

# Madison Metropolitan Sewerage District

## Chloride Pollutant Minimization Program/Source Reduction Measures

### 2017 Annual Report

#### Section 1: General Information

**Name of Permittee:** Madison Metropolitan Sewerage District (MMSD), Nine Springs Wastewater Treatment Plant

**Permit Number:** WI 0024597-08

**This is:** the first permit issuance requiring implementation of a PMP/SRM.

**Permit Effective Date:** 10-01-2010

**Date of First PMP/SRM:** This is the first.

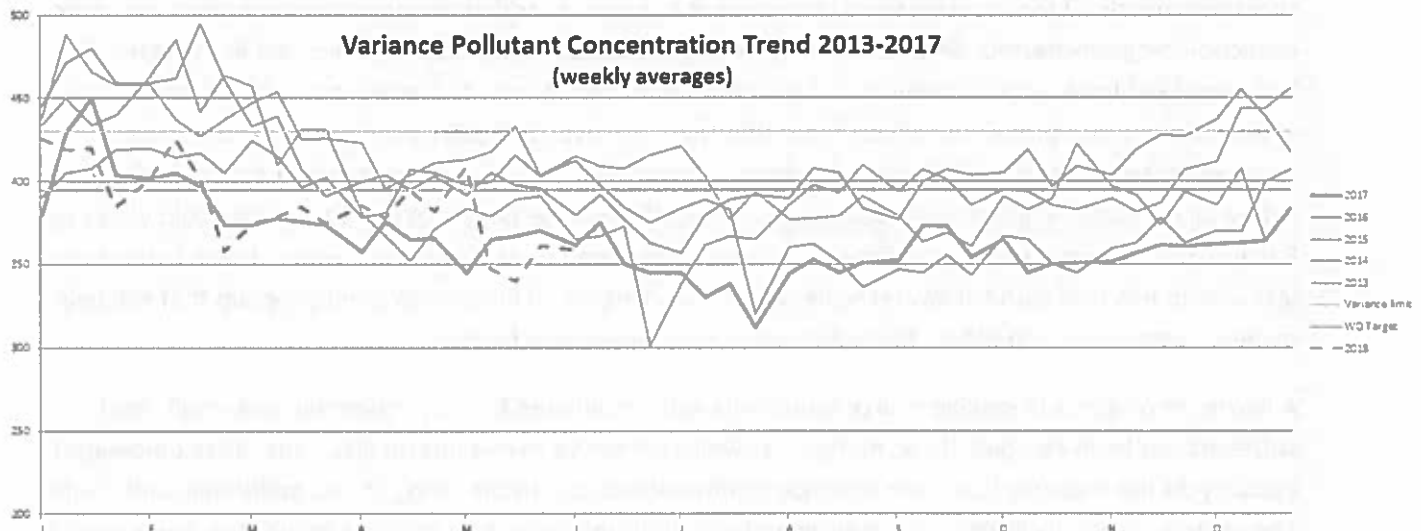
**This variance is for:** Chloride

#### Section II: Summary of Pollutant Reduction Work Done in 2017

**Average Pollutant Concentration in 2016:** 382 mg/l

**Average Pollutant Concentration in 2017:** 366 mg/l

**Variance pollutant concentration data over the last five years:**



### **Section III: Summary of Progress and Barriers to PMP Effectiveness**

Have you encountered any barriers that have limited pollutant minimization program/source reduction measure effectiveness? If so, what adjustment will you make to the program during the next year to help address these barriers? Yes, we have encountered a variety of challenges and barriers.

As noted previously, road salt is pervasive and there is no regulation on its use in the state. Road salt enters the groundwater and has become a relatively large source of chloride to the sewer system. Groundwater baseline, in our region, is expected to be below 5 mg/l. Within our tributary basin drinking water wells are showing increasing chloride, a number of these wells are now reporting over 100 mg/l with one reporting 149 mg/l in 2017.

In the district's 2017 Chloride PMP, winter road salt use was identified as a barrier to effectiveness due to the unpredictability of weather severity and then subsequently how much salt is used and even uncertainty about how much of the salt used enters groundwater or flows into sewer system. As a POTW not operated by a municipal entity, the locus of control for salting practices lies outside of district authority. The district has continued to influence and support behavior change through participation in the WI Salt Wise Partnership, sponsoring training classes, and offering road salt reduction grants. Many district actions have catalyzed municipal projects to reduce road salt, like the manhole sealing projects completed in two villages in 2017, or the (Madison) Winter Salt Certification and Wisconsin Application Rates (undertaken by Dane County). Through participation in the certification development committee, anecdotal evidence from multiple sources, we learned liability risk is a key driver of heavy, over-salting practices. While governmental immunity shields municipalities, private businesses, individuals, and institutions are all challenged by the potential to be sued for slips and falls, therefore, salt-over application is considered the norm in order to minimize risk of having an expensive lawsuit to deal with. We recommend that the state evaluate policy changes to introduce liability protection for certified salt-applicators.

Significant development is occurring in our region. The Capital Area Regional Planning Commission estimates that there nearly 17,000 housing units (Attachment B, Figure 3) added to our service area since the source reduction program started. Saltless water softening technology is not approved for sale in the state of Wisconsin and local water utilities do not soften water at the source. Therefore, point of use, ion-exchange, water softeners are prevalent. We estimate that there are over 100,000 softeners connected to our wastewater system and contributing of chloride. For the past 25-years, the common practice has been to soften all the water in a home or business, except for the outside hose bibs and the kitchen cold water tap. Because of this design constraint, fixtures have been designed to work with soft water. These fixtures are less able to function with hardwater scale. We are working on an innovation grant program that will help owners, researchers and others find solutions to overcome these barriers.

A barrier to progress in making source reductions with small-sized (mostly residential and small retail) softeners has been reaching those markets, as well as effective messaging. In 2017, the district increased capacity on the resource team and strategic communications with the hiring of two additional staff people. The resource team, including a strategic communications manager, two resource associates, and a graphic designer, has added capacity to increase our ability to reach people directly. The challenge of knowing what to say to homeowners is something that was examined with community based social marketing strategies in

later 2017. One chloride reduction strategy for homeowners, with high soft water reduction potential, but with many unknown variables is reducing or eliminating soft water use for cold water feeds (like toilets, for example). The district is working to secure partnership with researchers to explore this topic more fully. Results of this study may be helpful in reducing messaging barriers.

Because the Madison Metropolitan Sewerage District is not a single municipality, but is serving multiple customer communities, the district lacks direct contact with individuals. The district interfaces with its customer communities but not with individuals (we do not send utility bills to individuals rather our 'sewer charges' are line items on various municipal water utility bills). This leads to limited recognition of the MMSD name, logo, or work. Direct marketing of incentive programs and chloride reduction projects have been found to be the most successful tactic for inciting chloride reduction projects, however these meetings take a long time and are typically only participated in by early-adopters. Mass marketing has limited success to this point. Some institutions in the area have said they did not respond to MMSD contacts because they thought it was spam or a solicitation of some sort. The district is in beginning stages of planning for a community outreach and educational space on the WWTP campus to reduce this community recognition barrier. Having increased presence, and building capacity for news content generation will be a goal for 2018 activities.

