

Grant ID	Grantee	Grant Title	Award Amt	Score
C25-0205	Lower Mississippi River WMO	Water Quality Modeling of Lower Mississippi River WMO Priority Watersheds	\$ 98,000	90.55

The Lower Mississippi River Watershed Management Organization (LMRWMO) and its member cities seek to develop watershed-wide water quality modeling to identify and prioritize water quality improvement practices to maximize pollutant reduction benefits. With primarily urban and suburban landscapes, the LMRWMO estimates that much of pollutant load (i.e., phosphorus, sediment, chloride) reaching its lakes and streams occurs via stormwater runoff. However, without comprehensive water quality models, the absolute and relative amounts of pollutant loading from different portions of the watershed are unknown. This data gap limits the ability of the LMRWMO and its member cities to best allocate watershed-based implementation funding (WBIF) and other resources to achieve the most significant pollutant reductions and water quality improvements. This project includes the development and documentation of water quality models (using P8 or a GIS-based model) covering the watersheds tributary to Priority 1A and Priority 1B lakes and creeks in the LMRWMO. These include the watersheds tributary to: Interstate Valley Creek, Ivy Falls Creek, Kaposia Creek (Simon’s Ravine), Lake Augusta, Hornbeam Lake, Rogers Lake, Seidls Lake (including the adjacent I-494 system), Sunfish Lake, & Thompson Lake. These areas cover approximately 9,000 acres or 25 percent of the LMRWMO. Thompson Lake and Lake Augusta are currently listed as impaired for recreational use due to excessive nutrients. Water quality modeling will quantify estimated sediment and nutrient loading from the watershed and treatment achieved by existing best management practices. The study will identify pollutant loading "hot spots" on the landscape where future treatment maybe focused. The LMRWMO will use land use, land cover, and BMP information available during model development to semi-quantitatively assess chloride loading in the modeled watersheds. From the modeling results, the LMRWMO will characterize and prioritize treatment needs throughout the modeled watersheds. Analysis will include preliminary evaluation of treatment opportunities and recommended practices. This information will be used to inform future LMRWMO and member city management actions including: design of LMRWMO- or city-led public BMP projects; planning/prioritization of BMP maintenance by member cities; identification/pursuit of public-private partnership opportunities resulting from redevelopment; & review of private development/re-development proposals .As part of the study, the LMRWMO and member cities will develop standards and best practices for the development of water quality models and determine a process to maintain and update the model(s) to promote their continued accuracy and effective uses. The modeling of priority lake watersheds is a first step. Over the life of its Plan, the LMRWMO seeks to extend this analysis to the entire watershed to achieve a more comprehensive understanding of pollutant loading and treatment.

C25-0219 Waseca SWCD Reeds Lake Sub-watershed Assessment and Ravine Stabilization. \$ 76,500 90.50

This project includes two activities that direct future implementation activities for the protection of Reeds Lake, a priority lake within Waseca County. Activity 1 will result in a targeted subwatershed assessment (SWA) and implementation plan. Activity 2 will result in pre-planning and a preliminary design plans for a stabilization project to address a significant ravine along the north side of the lake that delivers excessive sediment and phosphorus to the lake. The SWA in Activity 1 will identify the implementation actions that will provide the highest level of water quality improvement for Reeds Lake, positioning the County, SWCD, and other partners for success in applying for implementation funding in the future. Basic concept designs will be developed for the top 5 projects included in the final SWA. A BATHTUB study will be completed for Reeds Lake to develop lake-specific internal and external loading goals, which will put this lake on the path to a comprehensive reduction plan. The final deliverable will include design, installation, and maintenance costs annualized across the project lifespan (estimated between 10-30 years for each project). Projects will be ranked in priority order based on cost and benefits using this information. Activity 2 will involve professional engineering assistance to determine feasible stabilization options for an actively eroding ravine. Stakeholders will review the potential options and pursue a preferred option to obtain a preliminary design and pollutant reduction estimates to be able to make informed decisions on future funding sources and implementation steps.

C25-0174 Vadnais Heights, City of City of Vadnais Heights Greenhaven Drive Green Streets St \$ 250,000 89.82

This project proposes to investigate feasibility and design of priority stormwater Best Management Practices (BMPs) to retain, treat, and reduce stormwater as part of the City of Vadnais Heights Greenhaven Drive “Green Streets” road reconstruction project planned for 2027. Green Streets are a selection of innovative, multi-beneficial stormwater management practices that capture, reduce, and treat stormwater runoff closest to its source. Street improvements are made every 20-30 years; this project leverages an infrequent opportunity to redesign the street corridor to include a dense array of stormwater structures above and beyond the minimum requirements for street projects in Municipal Separate Storm Sewer Systems (MS4s).

