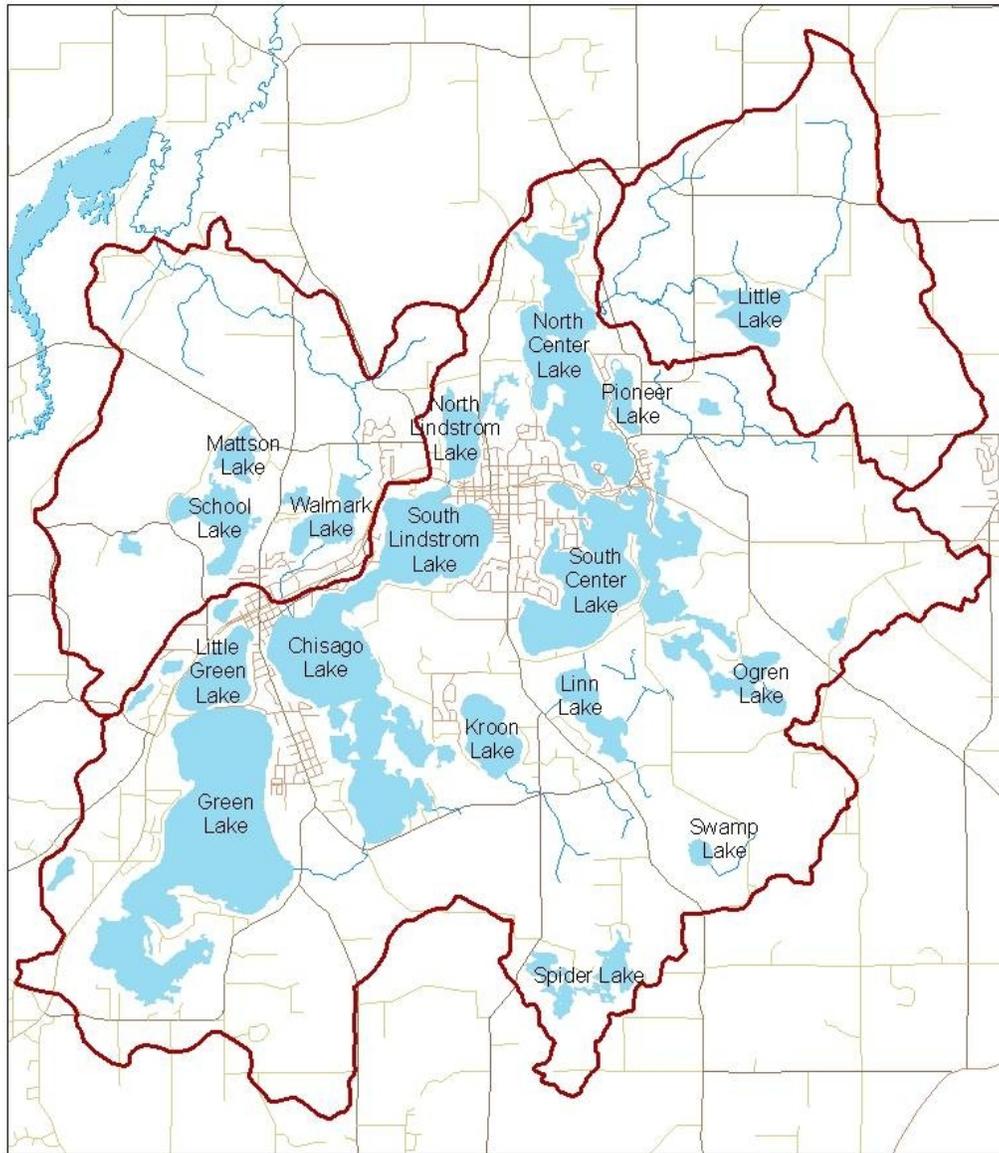


**The Annual Report  
of the  
Chisago Lakes Lake Improvement District**

**2009**



**Chisago Lakes Chain of Lakes Watershed  
Lakes**



Casey Thiel, Chisago SWCD  
CLLID TMDL Work Plan  
Created: 2008

The Chisago Lakes Lake Improvement District (LID) was first established April 21, 1976 by resolution of the Chisago County Board of Commissioners. The District was reactivated by resolution of the County Board August 21, 1984. Resolution No. 090225-1 delegating specific authority to the Chisago Lakes Lake Improvement District and authorizing certain expenditures by the Lake Improvement District Board was approved by the Chisago County Board of Commissioners on February 25, 2009.