**Section IV: Planned Actions**

A. Pollutant Source Identification Efforts	Proposed Start Date	Responsible Party	Status/Comments
<p><b>Pump Station Monitoring:</b> Evaluate geographic distribution and peaking throughout the system by monitoring pumping station samples for chloride.</p>	<p>On-going</p>	<p>MMSD Staff</p>	<p>Pumping station influent chloride concentration is scheduled to be monitored through daily sampling beginning December 1, 2017 and continuing until March 31, 2018. This data will be used to compare to historic data and to inform areas for targeted source reduction efforts, as well as to begin monitoring for influence of source reduction efforts. In 2018 the district will begin migrating their geospatial software to an ESRI platform, resulting in expanded access to mapping capabilities. All users in the Pollution Prevention team will have licenses to the mapping software. Previously, information about the collection system, monitoring data, and ways to spatially track reductions in influent were limited.</p>

A. Pollutant Source Identification Efforts	Proposed Start Date	Responsible Party	Status/Comments
<p><b>User Charge Sampling:</b> Analyze user Charge Program samples for chloride. Evaluate the viability of adding chloride as a billing parameter.</p>	2019	MMSD Staff	Action in this area is being planned for 2019.
<p><b>Road Salt Practices:</b> Evaluate the current status and improvements through a re-survey of customer communities.</p>	2017 and on-going	MMSD Staff	<p>A survey of winter maintenance practices distributed to customer communities was revised this year to be sent out in early 2018. This survey was originally conducted in 2015.</p>
<p><b>Baseline social-science survey:</b> Study existing sources of chloride, and gather information specifically for development of future outreach strategies; measure awareness and attitudes; collect information about barriers to homeowner action through scientific survey.</p>	2017/2018	MMSD Staff and possible consultant	<p>Partnerships with other organizations were made in 2017, laying groundwork for future social science research. The district secured a partnership with the Madison Area Municipal Storm Water Partnership to include questions on their periodic constituent territory survey. Questions added to this survey effort are yet in draft form, but will likely be oriented towards gathering information to inform outreach strategies for the district.</p> <p>Partnership was also strengthened with the University of Wisconsin Resource, Energy, Demand, Analysis Graduate Program in 2017. Graduate students are required to complete a practicum project with industry partners. One future project with the District may be focused on designing a survey from which data may help inform options for a homeowner incentive program.</p>

B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
Administer training	2017 &	MMSD Staff	The 2 <sup>nd</sup> <i>Salt Wise, Soft Water</i> Training

B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
<p>programs: SaltWise Soft Water Training; Winter Maintenance Training and develop/roll-out homeowner information and training program.</p>	<p>ongoing</p>		<p>(Attachment F) was held at district facilities on April 15, 2017. A total of twenty-nine people attended. In addition to offering presentations of case studies from facility managers, softener salt setting calibration education and a tour of softeners which have salt-reducing features. MMSD worked with the Wisconsin Department of Safety and Professional Services to obtain continuing education credits for this program. Eleven plumbers took the training for credit.</p> <p>Of the training attendees, at least six have applied for rebates or grants by the end of 2017, others have expressed interest. Beyond outcomes directly measurable through grant projects, this training also had many corollary benefits, including opening the lines of communication with new constituents, such as the local plumber's union, large service plumbing and wholesale companies, with whom the district had not previously had an existing relationship. District staff continues to maintain in conversation with these entities, as they are a tremendous resource for development of future programs.</p> <p>Q4 2017, Pollution Prevention staff began laying groundwork for future trainings based on feedback from 2017 class attendees. In a post-class evaluation, attendees noted that hands-on examples and advice from sector specific experts was most helpful in the training. They also highly valued hearing case studies. The district will continue to work with companies who have had successful salt reduction projects to document their work in more case studies.</p>

B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
			<p>MMSD continues to partner with WISaltWise Partners to provide Winter Maintenance Training for local applicators. In the past three years, the majority of municipalities in our service area have participated in this training (Attachment H, Figure 7). In 2017, we partnered with the <u>City of Madison on their development of a certification program for road salt applicators on parking lots, sidewalks and low speed roads.</u> In addition, we partnered with Dane County and local applicators on the development of <u>Wisconsin Application rates.</u> We continue to partner with these organizations. Future work includes the development of a Wisconsin Training Program and a train the trainer program.</p>
<p><b>Offer and expand salt-reduction rebate programs: simplify administration/quantification for programs; continue 'commercial/industrial' rebate program; continue 'professional' grant program; evaluate new or expanded programs to target specific markets.</b></p>	<p>2015 &amp; ongoing</p>	<p>MMSD Staff</p>	<p>In 2017, the district continued to offer salt reduction rebates (primarily for commercial &amp; industrial facilities), and road salt reduction grants.</p> <p>The salt reduction rebate program (Attachment J) benefitted from being re-released with changes to the lowest tier, which represented a simplified reporting structure. The program also benefitted from increased outreach support as a result of the district hiring a strategic communications manager in Q3, 2017. Strategic Communications was able to bolster existing outreach about the rebates with social media and press releases, resulting in at least two earned media features. Overall, the rebate programs prevented approximately 211,836 lb salt from directly entering the wastewater stream in 2017. In total, since the program's inception in 2015, these rebate</p>

B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
			<p>projects have saved over one million pounds salt from directly going down the drain.</p> <p>Plans for 2018 include a continuation of this rebate, with a focus on the hotels, large apartments and group facilities.</p> <p>The initial group of 'professional grants' came to conclusion Q3 of 2017. The pilot year of the professional grant (approx. Q3 2016 to Q3 2017), resulted in 455 softeners optimized, and 485 softeners replaced. This program requires that recipients use this funding to change their business practices and that those changes persist going forward. Through the pilot phase of this grant, opportunities and challenges were realized and a modified/expanded reiteration of the program, renamed, 2017 Innovation Grants was rolled out in Q4. In total, this program appears to have reduced over 26,000 pounds of salt per month.</p> <p>In the first few months of initiating the Innovation Grants (Attachment K), three grant applications were received. Many companies were in discussion about the grants with district staff. The grants require in depth project proposals and therefore are expected to garner additional applications later. These innovation grants are paving the way for 'out of the box' thinking, especially in wholesale, new-home construction markets, and for plumbers.</p>
<b>Offer Road Salt Equipment Grants: Target private and municipal operations; Incentivize salt-reducing</b>	2015 & on-going	MMSD Staff	Three road salt reduction grants were awarded in 2017. The purpose of this grant is to develop leaders in salt reduction practices. Equipment cost was cited as a barrier to adoption of new

