Pella, IA



ALL ABOUT INFORMATION



What you
know



When you
know it

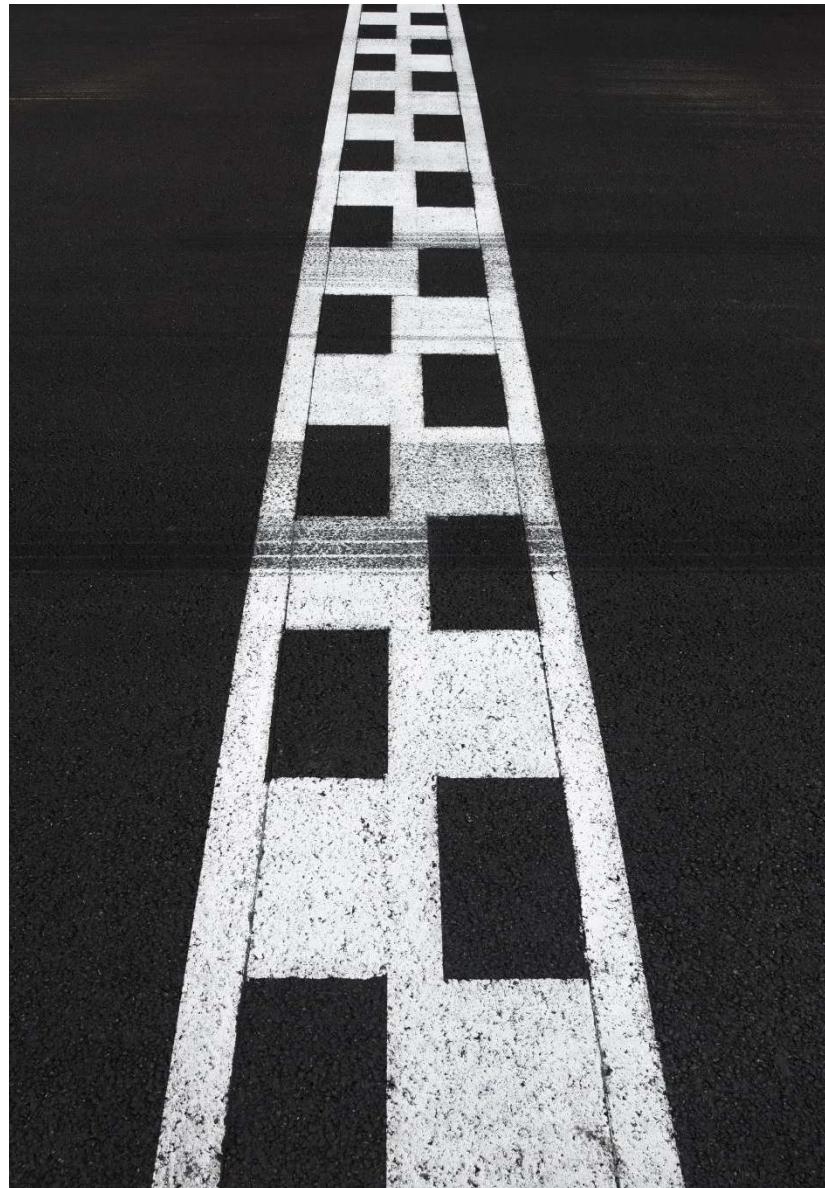


How you use
it



WHAT DO YOU NEED TO KNOW?

- Pavement temperature
- Actual (calibrated) spread rate
- Vehicle condition and activity
- Precipitation rate and type
- Storm start, end, and forecast behavior



WHEN DO YOU NEED TO KNOW IT?

- Right now
- Into the future (especially storm start, and any changes)
- When you are done
- As precisely as possible



HOW DO YOU USE IT?

To make the right decisions

Which are the right ones?

To salt or not to salt, that is the question?

To plow, to slip; To slip, perchance to crash—ay, there's the thump:



ISSUES

Analysis paralysis

Inaccuracies in information

Impact of reality

One size fits all

The bleeding edge or technology deficit?

