

# Wisconsin Tackles a Salty Problem

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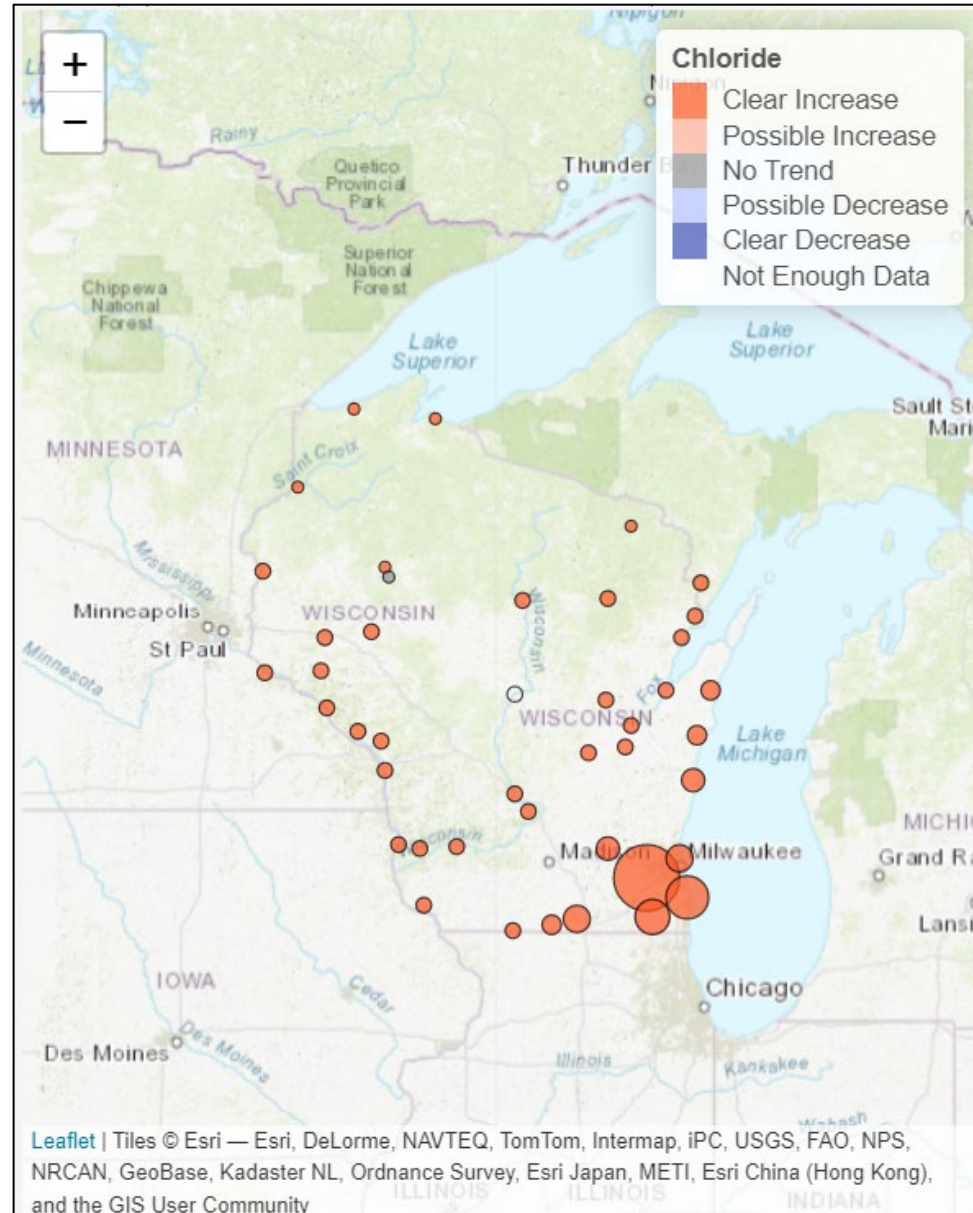
Wisconsin Department of Natural Resources  
Stormwater Section Manager