<b>B. Actions to Minimize Pollutant Sources</b>	<b>Proposed Start Date</b>	<b>Responsible Party</b>	<b>Status/Comments</b>
<p>innovations and develop leaders in the 'new normal' measure change in winter maintenance policy &amp; practices through follow up to 2014 &amp; 15 surveys.</p>			<p>practices in multiple surveys of effective winter maintenance class attendees, so MMSD funds grants that allow recipients to purchase equipment that will enable them to reduce salt use in winter maintenance practices. One award was made to a large private snow removal and landscaping company to purchase brushes and study the relationship between brush usage and salt use. Another award was allocated to a landlord in a high-traffic area where they will be reducing overall salt use on sidewalks and walkways around the property. Additional funding will be put towards an innovative softener brine capturing device which diverts brine from water softener reject water to a tote for use on pavements. Case studies for all of these projects will be developed in 2018.</p>
<p><b>Behavior Change Initiatives:</b> Develop programs to change behavior/social norms with businesses and individuals; leverage WI Salt Wise to change behavior and social norms.</p>	<p>2018</p>	<p>MMSD Staff</p>	<p>WI Salt Wise partners co-sponsored trainings, district staff were involved in city/county road salt application rate chart development and certification development. The certification program is intended to make it clear to people hiring contractors what level of training they have had.</p> <p>The district also hosted a Dane County Watershed Network Gathering at which we tested a pilot project with small group of interested individuals. The purpose was to collect information on barriers. This pilot involved a pledge and a prompt. Initial results are still being collected in 2018. Would like to pilot again, on a larger scale to continue to collect info on barriers, also measure effectiveness of written pledges and prompts.</p>



B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
<p><b>Capitalize on low-hanging fruit:</b> Develop outreach kit; focus industrial contacts on chloride reduction opportunities; attend community events as appropriate, with emphasis on chloride information.</p>	<p>Various actions start during 2017-2019</p>	<p>MMSD Staff</p>	<p>Chloride source reduction was covered in each of the approx. two dozen industrial permitted inspections in Fall 2017. Resources, including a chloride reduction worksheet, and a copy of the chloride reduction rebate application were given to all facilities who had not already taken actions to reduce chloride discharge from their facility.</p> <p>Actions for reducing chloride were regularly incorporated into a new customer-community newsletter distributed periodically throughout 2017. A full newsletter dedicated to salt reduction actions was sent out Q4 2017. This newsletter included many resources for municipalities to use in outreach to their constituents, including a bill stuffer, community newsletter example/form articles, a template letter inviting commercial and industrial water utility accounts to find out about salt use at their facilities, a salt reduction brochure, social media posts</p> <p>At least two communities utilized the bill stuffer. Village of Waunakee and Kegonsa Sanitary District utility customers received the information about chloride, and what they could do to take action in their bills (est. Waunakee: 5,300 residential and 800 non-residential, KSD 570 residential) in 2017.</p> <p>Community events attended (Attachment L) included continued incorporation of softener information in the district's tour program (estimated audience of about 1,500 people annually), church group presentations, school outreach presentations, the Dane Co. Parks</p>

<b>B. Actions to Minimize Pollutant Sources</b>	<b>Proposed Start Date</b>	<b>Responsible Party</b>	<b>Status/Comments</b>
			<p>Harvest Moon Festival, World Water Day, and various earth day events and sustainability fairs.</p> <p>At least 11 presentations were given at a variety of professional network presentations and community groups: Future Environmental Technologists Conference, Gov. Affairs Seminar panel on chloride, Central States Water Environment Association Pretreatment Seminar, Presentations to the Met Council, to the Madison Facilities Management Group, the Madison Area Builder's Association, Dane County Watershed Network Gathering, Sustain Dane Sustainable Business Committee, UW Health Services.</p> <p>Community groups are increasingly being reached out to, to publish articles to their various different constituents. This year, the Rock River Coalition included an article about the WI Salt Wise Partnership in their member newsletter, as did the Friends of Lake Wingra. Increased participation in the Dane County Watershed Network Gatherings in Q3 and Q4.</p>
<p><b>Expand digital presence:</b> expand WiSaltWise.com/campaign and web resources (MMSD website, social media, videos)</p>	<p>Summer/Fa ll 2015 – On-going</p>	<p>Consortium/M MSD Staff</p>	<p>Initial research into engagement apps, specifically looking to use something like the "Keep It Cool Campaign", to help people who care about the environment, and can identify over-salt use, but don't have the time, ability, knowledge to take direct action on their own to be community activists and would allow the WI Salt Wise campaign to crowd-source data. This app would promote the City-County Winter Salt Certification program and also reinforce positive behaviors while empowering</p>

B. Actions to Minimize Pollutant Sources	Proposed Start Date	Responsible Party	Status/Comments
			<p>individuals to make a difference. We have partnered with WISaltWise partners to develop <u>Take Action</u> resources for the WISaltWise (Attachment G) website. District staff will be continuing to implement a new GIS system on the ESRI platform, and will be attending training events and conferences which will provide more background knowledge to facilitate implementation of this idea.</p> <p>The WI Salt Wise website had an events section added to the website. The partnership was able to then promote training events and certification deadlines in a centralized location. The WI Salt Wise partnership will be undergoing an overhaul to increase ease of maintenance, and dynamism, while keeping the look and feel as well as the targeted user audience messages.</p> <p>Increased social media followers with a twitter and Facebook account.</p>

C. Maintenance of Source Reduction	Proposed Start Date	Responsible Party	Status/Comments
<p><b>Quantifications/Data Mining:</b> analyze historic data; determine magnitude of previous reductions; develop estimates of and future viability.</p>	2017	MMSD Staff	<p>Attachments A-D show additional data. Existing data was used to estimate the impact of Kraft Heinz closing and leaving the area. Since the Kraft plant closure was a slow taper as opposed to an automatic shut-off therefore the immediate drop in chloride is difficult to find and attribute to the industrial user. When they closed their doors in mid-2017, it is estimated that approx. 6,000 lb chloride per day were attributable to this source. Historical data is being compiled and assessed in a variety of</p>

C. Maintenance of Source Reduction	Proposed Start Date	Responsible Party	Status/Comments
			formats.
<p><b>Lay groundwork for new construction/wholesale market program:</b> (with significant growth of business and housing, new softening systems continue to be installed.) Evaluate market and potential entry points; gather information specifically for development of future outreach and/or incentive strategies.</p>	2017/2018	MMSD Staff	<p>The district has begun discussions and building relationships with developers. Following a rate fee increase for connection rates, the district has opportunities as well as challenges ahead in this arena. None the less, the Madison Area Builders' association was in conversation with the district and has begun to make changes to some properties. Encouraging new development to adopt higher efficiency standards is an area for future progress to be made.</p>
<p><b>Cultivate relationships/leverage partnerships:</b> leverage existing social networks, build new relationships with hotels/apartments/industry; continue to facilitate conversations between salt reduction champions and their peers; partner with sustainability focused programs in the region to identify and leverage synergies and speak in venues where our messages can reach broad audiences.</p>	2017	MMSD Staff	<p>In addition to continually building support for chloride reduction programs within the district at plant meetings, district staff has made significant progress towards recruiting external allies as well.</p> <p>Reaching new audiences by partnering with other organizations, like for example, placing an insert in the Clean Lakes Alliance breakfast annual meeting, or discussing co-branding &amp; audience messaging synergies with Cool Choices / PACE WI, district staff have been thinking creatively about how to reach larger networks and leverage trusted messengers.</p> <p>On that topic, building relationships with customer communities was also an emphasis in 2017. The district began sharing news via a newsletter to customer communities, and engaged customers, specifically on pollution prevention. Six of MMSD's largest customer communities were met with in 2017.</p>