Green Street stormwater BMPs may include stormwater curb extensions, stormwater planters, and infiltration trenches which can remove over 66% of total suspended solids (TSS) and total phosphorus (TP) in stormwater, and tree trenches and permeable pavements which can remove over 66% of TSS and between 31% and 66% of TP. Tree trenches and infiltration trenches also have the potential to remove over 65% of the E.coli load carried in stormwater in the Greenhaven Drive area (EPA Green Streets Handbook, 2021). Green Streets also create climate change resilience, providing the added benefits of reduced flooding and wind speeds, increased shade, and improved air quality. Implementation of Green Streets can encourage active lifestyles, reduce street noise, improve pedestrian and motorist safety, and enhance the local ecosystem’s resilience by providing wildlife habitat.

Anticipated outcomes include a completed feasibility study for the design and construction of a Green Streets project for the purpose of achieving substantial water quality improvements to Lambert Creek, a bacteria impaired waterway on the state impaired waters list, and East Vadnais Lake, a principal drinking water source of Saint Paul Regional Water Services (SPRWS) which serves about 450,000 people.

C25-0180 Chisago SWCD FY2025 Phosphorus Source Assessment and Management \$ 36,000 85.86

The identified Farm in Chisago County sits directly adjacent to a small tributary to East Rush Lake. Previous water sampling at three locations along the tributary was conducted in 2022 and showed high phosphorus and e. coli levels. It is likely the phosphorus and e. coli are legacies from when the farm operated as a dairy and had animals concentrated near the tributary. The tributary is also bounded by traditionally farmed annual crop fields and a partially drained wetland complex, which could be contributing sediment and phosphorus. The Chisago Soil and Water Conservation District (SWCD) solicited an estimate from Houston Engineering Inc. to perform further analysis to help determine phosphorus sources and draft implementation plan alternatives. The Chisago SWCD believes it is important to have more data and a better understanding of how phosphorus is entering the tributary in order to plan and install the most effective treatment Best Management Practices (BMPs). The site has some unique challenges concerning space to fit BMPs in before the tributary leaves the property. Careful planning will be required to install necessary treatment areas or other BMPs, which makes it extremely important that the true nature of the pollutant source(s) is known.

C25-0232 Sherburne SWCD Big Eagle Lake Alum Feasibility and Planning Project \$ 46,890 84.09

The Sherburne SWCD requests financial assistance to complete an alum feasibility and planning project to further prepare for internal phosphorus load sequestration in Big Eagle Lake, Sherburne County. This activity is specially called for within the Sherburne County Local Water Plan (2018-2028), a Big Eagle Lake Nutrient Budget Study (2020), and the DRAFT Mississippi River St. Cloud Comprehensive Watershed Management Plan and has support from the Big Eagle Lake Improvement Association (BELIA), Eagle Lake Improvement District (ELID), and Sherburne County Commissioners. A professional consulting firm would oversee the study design components, data collection, laboratory and desktop analyses, and technical reporting. The anticipated outcome is a report outlining a specific plan for alum inactivation of phosphorus-rich sediments in the lake including a dosage calculation, permitting aspects, estimated cost, application strategy, bidding assistance, and anticipated water quality results. This activity is critical to achieve water quality reductions in Big Eagle Lake; this along with other anticipated management programs would likely result in the lake meeting water quality standards and removal from the Impaired Waterbodies List as well as produce significantly better water quality in downstream waters (Elk River, nearly/barely impaired waterbody; Lake Orono, Impaired Waterbody).

C25-0202 McLeod SWCD Upland Best Management Practice Inventory Assessment \$ 121,446 84.05

McLeod SWCD is seeking to dedicate 0.25 FTE toward targeted education and outreach as well as upland best management practice (BMP) project recruitment within identified sub-watersheds of the Otter and Campbell Lakes system. These lakes are reservoirs of the South Fork Crow River. The water bodies are adjacent to an impaired reach of the South Fork Crow River (currently listed on the Federal 303d List for Aquatic Life, Benthic Macroinvertebrates Bioassessments, Fish Bioassessments, Nutrients, and Turbidity; as well as Aquatic Consumption, Mercury in Fish Tissue and E. Coli) located in Hutchinson, Minnesota. This effort will be a partnership with the City of Hutchinson, building off the \$3.1 million bonding allocation in 2020 made to the City of Hutchinson for the restoration of this water resource. Upon successful completion of this proposal, projects recruited will be ranked by highest reduction benefit, arriving at 10 upland BMPs that will have complete designs and be deemed ready for implementation.

