



Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

General Information

ID Number: 2023-137

Staff Lead: Michael Varien

Date this document submitted to LCCMR: May 22, 2023

Project Title: ALASD's Chloride Source Reduction Pilot Program

Project Budget: \$764,000

Project Manager Information

Name: Scott Gilbertson

Organization: Alexandria Lake Area Sanitary District (ALASD)

Office Telephone: (320) 762-1135

Email: scott@alasdistrict.org

Web Address: <https://alasdistrict.org/>

Project Reporting

Date Work Plan Approved by LCCMR: June 22, 2023

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: September 30, 2026

Final Report Due Date: November 14, 2026

Legal Information

Legal Citation: M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 04i

Appropriation Language: \$764,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with Alexandria Lake Area Sanitary District (ALASD) to coordinate with Douglas County and the Pollution Control Agency to pilot an incentive program for residences and businesses to install high-efficiency water softeners, salt-free systems, or softener discharge disposal systems to reduce the annual salt load to Lake Winona and downstream waters. The pilot program includes rebates, inspections, community education, and water quality monitoring to measure chloride reduction success. This appropriation is available until June 30, 2027, by which time the project must be completed and final products delivered.

Appropriation End Date: June 30, 2027

Narrative

Project Summary: The project reduces salt pollution in three impaired lakes in the Alexandria area via an innovative source reduction strategy that protects water quality and could serve as a replicable model.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Chloride is toxic to aquatic life and impacts the use and enjoyment of our lakes. Three culturally important lakes in the Alexandria area are impaired because of chloride pollution: Lake Winona, Lake Agnes, and Lake Henry. The primary source of chloride is residential/commercial water softening systems, which are ubiquitous in our community due to hard water. The salt from softening systems (3,000 tons annually) eventually flows to ALASD's wastewater treatment facility, which discharges into Lake Winona and downstream waters.

Removing chloride from wastewater is not economically feasible. The only available wastewater technology, reverse osmosis, is prohibitively expensive (exceeding \$110,000,000) and can harm the environment due to high energy use and generation of a concentrated brine that cannot be disposed of easily and safely. Upgrades to Alexandria's drinking water infrastructure to eliminate the need for home softening throughout all of the ALASD service area is infeasible and cost-prohibitive (\$150,000,000). The only feasible and sustainable way to reduce chloride is to work with the community to upgrade the softening systems used by residents and businesses.

ALASD can address this problem by implementing a chloride reduction strategy that builds upon information generated by past state investments.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

ALASD hired an expert that evaluated this problem by conducting engineering analysis, water sampling, surveys of waters softening technologies and residential salt use and then developed a computer model to determine the most efficient way to reduce the salt pollution affecting Lake Winona and other lakes.

Based on this analysis, ALASD designed a chloride reduction strategy that includes, in part, an innovative (pilot) rebate program that provides financial incentives ranging from \$500 - \$2,000 for residential households as well as customized rebates for businesses to reduce salt use by upgrading to high-efficiency systems. The pilot program also includes a novel softener discharge disposal program that will further reduce the amount of chloride that enters the sewer system and then the lakes.

The strategy also includes community education, cooperation with Douglas County and the MPCA, and a water quality monitoring program to measure success.

ALASD is seeking funding from the LCCMR to assist implementing the pilot rebate program component of its larger strategy, which requires funds to provide rebates; administer the program; inspect water softeners, and brine disposal system installation; conduct community education and outreach; and conduct water quality monitoring to measure outcomes which will assist with future program implementation.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

Our short-term goal is to facilitate the installation of high-efficiency water softeners, salt-free systems or softener discharge disposal systems to reduce the annual salt load to Lake Winona and downstream waters by 1,000,000 pounds (or 500 tons) by 2026. A reduction of chloride levels will improve water quality and preserve and protect aquatic life in the three lakes and throughout the Watershed. An additional outcome will be creation of a program that can be replicated by other communities to reduce salt pollution and improve water quality in other parts of the state.

Project Location

What is the best scale for describing where your work will take place?

Region(s): Central

What is the best scale to describe the area impacted by your work?