C. Maintenance of Source Reduction	Proposed Start Date	Responsible Party	Status/Comments
			<p>Pollution prevention staff also built relationships with additional university partners including, WARF/UW Chemistry department about a new desalination research project, UW Office of Sustainability, UW Environmental Health and Safety, Nelson Institute's Water Resources Management Practicum and others.</p> <p>District staff had over 55 direct meetings about chloride, and gave at least nine major presentations on chloride specifically. In addition, the majority of Madison's top 50 water users have been contacted directly by District staff.</p>
<p><b>Communications:</b> Develop and roll out videos/case studies and industry/large water user focused messages; target outreach and develop messaging.</p>	<p>2017</p>	<p>MMSD Staff</p>	<p>2017 marked a major year for building capacity with systems that will be rolled out in 2018, including website analytics, email delivery software, website redesign and an overall district communications plan.</p> <p>A press release was sent out to announce 2017 Salt Reduction Rebates. This release went out to over 50 entities including state and local news, apartment associations and property managers, permitted industrial customers and real estate developers. The story was shared by WI Business news, the Madison East Side Business Alliance, Herald Independent, McFarland Thistle and retweeted by the Madison Chamber of Commerce.</p>
<p><b>Funding and staffing:</b> maintain on-going staffing and budget to support Chloride Source Reduction</p>	<p>Yearly</p>	<p>MMSD Staff, Ecosystem Services Director and Chief</p>	<p>Resources continue to expand at MMSD. The source reduction budget has again been fully funded in MMSD's (2018) budget. Recently, the district hired a graphic designer and a</p>

C. Maintenance of Source Reduction	Proposed Start Date	Responsible Party	Status/Comments
Program		Engineer/Director	communications manager, added social media platforms, began to publish press releases and hired a professional photographer. All these resources are contributing to not only the chloride initiatives, but also generally to expansion of district presence in community.

**Section V: Notes**

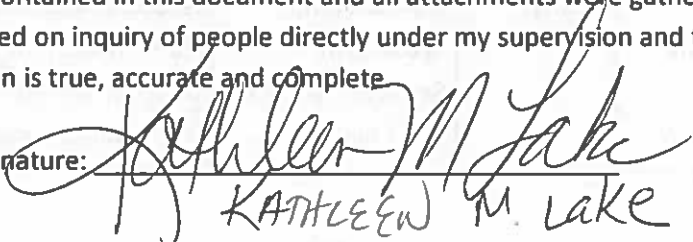
As the district’s pollution prevention department grows, and increasingly more individuals and organizations have interactions with wastewater treatment plant staff, so do conversations about pollution prevention. Constituents with whom the district works in various capacities are brought into holistic pollution prevention discussions. For example, when inspecting dental offices, as part of regular inspection for amalgam separators, we also ask to see water softeners. During annual pretreatment department inspection of Industrial permittees, softeners are also examined and businesses are asked to take actions to reduce chloride in both process chemicals as well as with softeners.

The district continues to invest heavily in its chloride source reduction program, including significant staff resources and budgetary investment. Wisconsin’s freshwater resources are threatened by the addition of salt – mainly from road salt and water softening. Addressing these sources on a statewide basis is critically needed to protect Wisconsin’s freshwater. As softening is a huge source, it would be useful to find a viable alternative to ion exchange softening. Currently, the DSPS doesn’t have any salt technologies certified. There is also limited literature, to our knowledge, that details the impacts of only partial house softening. In many older homes, only hot water is softened, yielding an overall average home discharge chloride concentration of well under 395mg/l, however, in many new construction homes, all water feeds are softened, yielding much higher average discharge concentrations. Research regarding the tradeoffs and risks associated with only softening hot water sources would be invaluable in promoting a message to homeowners, as well as for potential policy recommendations.

**Section VI: Certification**

I certify that the information contained in this document and all attachments were gathered and prepared under my supervision and based on inquiry of people directly under my supervision and that, to the best of my knowledge, the information is true, accurate and complete

Authorized Representative Signature:

  
 KATHLEEN M. LAKE 6/22/18

Date of PMP Annual Report Submittal to WDNR: June 22, 2018



### Attachment A - MMSD Nine Springs Chloride Concentration

The average of all daily combined effluent sample concentrations in 2017 is 366 mg/l, as shown below. This data is further described:

Median: 362 mg/l

Minimum: 256 mg/l

Maximum: 497 mg/l

It is important to note that MMSD is regulated on a Weekly Average Concentration basis.

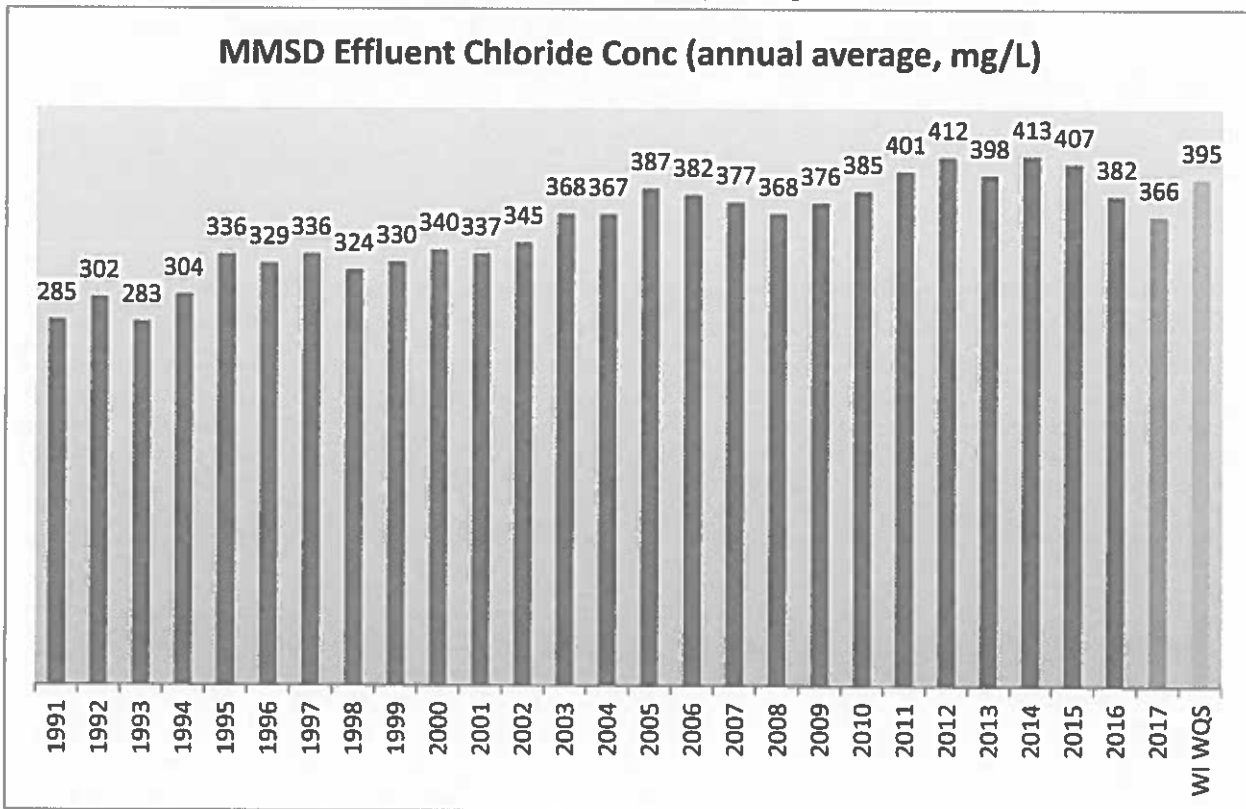


Figure 1 - Annual Average Effluent Concentration

### Attachment B - MMSD Nine Springs Chloride Mass

This graph shows the mass trends over the past 25-years. There appears to be an inflection point at the time that MMSD began our chloride source reduction program (2010). Even with growth (increased number of customers) in our system, our overall mass has decreased. Mass can be expected to increase due to growth. Mass is correlated to weather as well –peak effluent concentrations (and peak mass) generally occur in the winter and coincide with major salting and melting events. Compared to other areas of the state, our service area is under significant development pressure.