<i>C25-0209 Le Sueur County</i>	<i>Le Sueur County Lakes Subwatershed Assessments</i>	\$	<i>207,075</i>	<i>83.50</i>
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This project will create 5 subwatershed assessments (SWA), one for each of Le Sueur County’s top priority lakes: Clear Lake, Francis Lake, Lake Tetonka and Upper Sakatah, German/Jefferson Chain of Lakes, and Lake Volney. The SWAs will be developed using a four step method, modeled off of a framework developed by the metro area TSAs: Retrofit Scoping, Desktop Retrofit Analysis, Retrofit Reconnaissance Field Investigation, and Treatment Analysis/Cost Estimates. A brief description of each step is included here. 1. Retrofit scoping will include determining key components such as volume reduction, target pollutant, and the level of treatment desired. Focus areas will be selected during this stage if applicable. L. 2. Desktop Retrofit Analysis will involve the use of computer based analysis for potential project sites, including but not limited to, the County’s updated LiDAR data. 3. Retrofit Reconnaissance Field Investigation will consist of a field investigation to evaluate each site that had been selected for project implementation and to identify whether additional opportunities should be included. Any observed site constraints will be noted during the site visits. A lakeshore survey/evaluation will also be completed at this time. 4. Treatment Analysis/Cost Estimates will focus on the sites that are most likely to be successful for implementation and achieving pollution reduction goals, developing a cost/benefit analysis for each selected site. The final deliverable will include design, installation, and maintenance costs annualized across the project lifespan (estimated between 10-30 years for each project). Projects will be ranked in priority order using this information. Targeted terrain analysis and modeling will be conducted to pinpoint locations where project implementation would be ideal. Conversations with critical landowners identified through the modeling will take place to determine whether there is interest in and support of moving forward with a project. The SWAs will identify the implementation actions that will provide the highest level of water quality improvement for each of the lakes, positioning the County, SWCD, and other partners for success in applying for implementation funding in the future. Basic concept designs will be developed for the top 5 projects included in the final SWA. A BATHTUB study may be completed for all of the lakes if deemed necessary to develop lake-specific internal and external loading goals, which will put these lakes on the path to a comprehensive reduction plan.

C25-0170 Le Sueur County Unnamed Creek (761) Subwatershed Stream Erosion Study \$ 154,000 83.23

In and near channel erosion (bluffs, ravines, and stream channel) is a major contributor of sediment for the Lower MN River Watershed. In fact, 83% of sediment loading within this major watershed is due to in and near channel erosion. A majority of the in and near channel erosion that is occurring is due to altered hydrology and increased high intensity precipitation events. High flows in streams create high sediment loading. Stream erosion studies are critical in identifying and targeting where these existing erosion and sediment issues exist which in return will provide guidance on where to implement projects and practices to reduce erosion and sediment loading. The Priority Stream Subwatershed focus is on Unnamed Creek (761) HUC 12 which is located in the City of Le Sueur-MN River HUC 10 Subwatershed. Unnamed Creek (761) is identified as a Tier A priority streamshed in the Lower MN River East Comprehensive Watershed Management Plan (CWMP). Currently this stream subwatershed has Sediment and E.coli impariments and/or stressors. There is a total of 1 Unnamed Stream, 1 Judicial Ditch, 1 Lake, and a segment of the MN River located within this subwatershed. A nutrient budget has not been developed for this priority stream subwatershed and there are no existing erosion and sediment (TSS) studies completed for this area. We know this subwatershed has existing erosion and TSS loading issues due to site visits and aerial imagery. However, there is a lack of data demonstrating this. Most of the chemistry data for the water resources mentioned above are at least 10 years old. The local government units within this subwatershed have had limited capacity and funding opportunities to develop a stream erosion study for this subwatershed. Sediment (TSS) goals were included in the Lower MN River East CWMP. The Plan includes reducing upland and near channel erosion contributing sediment to priority streams by 1,886 tons per year. Sediment goals within the Plan were developed for HUC 10 Subwatersheds, but not for HUC 12 Watersheds. The sediment reduction goal for the City of Le Sueur-Minnesota River Subwatershed is 313 tons TSS/yr for near channel sources and 21 tons TSS/yr for overland sources. Reduction of peak flows and volumes within this subwatershed are also key in reducing the amount of near channel erosion and runoff that is occurring. The acre-feet of annual runoff goal for The City of Le Sueur-Minnesota River is 887 acre-feet of storage. Some assumptions had to be made in order to develop a sediment reduction goal utilizing the BWSR estimator tool. This was due to the limitations of the HSPF modeling for in and near channel erosion as well as the limited water quality data that is available within this watershed. Completing an erosion study would assist with developing a complete nutrient budget for the Unnamed Creek 761 Subwatershed, but also would assist with providing a more precise sediment goal for The City of Le Sueur-MN River Watershed. The Unnamed Creek 761 Subwatershed is located both in Le Sueur and Scott Counties.