Association of Clean Water Administrators 2024 Stormwater Roundtable

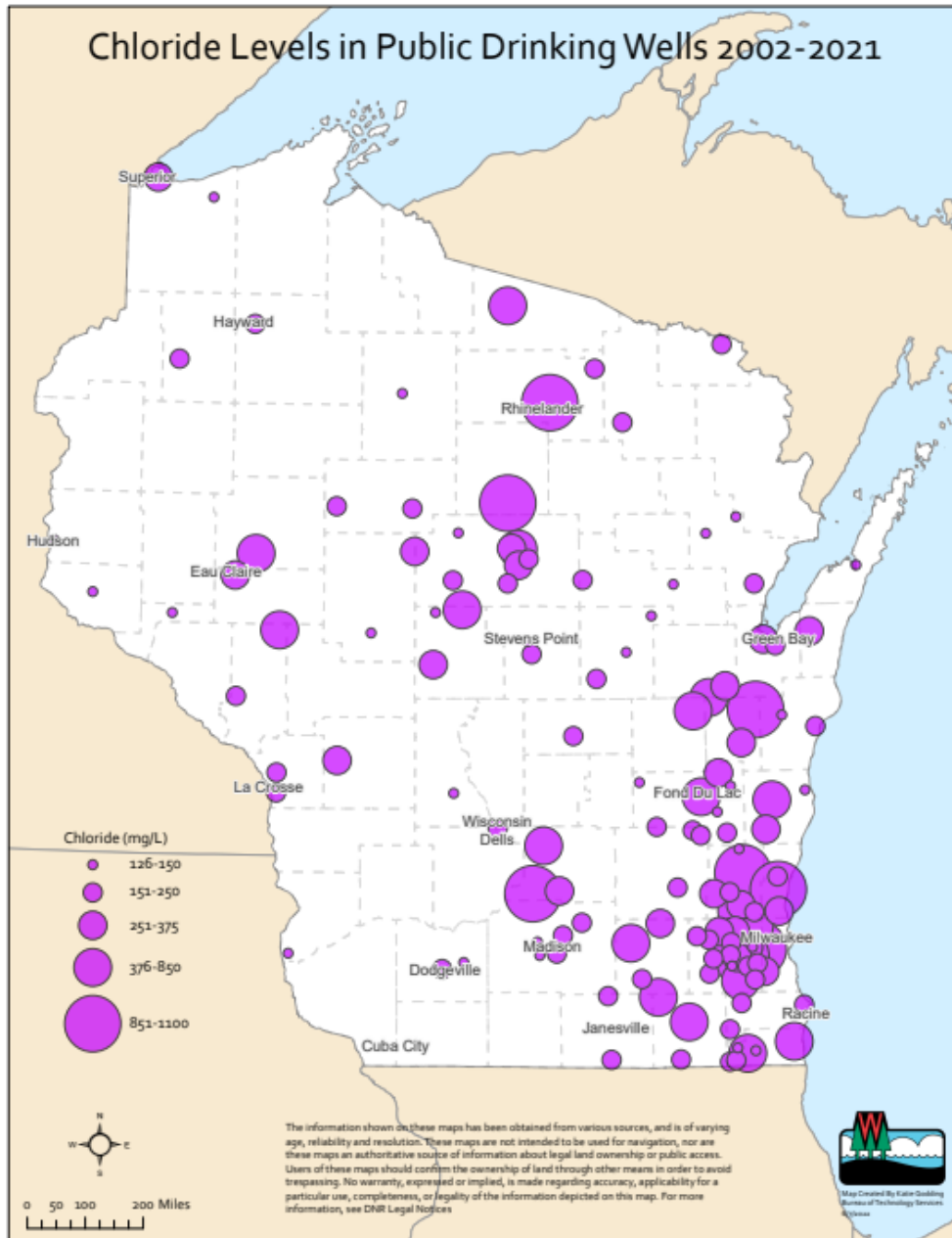
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# Trends

Currently, 51 rivers and one lake in Wisconsin exceed the state's 395 mg/L chronic water quality criteria (WQC) and are on the 303(d) impaired waters list for chloride.