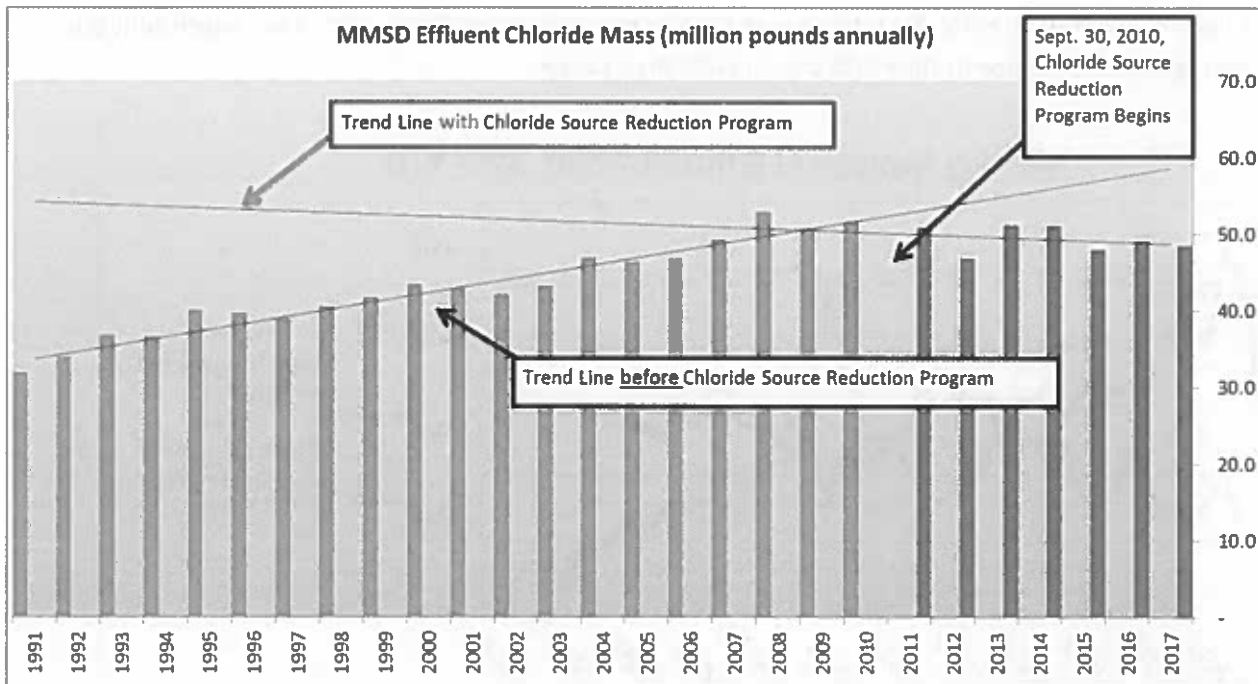


Figure 2 - Chloride Mass Graph

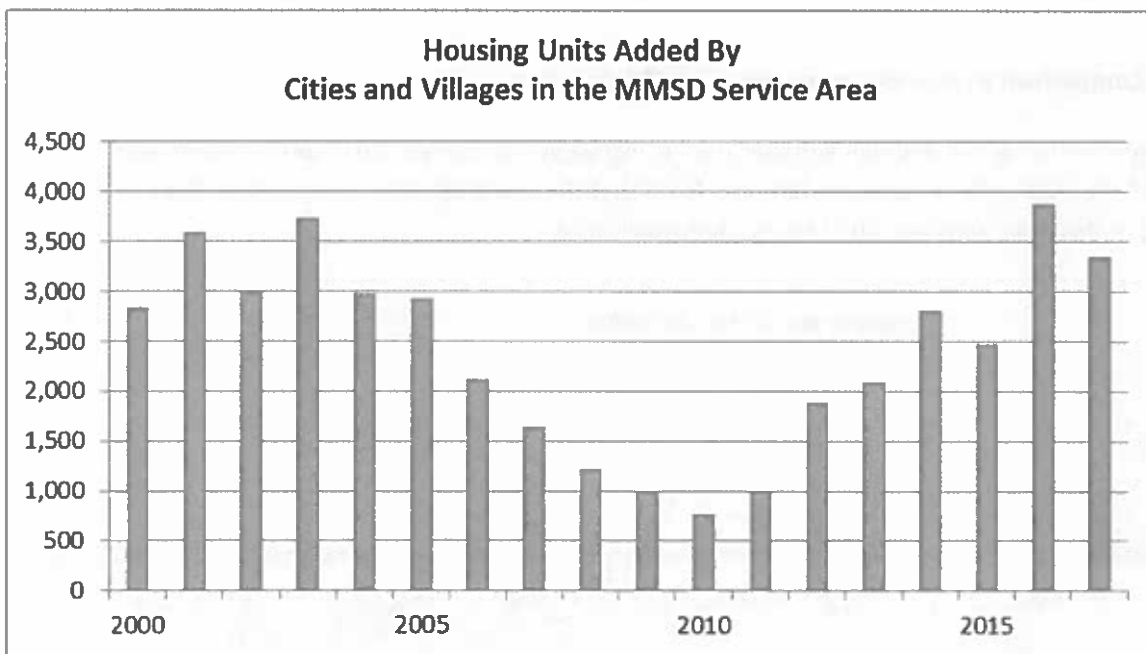
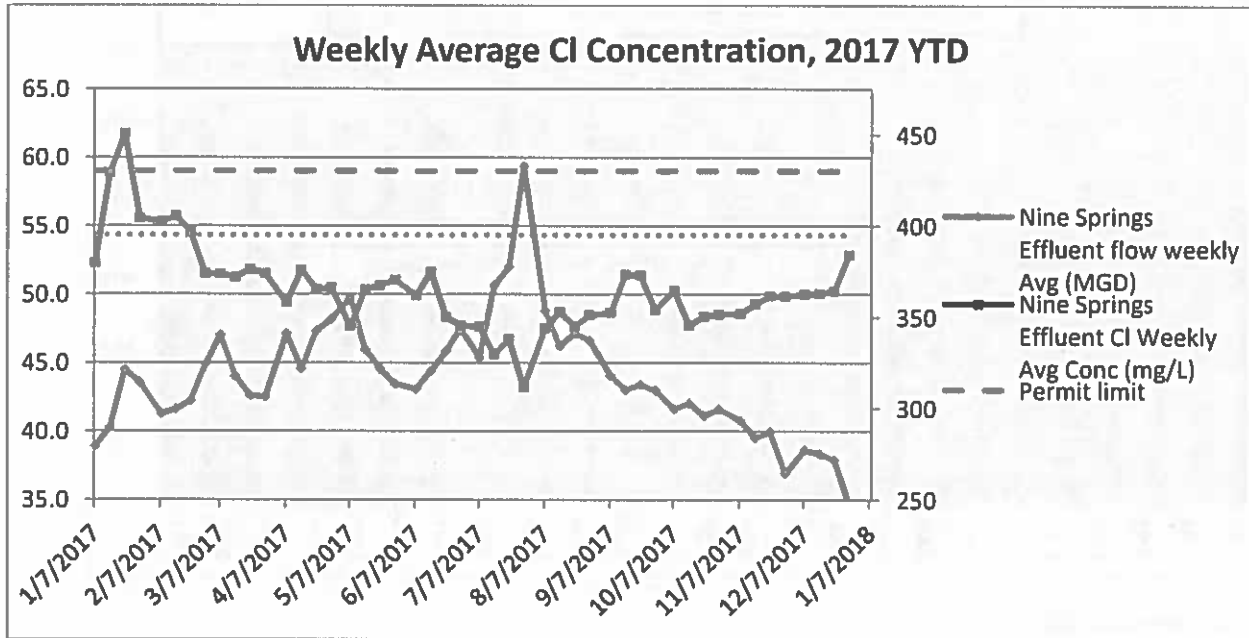