C25-0181 Chisago SWCD *FY2025 Internal Loading Management Evaluation and Pla.* \$ *80,000* *83.00*

The Chisago Soil and Water Conservation District (SWCD) has historically focused on bringing water quality improvements to the lakes in Chisago County by addressing and minimizing external Total Phosphorus loading sources. Much work has been done and results have been evident with the delisting of North and South Center Lakes and Kroon Lake. While some lakes can be substantially improved by focusing on external source treatment, all lakes also maintain an internal load. In some lakes, this internal load must be addressed to see additional water quality improvements. The Lower St. Croix Comprehensive Watershed Management Plan (CWMP) identifies 18 lakes in Chisago County as Regionally Significant Lakes for Pollutant Reductions and Protections and for Internal Loading Analyses. These lakes include Bloom, Chisago, Fish, North and South Goose, Green, Little Green, Little, North and South Center, North and South Lindstrom, East and West Rush, Little, Pioneer, School and Wallmark Lakes. The Chisago SWCD seeks to determine which lakes among this list are priority candidates for internal load management. Through this grant, the Chisago SWCD will sub-contract with Emmons & Oliver Resources, Inc. (EOR), a water resources engineering company, to fulfill work proposed in a Statement of Work submitted to the Chisago SWCD. The proposed work will include an assessment of each lake and assigning a priority level of high, medium, or low. A total of up to 7 lakes in the high priority category will be monitored for internal loading potential and sediment cores will be collected to quantify internal loading potential, phosphorus content, and to inform internal loading management plans. Using monitoring and sample data, an updated phosphorus budget will be determined for up to the 7 highest priority lakes. Recommendations will be developed including next steps for watershed and internal loading management based on the phosphorus budget. For each lake that internal loading management is deemed effective, EOR will create a dosing strategy with alum dose, application area, estimated cost, schedule, and alum treatment processes through implementation. The dosing plan will be ready to implement when funding is available.

C25-0176 Shingle Creek WMC Joint Chloride Management Plan \$ 47,455 82.55

This project is the development a joint coordinated Chloride Management Plan for three contiguous watersheds (Shingle and Elm Creeks and West Mississippi) covering fourteen cities in northwestern Hennepin County. There are several chloride-impaired or high-risk waters in the three watersheds, and land use varies from dense urban development to agricultural and developing rural areas. The outcome of this study will be a plan that clearly sets forth implementation actions by stakeholder with measurable goals and methods for evaluation of success. The proposed Chloride Management Plan will be a comprehensive, coordinated and prioritized plan of goals and actions that can be undertaken to make collective progress toward achieving TMDL reductions and other goals. The Plan will be loosely modeled after the statewide Chloride Management Plan but will be more detailed and focused on specific water bodies and priority geographies within the three watersheds. The first step will be a Problem Assessment that will include an updated evaluation of current surface and groundwater conditions and an updated source assessment. The geospatial source assessment will estimate the amount of road and non-road impervious surfaces such as parking lots and private streets that are managed by private entities and applicators; estimate the acreage of crop lands receiving chloride-containing fertilizers; and identify the locations of industrial dischargers and other sources of chloride. The outcome will be a quantification of the relative contribution of each source, which can then be summarized at various spatial scales – by local catchment, drainage area, lake or stream shed, HUC-8, watershed, etc. The Problem Assessment phase will also take the Directly Connected Untreated Areas (DCUA) assessment completed for streams in the Shingle Creek watershed and extend it to the At-Risk lakes and to the streams and channels in the West Mississippi and Elm Creek watersheds. These DCUAs are the drainage areas of highest priority for management actions as they discharge to waters with little to no existing treatment or intervening natural reservoirs such as wetlands, lakes or other basins that might provide some load reduction. These DCUAs will be layered over the geospatial source assessment to develop a priority ranking of locations for more intensive chloride management. The third step in the Problem Assessment will be developing an inventory of current management practices of the various stakeholders, which will be completed through a combination of online survey, telephone inquiries, and stakeholder meetings. We will also incorporate findings from focus groups and other stakeholder comments available through the Hennepin County Chloride Initiative, other cities and WMOS, state agencies, etc. Following the Problem Assessment will be the development of the Chloride Management Plan. The Technical Advisory Committee will refer to the Problem Assessment and the prioritized geographies to identify a suite of activities that could best manage and limit the application of chloride.