# Chloride Levels in Public Drinking Wells



- Wisconsin's Public Welfare Groundwater Quality Standard is 250 mg/L
  - Creates issues with odor, taste and color
  - Does not have the same public health concerns as other pollutants such as nitrate, arsenic or lead
  - Could be an issue for individuals on a low salt diet
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- Wisconsin's chronic standard for SURFACE WATER is 395 mg/L and the acute standard is 757 mg/L

# Recommendations

16 Recommendations in 3 general areas

*DNR programs implementation and partnerships*

*State facilities and maintenance management*

*Governor's office and legislative initiatives*



# Chlorides Programs in the State of Wisconsin

## EFFICIENCY FOR WISCONSIN WINTER MAINTENANCE

**It's a BIG JOB** WisDOT works with 72 counties to clear 35,000 highway miles

Every year, Wisconsin averages...  
**32** snow events    **73** inches snow    **10** freezing rain events

**Clear roads, less salt**  
 Liquid brine, a mixture of salt and water, can help stretch budgets over traditional rock salt distribution.

**\$1,000 of road salt** = 73 LANE MILES (with brine) vs 191 LANE MILES (with rock salt)

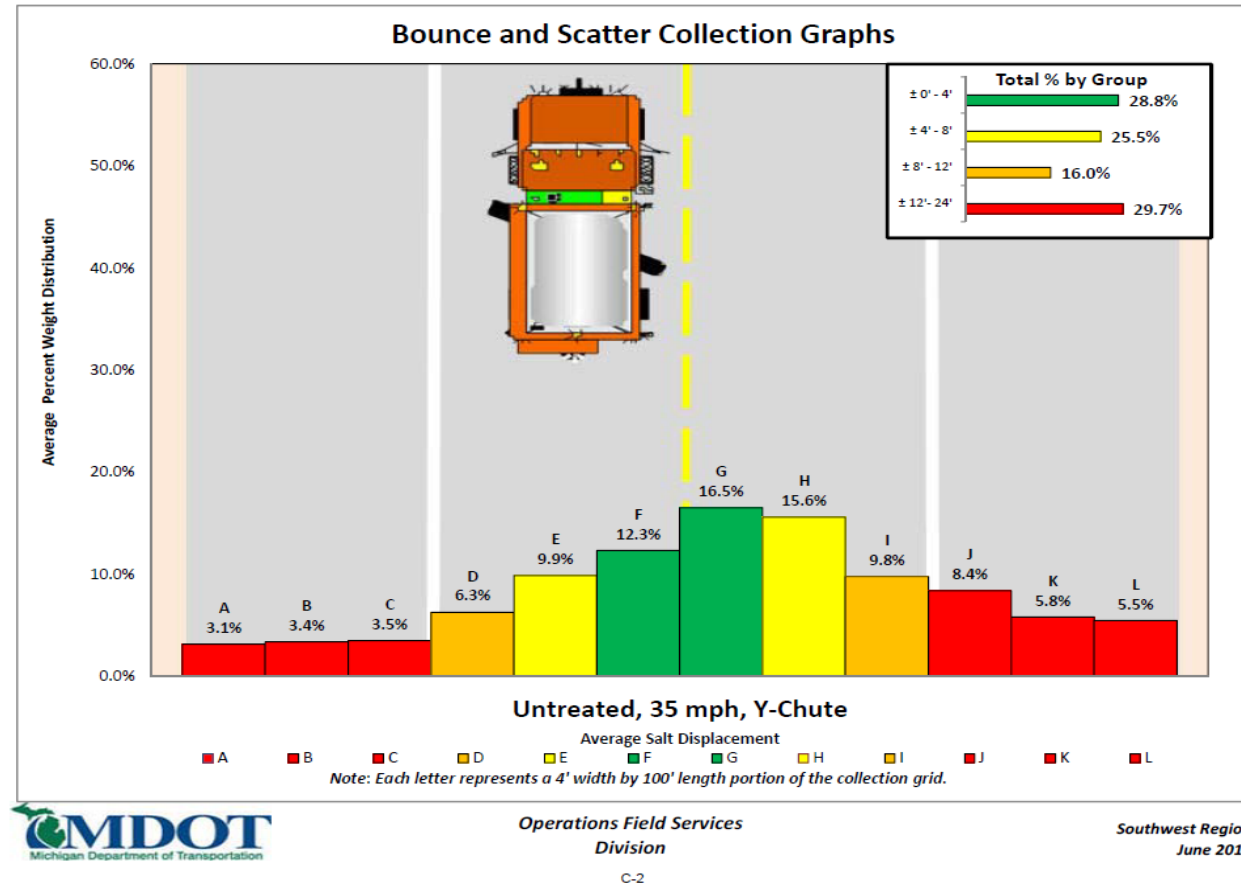
**Rising salt costs**  
 Wisconsin spends roughly \$35 million annually for salt on state highways alone, and the price of road salt is increasing.  
 Salt is 40% of total winter maintenance cost  
 2023: \$91.21 / ton    2019: \$77.10 / ton

Education, best practices and method development help winter maintenance professionals make every grain of salt count.