Figure 3 - New housing units in MMSD boundary

**Attachment C - Weekly Average Concentrations for 2017**

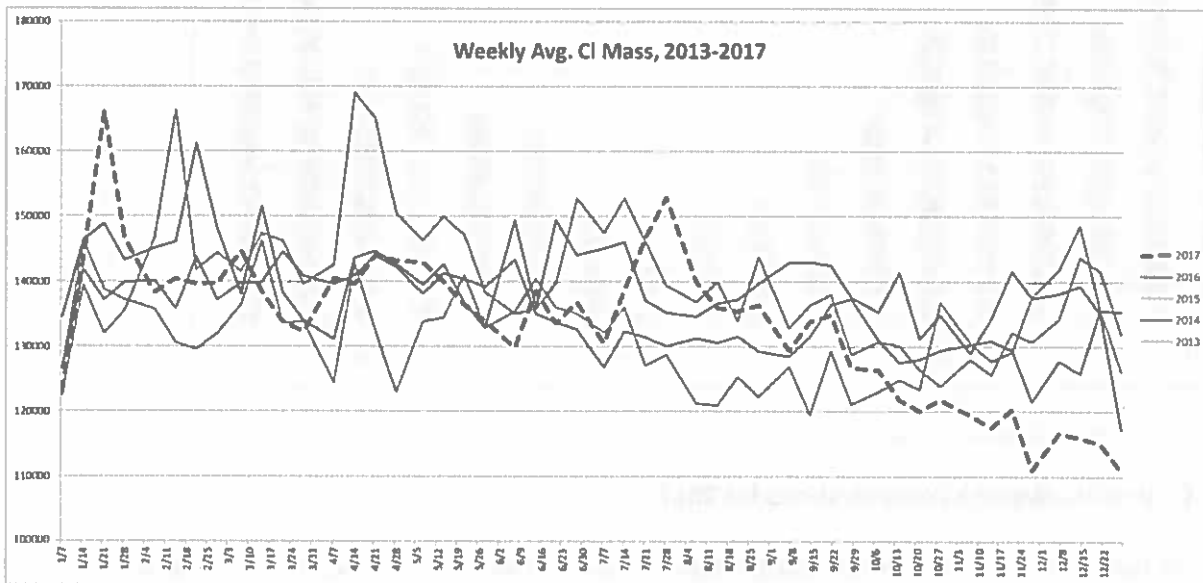
When flows are high, concentrations are generally reduced. During one week in 2017, concentrations were over 430 mg/l. The winters of 2015-2016 and 16-17 were uncommonly warm with a low amount of snow

and thus deicing material. In early 2017, there was a major ice storm event followed by rain, which sent the weekly average chloride concentration into the mid 400 mg/l range.



**Attachment D – Comparison to previous years what is 2017 summary**

2017 was a wet year, with rainfall averaging higher than previous years. Early in 2017, an ice storm was likely the cause of elevated chloride levels in January. Note that the trend exhibits a downward slope throughout most of the year, with late 2017 being abnormally low.



### Attachment E – Seasonal Average Chloride Data

When flows are high, concentration is reduced. When mass is high and flows are low, concentration is elevated. The quarter that is least impacted by winter road salt is the third quarter.

2017 NSWTP Seasonal Average Chloride Data				
	Flow, daily avg. (MGD)	Chloride avg. concentration (mg/L)	Chloride avg. mass (lb/d)	Mass difference from CY avg, as %
2017 CY Avg	43.8	366	133,597	-0.7
Q1	42.9	393	140,528	1.4
Q2	46.1	361	138,393	-0.2
Q3	47.4	348	137,034	4.2
Q4	38.9	361	118,303	-8.7

### Attachment F – Training Program Agenda

The second Salt Wise Soft Water Training was held on April 25, 2017. The event was free to attend. Those who were interested could earn DSPS continuing education credits for attending the event. 196 invitations were sent to a wide audience including facility managers, business owners, plumbers, multi-family housing property managers, and water quality technicians. In total, 35 people registered for the class. 29 people attended the workshop including presenters, and 11 of the attendees took the class for DSPS credit. Response to the class was overwhelmingly positive; however feedback also indicated that the class could benefit from being more audience specific instead of such a wide net.

Madison Metropolitan Sewerage District

1610 Moorland Road • Madison, WI 53713-3358 • P: (608) 722-1201 • F: (608) 275-3129

## Salt Wise Soft Water Workshop – Spring 2017

Tuesday, April 25, 2017 | 8:30 AM – 11:30 AM

Madison Metropolitan Sewerage District, Maintenance Facility, 1610 Moorland Road, Madison, WI 53713

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In this workshop, attendees will learn how to reduce salt waste in their facilities through more efficient water softening, saving them time and money on salt while helping Madison Metropolitan Sewerage District (MMSD) meet chloride reduction goals. Topics will include an overview of water softening and ways to improve softener performance, case studies of facilities that have reduced salt, information about MMSD's salt reduction rebates, and a tour of the softening systems on the MMSD campus.