C25-0189 Comfort Lake-Forest Lake \ Sunrise River Headwaters Project Targeting & Developmer \$ 118,000 80.64

This AIG activity will involve pre-project identification, planning, modeling, preliminary concept design, and public outreach resulting in a prioritized list of water quality improvement projects to reduce impairments in the Sunrise River headwaters, including Comfort Lake, Little Comfort Lake, and the upper reaches of the Sunrise River itself. The activity will involve conducting inventories of potential pollutant sites, utilizing existing analytical targeting tools, providing technical assistance, and increasing citizen interaction. As a result of this activity, the Comfort Lake-Forest Lake Watershed District (CLFLWD) will be better prepared to install water quality projects and practices. Such projects and practices will be designed to provide the ultimate pollutant reductions needed to delist impaired waters including Comfort Lake and Little Comfort Lake, resulting in improved water quality in the Sunrise River. Projects will provide numerous secondary benefits such as flood mitigation, wildlife habitat, and public education.

<i>C25-0211 Cook SWCD</i>	<i>Poplar River Sediment Loading Feasibility Study</i>	\$	<i>88,020</i>	<i>80.55</i>
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The Poplar River is a cold water trout stream and a tributary to Lake Superior. It drains a 114 sq mile watershed near Lutsen, MN. The lower three miles of the river was previously impaired by sediment exceeding the 10 NTU TMDL turbidity standard. Landowners collaborated over 20 years with the Cook County Soil and Water Conservation District (SWCD) and other agencies, forming the Poplar River Management Board (PRMB), working to reduce sediment and delist the river. They succeeded and the river was delisted in 2017. In 2022, a 100-year flood took place in the Poplar River watershed creating at least 18 areas of concern for erosion along the lower reach of the river. One of the areas of concern identified in 2022 is immediately downslope of property owned by Lutsen Mountains. This property previously experienced a slope failure in 2017, and Barr Engineering conducted a sub-surface investigation and surface topographic survey to evaluate the extents and depths of the failure. The investigation showed that slope instability was significantly influenced by high groundwater pressures. To reduce the speed of slope movement, two options were considered at the time: one was lateral drains, and one was a vertical pumping system. Due to the high costs of installing the lateral drain system, Lutsen Mountains and its partner, the Poplar River Management Board, opted to install the vertical pumping system. Over the past several years, the system has slowed the slope movement, and pumps continue to operate to alleviate groundwater pressure at the site. Since the installation of the vertical pump system, extreme rainfall events have washed away material at the toe of slope, resulting in accelerated slope erosion above the toe. The toe is located on a sharp bend of the Poplar River, identified as LMC 17 in an assessment completed by TSA3 following the 2022 flood event. Additional high flows since 2022 continue to erode the toe, which in turn continues to result in new failed slope material reaching the stream, then washing away, and repetition of the cycle with each additional high flow event. The feasibility assessment project will evaluate current site conditions and lay out at least two concepts and costs for an integrated slope and streambank stabilization project. Investigation will include topographic survey, stream geomorphic survey, wetland delineation, assessment of the existing pumping system and instrumentation, and hydrologic and hydraulic modeling of the area, including incorporation of more intense rainfall and spring runoff conditions. Concepts will include high-level cost estimates as well as design measures for addressing more intense weather events associated with climate change. Completion of a feasibility assessment will provide decision-makers valuable information for determining the most appropriate path forward for long-term slope stability, and ultimately, improved water quality in the Poplar River and Lake Superior.