

# Twin Cities Metro Area Chloride Project

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Minnesota Pollution Control Agency

## Phase 1

The Metro Chloride Feasibility Report was prepared by Wenck and Assoc in 2009.

### GOALS:

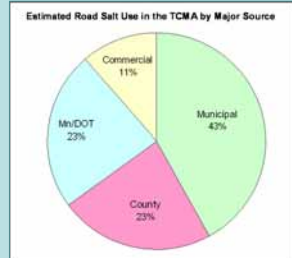
- Obtain a better understanding of the extent and magnitude of chloride contamination to surface waters in the seven county Twin Cities Metro Area (TCMA),
- Explore options and strategies for addressing chloride impairments and other impacts to water resources.



Among the objectives of this analysis was to determine the feasibility of addressing chloride contamination on a TCMA-wide scale.

### CHLORIDE SOURCES

- Road salt
- Fertilizer
- Wastewater effluent
- Landfill leachate
- Industrial discharge
- Natural sources



### CHLORIDE STANDARDS

*Chronic Exposure Standard:*

- 4 day average  $\geq 230$  mg/l

*Acute Exposure Standard:*

- One hour  $\geq 860$  mg/l

*Impairment Threshold:*

- Two or more exceedances in a three year period having at least five data points

## Phase 1 Findings

### Streams

- Majority of data values  $>$  than 230 mg/L occur during the winter (Nov. - March)
- Only 20% of the chloride data was collected during the winter period

### Lakes

- Chloride levels are typically higher in deeper portions of the lake
- Limited number of deep lake samples

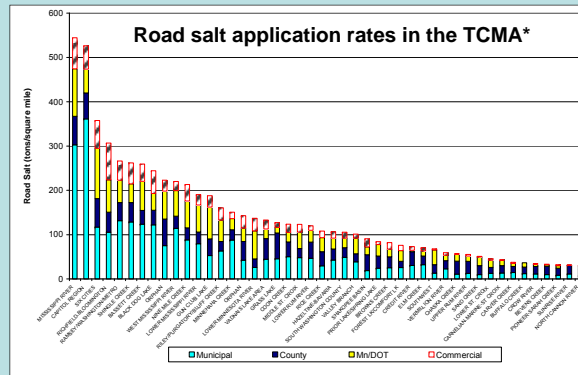
### Groundwater & Wetlands

- Novotny et al. 2008 suggest that the TCMA is retaining a high proportion of the salt applied (78%), much of which is likely ending up in groundwater (wetlands & lakes?)

- Data is relatively sparse or non-existent

### Potential Sources

- Need private application rates
- Need more accurate tracking of road salt application rates (used salt purchases for feasibility study)



\*application rates are based on purchasing records.

Mn/DOT and county roads carry high traffic volumes and are high speed roads compared to lower speed, lower traffic volume city roads, and these roads have higher salt application rates for safety reasons.

## Phase 2

The MPCA is working with several teams of stakeholders to develop a chloride management plan which will satisfy TMDL requirements for impaired waters, address waters not yet listed, and protect waters that are not yet impaired. This plan will also include implementation activities for reducing chloride to TCMA waters and identify high priority areas.



Watersheds in the TCMA

## Project Partners

- Minnesota Department of Transportation (Mn/DOT)
- Metropolitan Council Environmental Services (MCES)
- Board of Water and Soil Resources (BWSR)
- Minnesota Department of Natural Resources (MnDNR)
- United States Geological Survey (USGS)
- University of Minnesota, St. Anthony Falls Laboratory (SAFL)
- City of Minneapolis
- City of Minnetonka
- City of Prior Lake
- City of St. Paul
- Mississippi WMO
- Capitol Region WD
- Nine Mile Creek WD
- Ramsey-Washington Metro WD
- Scott County WMO



## Stakeholder Process

The stakeholder process will:

- facilitate positive interactions, and
- create ownership of the final restoration and protection plan recommendations and implementation efforts.

The meetings will include:

- identification of risks and opportunities,
- education on modeling and scientific data, and
- decision-making on preferred strategies and allocations.

## Phase 2 Goals (2010-2014)

- Develop chloride monitoring guidance
- Fill water quality data gaps
- Obtain application rates instead of purchasing records
- Gain better understanding of private applicator rates
- Develop general educational tools regarding road salt and water quality
- Define priority areas in the TCMA
- Fulfill TMDL requirements for waters already impaired
- Develop protection plan for waters still meeting standards
- Develop implementation plan that all road authorities can utilize

## For more information

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## Project webpage:

<http://www.pca.state.mn.us/water/tmdl/project-chloride-metro>