*Continuing Education: This course has been approved by the Wisconsin Department of Safety and Professional Services for 3.0 hours of credit for the following credentials: Commercial Plumbing Inspector Certification, Dwelling Contract Qualifier Certification, Journeyman Plumber License, Journeyman Plumber-Restricted Appliance License, Journeyman Plumber-Restricted Service License, Master Plumber License, Master Plumber-Restricted Appliance License, Master Plumber-Restricted Service License, UDC-Construction Inspector Certification, and UDC-Plumbing Inspector Certification.*

### Agenda

8:00 - 8:30 AM	Registration and Networking
8:30 - 8:45 AM	Introduction and Overview of Chloride Pollution (Emily Jones, MMSD)
8:45 - 9:30 AM	Evaluating Softeners for Improvement Options (Jeff Hellenbrand, Hellenbrand; John Fetzer, Culligan Total Water)
9:30 - 9:45 AM	Expert Q&A/Break
9:45 - 10:25 AM	<b>Salt Reduction Case Studies</b> <ul style="list-style-type: none"><li>• Lucky Building (Mike Gresch and Paul Bretl, Steve Brown Apartments)</li><li>• Best Western-InnTowner (Regi Licht, Total Water)</li><li>• Pfizer (Brad Chesmore and John Janzen, Pfizer)</li><li>• Dane County Facilities (Video case study; Todd Draper, Dane County)</li></ul>
10:25 - 10:40 AM	Overview of MMSD Salt Reduction Rebates (Emily Jones, MMSD)
10:45 - 11:30 AM	<b>Tour of MMSD Softening Systems</b> <ul style="list-style-type: none"><li>• Operations Building (Hellenbrand)</li><li>• Maintenance Facility (Total Water)</li><li>• WAS Thickening Building (Emonix)</li></ul>

Commission President: Thomas Howell  
Chief Engineer & Director: D. Michael W. J. Jr., P.E.

## Attachment G – WiSaltWise: Press Packet, Facebook, Twitter, YouTube

WI In 2017, WiSaltWise refreshed and reorganized its website, create a variety of “Take Action” steps the homeowners and residents could take. A press packet was developed and pushed to a variety of markets. In addition, Facebook <https://www.facebook.com/WiSaltWise/> posts were developed and boosted, the Twitter <https://twitter.com/WiSaltWise> presence was increased and additional videos were added to the YouTube Channel: <https://www.youtube.com/channel/UChExOSekqfegfFicF7l6RXg>.



Figure 4 - Refreshed website WiSaltWise



## Be Salt Wise

[WisSaltWise.com](http://WisSaltWise.com)

**The images above show salt overuse.  
Here's why it's a concern:**

- One teaspoon of salt pollutes five gallons of water
- Chloride from salt is toxic to small aquatic life and damages landscaping
- Once salt is in our waterways, it does not break down. It's here to stay
- Chloride levels exceeding the Chronic Toxicity Criteria for small aquatic life have been observed in Dunn's Marsh, University Bay Creek, and Starkweather Creek
- Salt infiltration has been observed at five of Madison's 22 drinking water wells.

Want to help make a difference? Start by using only what you need: the image on the following page shows what the right amount of road salt looks like. Be sure to remove as much snow and ice as you can before applying salt. And remember, salt becomes ineffective when temps drop below 15 degrees. Hiring a snow removal contractor? Check to see if they're certified in proper salt use: [CityofMadison.com/Salt\\_Certification](http://CityofMadison.com/Salt_Certification) (the Winter Salt Certification Program is open to all in Dane County). Find more tips to reduce salt use at [WisSaltWise.com](http://WisSaltWise.com).

Wisconsin Salt Wise is a coalition of organizations working together to reduce salt pollution in our lakes, streams and drinking water. Our experts are available to talk about proper salt use for homeowners, the environmental impacts of salt, how to keep pets safe when it comes to salty sidewalks, and how to spot salt overuse. Help us spread the word this winter!

### This is what the right amount of salt looks like.



#### 1. Shovel



Clear driveways and other areas before the snow starts to fall. The more snow you remove manually, the less salt you will have to use and the more effective it will be.

#### 2. Scatter



If you apply salt to pavement, aim for a pattern like this, leaving some bare pavement salt-free. A thin, even bed of salt is enough for about 50-70 lbs of snow. A hand spreader can help create this pattern.

#### 3. Switch



When the pavement temperature is below 15 degrees, salt won't work. Switch to a different ice melter. Clear a blend that works at a lower temperature, or use sand for traction.

Figure 5 - 2017 Press Kit - WisSaltWise

## Attachment H- Road Salt Grants

In 2017, MMSD awarded three road salt grants. One of the awards was significant in that it supported best management practice adoption in one of the larger private companies in the Madison area. The initial results of this project show a 56% salt savings of salt per run on sidewalks that are maintained by the tool cats on which upgrades were funded. This equates to a 3.2 ton savings per event. Additionally, this company is promulgating management changes in their organization as a result of attending local effective winter maintenance training classes hosted by MMSD and others. They have been discussing expectations with all employees, and have a quality control program to ensure crews are using the proper amount of salt. Through these management changes alone, the company is generally seeing a quick adoption of BMPs by staff, and has already seen an average decline in (usually hand-spread) bagged salt use of 1-2 tons per storm event.



### Madison Metropolitan Sewerage District Road Salt Reduction Grant, Request for Proposals 2017

#### PROGRAM INFORMATION

Madison Metropolitan Sewerage District (MMSD) is seeking leaders in winter maintenance who want to make a commitment to using best practices to reduce salt use. This grant is intended for winter maintenance & snow removal professionals who want to be leaders in reducing their salt use on roadways, sidewalks, driveways, and parking lots. Past grant recipients have used funding for purchase of (new or used) equipment or retrofitting of existing equipment to facilitate best management practice adoption and overall reduced salt use.

#### ELIGIBLE APPLICANTS

Entities that meet all the following criteria are eligible to apply for this grant:

- Are working within MMSD's service area
- Use salt in winter maintenance practices
- Have at least one employee who has attended a winter maintenance training class that includes information about the environmental impacts of salt
- Applicants may partner with other entities to implement the project, but the salt applicator must be the entity that applies for this grant.

#### PROJECT REQUIREMENTS

To be considered for funding, proposed projects must meet all of the following criteria:

- Complete a salt reduction project in MMSD's service area.
- Demonstrate a measurable decrease in salt use.
- Install/complete the project between December 1, 2017 – April 15, 2018
- Develop a written winter maintenance policy (or modify an existing one, if applicable).
- Share project experience - Grant recipients will be required to provide information to aid MMSD in developing a case study or public outreach efforts.
- Submit completed final report including salt application data.