Region(s): Central

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Chloride Reduction Rebate Program Development, Outreach, and Program Guide

Activity Budget: \$100,000

Activity Description:

Work with contractor to develop rebate program, outreach, and educational materials. Activities will include rebate program development including outreach materials, rebate applications, determination of rebate amount and eligibility, and a chloride reduction rebate program guide for communities.

Activity Milestones:

Description	Approximate Completion Date
Develop Rebate Program Evaluation Criteria and Application Template	September 30, 2023
Conduct Annual Customer Education Opportunity - Booth at Children's Water Festival or equal	December 31, 2025
Develop Annual Education/Outreach materials to acquaint ALASD users to opportunities to decrease chloride use.	December 31, 2025
Measure household reduction through survey to identify approximate salt usage per household before/after reductions.	December 31, 2025
Develop Chloride Reduction Rebate Program Guide for other Communiites.	May 31, 2026

Activity 2: Verify Installations, Compliance with Specifications, & Award Rebates.

Activity Budget: \$659,000

Activity Description:

ALASD staff or contractor will review each individual softener & plumbing modifications via photographs or on-site visit. Applications will include model numbers, photos, proof of receipt to determine compliance with ALASD rebate program specifications. Douglas County Land and Resource Management staff will provide on-site review/inspection of brine disposal systems and provide education and certification for installers. Brine disposal system design will require submittal to Douglas County for review. Once applications are approved based on specified requirements, ALASD will provide rebate incentives for customers installing high-efficiency water softeners, water softener brine disposal system, or salt-less water conditioner systems. Rebate incentives will cover a portion of the equipment and installation cost depending upon the individual situation and system installed. Rebates will be considered only for ALASD residential or business customers. Rebate amounts will be determined by ALASD's program development activity and must meet minimum high-efficiency standards as specified by ALASD. The rebate incentives may include design, detailed review, installation and equipment costs based on the individual systems (i.e. business and industrial customers systems may be more complex than residential systems).

Activity Milestones:

Description	Approximate Completion Date
Ongoing review and administration with annual report of rebate activity	December 31, 2023
Ongoing review and administration with annual report of rebate activity	December 31, 2024
Ongoing review and administration with annual report of rebate activity	December 31, 2025

Activity 3: Lake Monitoring for chloride levels

Activity Budget: \$5,000

Activity Description:

Conduct monthly monitoring in 3 lakes (1 sample/lake) to determine chloride concentrations in May, June, July, August, and September during each year of the program. The budgeted amount (\$5,000) covers the cost of contract lab analysis for samples during the project period. ALASD staff will perform effluent and water quality sampling during the project period. The ALASD labor associated with this effort is estimated in value at \$5000, which ALASD will treat as an in-kind contribution (See Non ENRTF Funds section). The last sampling will be completed in July 2026 in accordance project schedule/completion date.

Activity Milestones:

Description	Approximate Completion Date
Conduct baseline monitoring in 3 lakes to determine chloride concentrations (1 sample/lake over 5mo.)	December 31, 2023
Conduct monthly monitoring in 3 lakes (1 samples/lake) over 5 months.	December 31, 2024
Conduct monthly monitoring in 3 lakes (1 samples/lake) over 5 months.	December 31, 2025
Conduct monitoring in 3 lakes (1 sample/lake) over 3 months.	July 31, 2026

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
David Rush	Douglas County	Land and Resource Management Director	No
Marty Shultz	City of Alexandria	City Administrator	No
Brian Dahl	Alexandria Light, Power and Water	Superintendent	No
Dr. Stephen Henry	Douglas County Lake Association	President	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

ALASD will provide information updates on its website as well as provide annual reports to MPCA to use in their training programs and website information on statewide chloride reduction efforts. ALASD will also share the information with stakeholders including Douglas County and University of Minnesota Extension Service to disseminate the information through their networks as well. ALASD holds quarterly citizens advisory meetings and will additionally provide this information as part of its regular updates to this group consisting of up to 20 stakeholder representatives. ALASD will acknowledge the Environment and Natural Resources Trust Fund by including the trust fund logo or attribution language on project print and electronic media, publications, signage, and ALASD website per the ENRTF Acknowledgment Guidelines.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