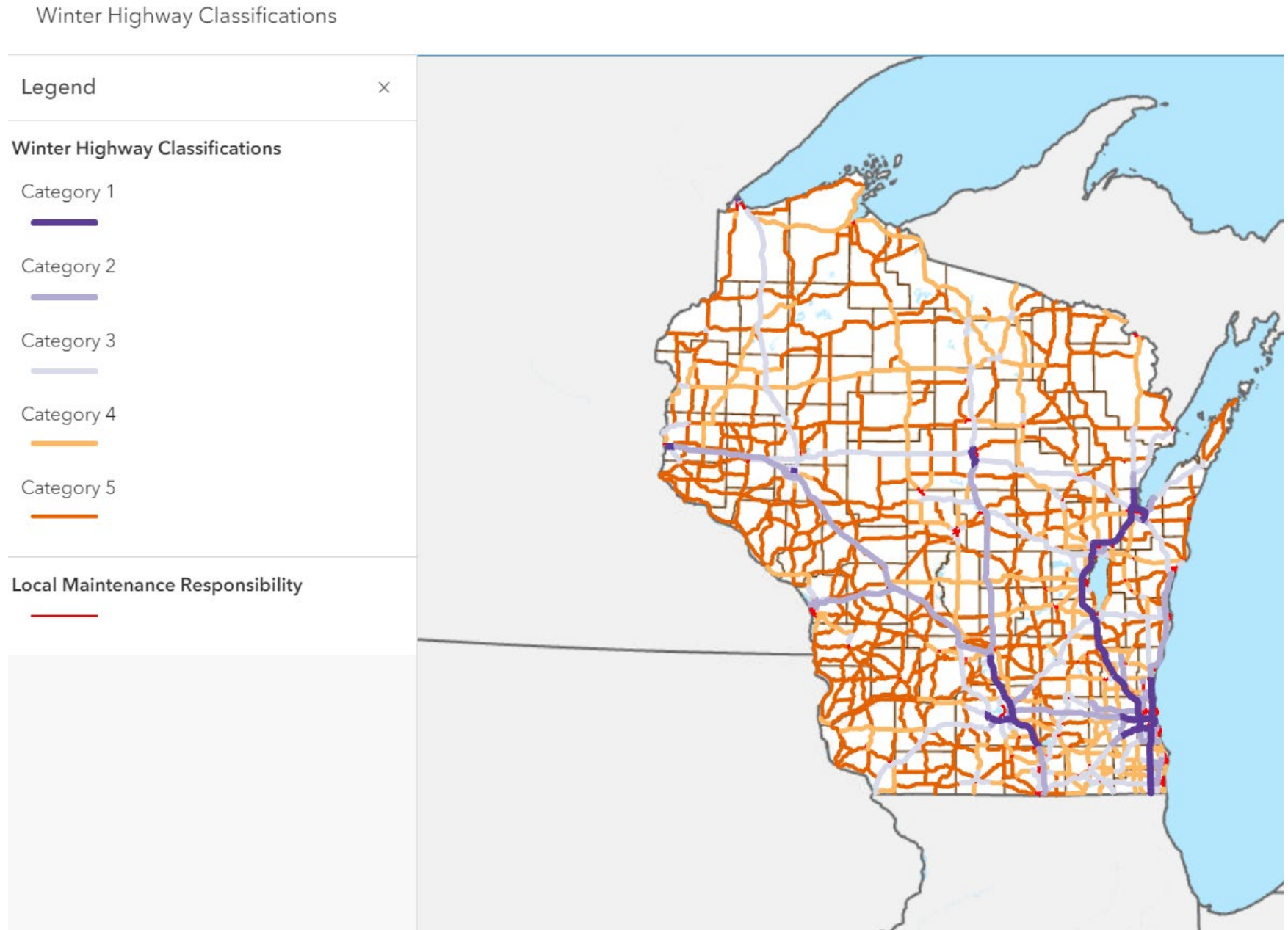
**State Highway System Salt Use**  
 2020-2021: 325 thousand TONS    2021-2022: 387 thousand TONS    2022-2023: 483 thousand TONS