*(Continued on following page)*

Page

Madison Metropolitan  
Sewerage District

Figure 6 - Road Salt Grant Program 2017

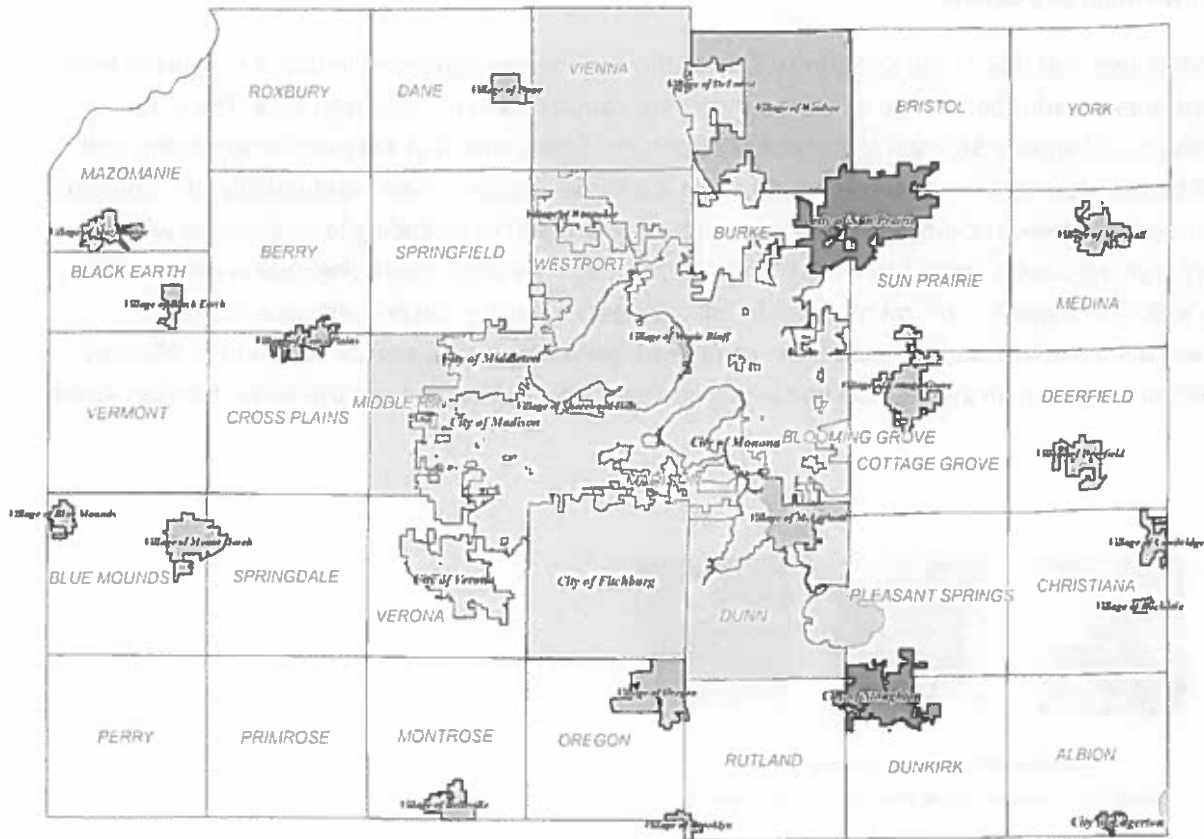


Figure 7 - Communities participating in Road Salt Training in past 3-years



## Attachment J – Large-User Rebates

MMSD continues to work towards streamlining this program to make it easier and more straightforward to apply. The official 2017 rebate was announced late in 2017, circa July. The press release was sent out to 57 different news outlets and picked up by a few who did in depth stories to cover the benefits local companies have seen from their efficiency upgrades. The relationships with companies are very slow to develop – in other words the meetings do not have an immediate pay-off, however it is apparent through our rebate applications, that these meetings are the primary means for companies hearing about the rebate program. There are very few if any companies which have applied for the rebate without first having met with MMSD or having heard about it through their water quality vendor.



### BACKGROUND

Madison Metropolitan Sewerage District (MMSD) is working to reduce the amount of salt (chloride) that reaches the wastewater treatment plant. To help achieve these reductions, MMSD is offering rebates for projects that result in permanent, measurable reductions in salt to the sewer system.

Example projects could include optimizing water softeners to use salt more efficiently, reducing the amount of soft water used in your facility, or reducing the use of chloride-containing process chemicals. However, you have flexibility in the type of project implemented at your facility, as long as the project reduces the amount of salt that goes down the drain.

Rebates are also available for elution studies, which evaluate the performance of water softeners and can help identify opportunities for improvement.

### PROJECT ELIGIBILITY CRITERIA

- *MMSD must receive a rebate application before the project takes place.* Applicants may submit in-progress applications prior to the project to demonstrate intent to pursue a project if not all information for the application is immediately available.
- The project must take place on a system that already has a water softener in use or otherwise uses chloride in a system that discharges to the sewer (that is, rebates cannot be used for new water softeners where a softener had not existed previously).
- The project must take place in MMSD's service area.
- The project must be completed within 6 months of applying for a rebate.
- Rebate recipients must be able to quantify the amount of salt reduced by the project. (This criterion does not apply to elution studies.)

### WHO CAN APPLY

Either of the following entities can apply for a rebate.

- Facilities that own the system to be improved (e.g., the facility that owns water softeners to be upgraded), OR
- Water treatment professionals implementing a salt reduction project in a facility. For example, a water treatment company could submit a rebate application for a project it is implementing for one of its clients. *In this case, the company is required to pass along the amount of the rebate to the client.*

In either case, the applicant is responsible for all reporting requirements. Once reporting requirements are satisfied, the applicant will receive the rebate.

### AVAILABILITY

These rebates will be available in 2017 as long as MMSD funding is available. Rebates are first-come, first-served, so applicants are encouraged to submit applications as early in the year as possible.

Madison Metropolitan  
Sewerage District

Figure 8 - Large Scale Rebate

## Attachment K – Innovation Grant 2017

MMSD added this program in late 2017 and received four applications. Three projects were awarded funding in 2017.

Madison Metropolitan Sewerage District

1610 Marland Road • Madison, WI 53714-3328 • P: (608) 222-1201 • F: (608) 245-1111

### Madison Metropolitan Sewerage District Chloride Reduction Innovation Grants 2017

Madison Metropolitan Sewerage District ("the district") is seeking applications for projects that facilitate permanent reductions of chloride (salt) to the district's sewer system. The goal of these grants is to incentivize changes to business practices, behaviors, and norms that will result in reduced chloride contributions to the sewer. Applications selected by the district will receive funding from the district to carry out these projects.

#### Background

Too much chloride (mostly from salt) goes down the drains that lead to the district's Nine Springs Wastewater Treatment Plant. The treatment plant is not designed to remove chloride from wastewater, so the salt ends up in local water bodies, threatening freshwater life. Faced with regulatory requirements to reduce chloride, the district has two options: build treatment technology at the plant, or reduce the amount of chloride that is discharged to the sewer. Building treatment technology would be significantly expensive and result in much higher sewer bills for customers, so the district is focusing on reducing chloride at the source.

To this end, the district is offering funding to incentivize projects that reduce chloride to the sewer, from sources like water softeners and other systems that use salt. This funding is flexible and may be a single salt reduction project or multiple projects. Funding may also be considered for projects that result in data or education that will advance district chloride reduction goals.

#### Project Requirements

- Projects must focus on efforts to reduce chloride within the district's service area (<http://www.mmsdsewer.org/Education/MMSD-Service-Area>).
- Projects must generate results that will advance or inform the district's efforts to reduce chloride contributions to the sewer system. Such results may include, but are not limited to:
  - Documented reductions in direct chloride contributions to the sewer system.
  - Data that increases understanding of the proportion and location of chloride contributions to the sewer system.
  - Data that demonstrates the ability of various technologies, including new technologies, to use relatively little or no salt to effectively prevent scale buildup on appliances and fixtures.
  - Non-commercial outreach that spurs residents and businesses to reduce their salt contributions to the sewer system. That is, this funding may support a general outreach campaign related to salt reduction, but may not be used to promote particular commercial products or businesses.

Commission President: Thurston Gahl  
Chief Engineer & Director: David W. Vacha, P.E.

Figure 9 - Innovation Grant

Attachment L – Outreach Events



Figure 10 - Feb 2017, Frozen Assets Table



Figure 11 - October 2017, Harvest Moon Fest