If this project is successful, we will integrate it into ALASD's long-term plan and budget and the program will be funded primarily via wastewater and sewer fees. We project that long-term implementation of the program will cost ALASD between \$5M and \$10M over the next 10 years. While this is a significant investment, it pales in comparison to the cost to reduce chloride via capital infrastructure changes to the Districts WWTF or the expansion of service area for public drinking water infrastructure (\$100M - \$150M) and reduces the amount of energy use and salty waste generation.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Lake Agnes Treatment	M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 04I	\$600,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
TBD	Professional or Technical Service Contract	Consultant services to assist in annual reporting and in the evaluation of customer applications to determine eligibility and rebate amounts.				0.75		\$100,000
Douglas County Land and Resource Management	Sub award	Certification of installers and inspection of brine disposal systems.				0.3		\$9,000
TBD	Professional or Technical Service Contract	Laboratory testing services				0.15		\$5,000
							Sub Total	\$114,000
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								

							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		Rebate Incentives	ALASD will provide rebate incentives for customers installing high-efficiency water softeners, water softener brine disposal system, or salt-less water conditioner systems. Rebate incentives will cover only a portion of the equipment and installation cost depending upon the individual situation and system installed. Standard residential rebates for high-efficiency softeners are anticipated to be \$500 to \$750/each. Brine Disposal System rebates are anticipated to be up to \$2000/each. Business systems are more complex and will require more detailed review based on the specific customer application/system. Rebates will be considered only for ALASD residential or business customers. Rebate amounts will be dependent on the system installed and must meet minimum high-efficiency standards as specified by ALASD.					\$650,000
							Sub Total	\$650,000
							Grand Total	\$764,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
State				
			State Sub Total	-
Non-State				
In-Kind	ALASD Budget	Staff labor to support the rebate program, including administration, communications, processing rebates, and community outreach.	Secured	\$60,000
In-Kind	ALASD Budget	For inspection of brine disposal systems in collaboration with Douglas County.	Secured	\$5,000
In-Kind	ALASD Budget	Lake and wastewater sampling performed by ALASD technical staff.	Secured	\$5,000
			Non State Sub Total	\$70,000
			Funds Total	\$70,000

Attachments

Required Attachments

Visual Component

File: [cdf23c40-c28.pdf](#)

Alternate Text for Visual Component

One Page Handout Summarizing ALASD's Program...

Board Resolution or Letter

Title	File
Board Resolution	004d7d32-38e.pdf
Financial Statement/Audit	56b200a0-29a.pdf
Map of Watershed	02eafe52-0a1.pdf

Optional Attachments

Support Letter, Photos, Media, Other

Title	File
Letter of Support from Douglas County	f04025e7-cf6.pdf
Letter of Support from Douglas County Lake Association	fddd7250-fdc.pdf
Letter of Support City of Alexandria	cfd9e3ff-666.pdf
Background Check Certification Form	9fd73073-bb7.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

To address the decrease in funding appropriated from \$765,000 to \$764,100 (decrease of \$1,000), we reduced the budget for Activity 2 from the subcontract amount with Douglas County. This reduction should not have a significant impact on the project and is not expected to impact the overall program goals. Activities and Milestones were modified per LCCMR Staff comments 1-11. There are now 3 Activities based on LCCMR Comment 10: 1) Program development, etc. 2) Verification, Compliance and Rebate Awards, 3) Lake Monitoring. Comment 9 asked if rebates would be awarded prior to installation: Since ENRTF funds can only be distributed through reimbursement and ALASD does not have a way to determine whether a customer needs financial assistance, the program requires proof of receipt/installation to qualify for a rebate. The rebate is intended to make the softener installation more affordable. Comment 11 asks how installations will be verified for compliance: Information has been included in Activity 2 to describe verification process. The number of awards provided is not known at this time and has not been included. The number of awards will depend on the combination of residential vs. commercial/business awards and customer interest in the program. Thank you for your comments and suggestions on workplan revisions.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

N/A

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No