**Goal: Safe winter highways**

WISCONSIN DEPARTMENT OF TRANSPORTATION



# Wisconsin Winter Level of Service Map



# Wisconsin DOT Winter Maintenance

Reporting year:	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Lane Miles	34,678	34,774	34,859	35,177	34,736	34,723
Salt (tons)	568,000	553,000	426,000	324,000	387,600	438,874
Tons/Lane Mile	15	16	12	9	11.2	13.9
Brine/Liquid	5.7M	9.4M	11.4M	11.5M	14.3M	20.1M

"Final" Wisconsin 2017-2018 Winter Report					
	Wisconsin	Minnesota	Iowa	Michigan	Illinois
Lane Miles	34,678	30,585	24,482	32,045	n/a
Salt use (Tons)	568K	439K	175K	619K	n/a
Brine/Liquid Use	5.7M	4.3M	<b>3.4M</b>	2.4M	n/a
Material Costs	\$41.8M	\$34.7M	\$15.1M	n/a	n/a
Equipment Costs	\$29.2M	\$47.1M	\$6.0M	n/a	n/a
Labor Costs	\$26.8M	\$42.2M	\$13.5M	n/a	n/a
Total Costs	\$97.8M	\$124.0M	\$34.6M	n/a	n/a
<b>COST/LANE MILE</b>	<b>\$2,821</b>	<b>\$4,054</b>	<b>\$1,413</b>	<b>n/a</b>	<b>n/a</b>

"Final" Wisconsin 2018-2019 Winter Report					
	Wisconsin	Minnesota	Iowa	Michigan	Illinois
Lane Miles	34,774	30,456	24,525	31,958	44,768
Salt use (Tons)	553K	247K	222K	528K	600K
Brine/Liquid Use	9.4M	4.6M	<b>39.3M</b>	2.2M	1.9M
Material Costs	\$44.1M	\$30.4M	\$19.8M	N/A	\$35.2M
Equipment Costs	\$36.3M	\$6.2M	\$8.8M	N/A	\$21.9M
Labor Costs	\$31.3M	\$17.1M	\$17.1M	N/A	\$31.8M
Total Costs	\$111.7M	\$132.7M	\$45.8M	N/A	\$88.9M
<b>COST/LANE MILE</b>	<b>\$3,212</b>	<b>\$4,357</b>	<b>\$1,867</b>	<b>N/A</b>	<b>\$1,986</b>

"Final" Wisconsin 2019-2020 Winter Report					
	Wisconsin	Minnesota	Iowa	Michigan	Illinois
Lane Miles	34,859	30,341	25,767	31,958	45,304
Salt use (Tons)	426K	210K	185K	444K	428K
Brine/Liquid Use (Gallons)	11.4M	6.5M	<b>31.5M</b>	1.7M	3.0M
Material Costs	\$35.3M	34.3M	20.0M	N/A	35.1M
Equipment Costs	\$26.3M	52.5M	9.5M	N/A	15.5M
Labor Costs	\$23.0M	40.2M	17.6M	N/A	20.1M
Total Costs	\$84.6M	127.0M	47.1M	N/A	70.7M
<b>COST/LANE MILE</b>	<b>\$2,428</b>	<b>\$4,188</b>	<b>\$1,828</b>	<b>N/A</b>	<b>\$1,562</b>

"Final" Wisconsin 2020-2021 Winter Report					
	Wisconsin	Minnesota	Iowa	Michigan	Illinois
Lane Miles	35,177				
Salt use (Tons)	324K				
Brine/Liquid Use (Gallons)	11.5M				
Material Costs	\$22.7M	<i>20/21 Winter Data from other states is not published yet</i>			
Equipment Costs	\$23.0M				
Labor Costs	\$28.4M				
Total Costs	\$74.1M				
<b>COST/LANE MILE</b>	<b>\$2,107</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

# Questions and Discussion