



Real People. Real Solutions.



Low Salt Solutions

How We Educate, Equip, and Empower Communities with Low Salt Strategies

The Chloride Problem: Many populated cold climate regions are facing the threat of chloride pollution to their freshwater future. Chloride, a permanent pollutant, is mainly found in road salt and is frequently used to increase safety on surfaces in the winter, such as on roads, sidewalks, and parking lots.

Other Water Resources Services

Stormwater Planning & MS4 Management
Hydrologic & Hydraulic Modeling
TMDL Assistance & Implementation
Stormwater Reclamation & Reuse Design
Best Management Practice & Water Quality Improvements

Floodplain Assessment & Mapping
Culvert & Waterway Analysis
Wetland Services
Agricultural Drainage
Wastewater Permitting
Chloride Management Planning



Just 1 teaspoon of salt pollutes 5 gallons of water indefinitely.

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The Cost to Salt

Deicing salts are used to gain temporary winter traction, but the back-end costs are staggering. One ton of salt creates between \$1,700 and \$17,000 worth of infrastructure damage and we use a lot of it!

Example of Real Change in a Cold Climate

In 2021, the Minnesota Pollution Control Agency (MPCA) issued a statewide chloride management plan, developed in part by Connie Fortin of Bolton & Menk, with the goal of reducing salt use in Minnesota. By understanding the threat chloride brings to our freshwater future and in response to this call for action by the state, Bolton & Menk developed LSiD™ (Low Salt Solutions), a package of chloride reduction strategies and principles, which includes a source reduction strategy through low salt design.



Our Mission Toward Lower Salt

Through our interest in improving the planning for and design of saltable surfaces, we strive to educate, equip, and empower communities, allowing them to eventually take the reins and have autonomy over their future by making informed decisions based on low salt principles. We will work with you to give you the knowledge and the tools to achieve your goals.

Minnesota spends about **\$100 million a year purchasing salt for city, county, and state roads**, and even much more salt is used by the private sector.



Connie Fortin: Leading, international expert in chloride reduction strategies for over 30 years.

How Can Bolton & Menk Help?

This popular initiative has empowered and propelled our internal work. However, we wanted to take Low Salt Solutions a step further by working along side communities to see how these chloride reduction strategies would integrate with their vision for the future.



EDUCATING Communities on Low Salt Principles

A Low Salt Solutions Initiative

Bolton & Menk launched LSiD™, Low Salt Solutions, in 2022 as a commitment to our clients to address growing chloride concerns.

How Can We Help?

When it comes to winter safety and salt reduction, Bolton & Menk has taken a deep dive to expose design deficiencies and combat the issues. Educating professionals on low salt design principles will spread awareness on how to improve infrastructure designs and take major strides forward in tackling the chloride problem together.

The Benefits of Low Salt Education

- Create safer winter surfaces for pedestrian and vehicle travel
- Provide cost savings by reduced winter maintenance effort
- Increase infrastructure life and lower repairs with less salted surfaces
- Reduce chloride loading to surface and groundwater
- Lessen salt toxicity to soils, vegetation and wildlife

Who Do We Educate?

- Internal employees
- Winter maintenance professionals
- Public agency design professionals
- Private/commercial applicators
- Private consultants, architects, designers

Why Bolton & Menk

We share our knowledge willingly and frequently to all communities who will listen. We have presented to more than 60 professional organizations internationally where people can learn more about our mission and get connected with us. We actively work on providing additional resources such as articles, podcasts, and documents to give access to anyone eager to learn.

Sharing Knowledge Through the Network: The International Salt Symposium

The international Salt Symposium, an LSiD™ event by Bolton & Menk, brings together leaders from diverse industry sectors to learn about the impacts of chloride and innovative reduction methods to get ahead of the chloride crisis. This event allows professionals to network and share ideas about the optimization of salt use to improve community sustainability and protect vital freshwater systems and infrastructure. The program highlights new research and technologies to reduce chlorides across many industries.



EDUCATE



We will NOT force low salt design where it does not belong or where it will adversely impact other more important criteria. We will not take uncalculated risks with our clients and their design.

EQUIPPING Communities with Low Salt Strategies

A Low Salt Solutions Initiative

Bolton & Menk teaches low salt fundamentals to communities to equip them with the knowledge and resources to take action and have control over their own infrastructure decisions.

How Can We Help?

We train professionals, expose them to tools like the Low Salt Primer, design checklists, and model ordinances, assess low salt opportunities in the field, and discuss strategies for communities to employ these concepts across their platforms.

Benefits to Low Salt Communities

- Engage in critical thinking and discussion on low salt strategies
- Learn fundamentals of low salt design
- Teach Bolton & Menk how and where low salt strategies work within your standards, processes, and philosophies
- Move ahead in chloride reduction, improve safety for residents, and further protect the environment
- Access to tools:
 - » Low Salt Primer
 - » Planning Checklists
 - » Design Checklists
 - » Model Ordinances
 - » Snow Garden Guide
 - » More tools actively in development!

Why Bolton & Menk

Bolton & Menk integrates low salt thinking throughout the company in every design opportunity. Because of our drive to provide a better future, our professionals are armed with the knowledge to help others explore and achieve low salt design in their communities.

In conjunction with teaching communities, Bolton & Menk will

- Review designs through a winter lens, offering suggestions for low salt and high safety improvements
- Evaluate and assess high salt application areas
- Evaluate and assess winter maintenance problem areas
- Bring experience back to our company to expand our low salt capabilities and share this back to low salt communities
- Assist in seeking out research funds to support this initiative
- Inspire a change in cold climate infrastructure design

PREPARE



EMPOWERING Communities for a Lower Salt Future

A Low Salt Solutions Initiative

Bolton & Menk shows ongoing support for Low Salt Communities by identifying chloride contributions and contributors and developing goals and a measurable action plan to improve your freshwater future.

What is a Low Salt Community?

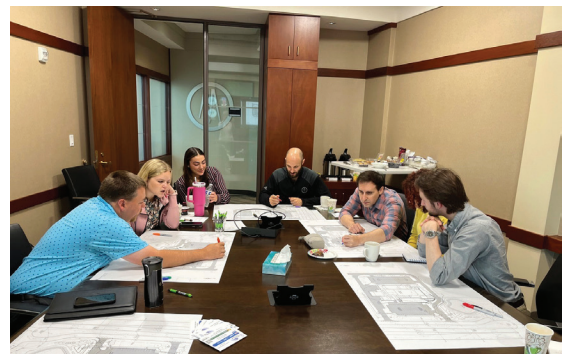
An agency that prioritizes chloride reduction and is active in understanding and reducing the use of chloride. These communities will improve the future of their freshwater resources and drive down legacy costs associated with chloride imports.

How Can We Help

Bolton & Menk provides constant reengagement opportunities through an ongoing contract for consistent Low Salt Solutions support. We verify results (ROI, value) of the effectiveness of the low salt solutions implemented and assist with ensuring chloride reduction goals are met.

Criteria to be a Low Salt Community

1. Model chloride imports
2. Identify contributors to and users of salt
3. Develop strategies to address identified contributions
4. Create a chloride reduction and management plan
5. Make progress through action on strategies that will produce the best results
6. Implement low salt maintenance, design, and planning training



Benefits

Bolton & Menk has a cadence for engagement with agency officials, constant education availability (for incoming staff, etc.), and access to tools, design reviews, design checklists, and emerging tools, products, and techniques.

Why Bolton & Menk

We provide a new path forward for communities interested in low salt design, as they have provided us with insight that allows us to refine our low salt concepts. This mission is a rewarding team effort for all involved in the process.



EMPOWER