The LID is composed of eight elected members who are area residents. The LID District County Commissioner, George McMahon, Casey Thiel, Chisago Soil and Water Conservation District (SWCD) Water Resource Specialist, and the County Water Resource Manager, Jerry Spetzman, also regularly attend the monthly LID meetings. The LID Education Specialist, Mary Christopherson, handles administrative duties as well as public education and outreach opportunities.

The current LID Board Members and their lake representations are:

Chris DuBose	Chisago Lake
Leigh Hugo	At Large
Henry (Bud) Kapell	North Center Lake, North Lindstrom Lake, Little Lake
John Nieber	Board Chairperson At Large
Al Singer	Board Vice Chairperson South Center Lake, Ogren Lake, Linn Lake, Bloom Lake
Al Wahlgren	South Lindstrom Lake, Kroon Lake
Fred Woodward	Green Lake, Little Green Lake

The LID holds meetings on the first Monday of the month. An annual LID meeting is held every August. At the annual meeting, elections are held for any LID board member term positions that may be up for renewal or election. In addition, any changes to the LID by-laws are made at this time. This is the only opportunity throughout the year that the LID by-laws may be changed. There were no LID board member seats up for election in 2009.

One change was made to the LID By-Laws at the annual 2009 LID meeting. This change was in regards to the election process for board members. Beginning in 2010, the LID must receive nominations for interested board member candidates at the July LID meeting. Elections for candidates will then occur at the August annual LID meeting.

The major lakes in the Chisago Lakes Chain of Lakes watershed are:

Bloom	Linn	North Lindstrom	South Lindstrom
Chisago	Little	Ogren	Spider
Emily	Little Green	Pioneer	Swamp
Green	Mattson	School	Wallmark
Kroon	North Center	South Center	

The District is approximately eleven miles long and averages three and a half miles in width.

### **Mission Statement**

Protect and restore the surface water resources of the Chisago Lakes watershed.

### **Goals**

- Preserve, protect and enhance water quality within the Chisago Lakes watershed.
- Maintain the ditch and weir system to control water levels during high water events.
- Encourage environmentally sound land use practices for urban and agricultural areas to protect water quality within the Chisago Lakes watershed.
- Support safe and balanced recreational use of surface water.
- Restore, improve and maintain navigation channels between the lakes.
- Protect, encourage and restore native shoreline to improve fish and wildlife habitat.
- Promote environmental education, awareness and stewardship within the Chisago Lakes watershed.
- Promote the reduction of non-native aquatic invasive species.

In February 2009, the County Board passed a resolution delegating specific authority to the LID and authorized certain expenditures by the LID board. This is Resolution No. 090225-1, and it is attached.

During the summer of 2009, the LID board revised its mission statement, goals and objectives to reflect the expanded effort to not only manage lake levels, but to plan work to improve the water quality of the lakes. The mission statement, goals and objectives were approved by the County Board on November 18, 2009, and sent to the Department of Natural Resources (DNR) for approval.

This Annual Report will outline the LID's goals and highlight any projects and actions that have occurred in 2009 to reflect the attainment of those goals.

**Goal 1: Preserve, protect and enhance water quality within the Chisago Lakes watershed.**

**Objective 1:** Complete the Chisago Lakes Total Maximum Daily Load (TMDL) study and implement recommended projects and practices.

- Chisago Lakes TMDL Study

In conjunction with the Chisago SWCD, the LID began work on a TMDL Work Plan for the Chisago Lakes area in 2008. So far, four of thirteen tasks have been completed for the TMDL. These include gathering data, outreach and participation, land use assessment, and the development of a monitoring plan. Casey Thiel, Chisago Soil and Water Conservation District (SWCD), developed the TMDL Monitoring Plan for 2009-2010. Together, LID Board Members and SWCD staff chose key sampling points throughout the Chisago Lakes watershed to obtain stormwater run-off samples for analytical testing. This will provide a better picture of areas of significant run-off pollution. Unfortunately, because the rainfall was very low for this year, limited numbers of sampling events were conducted. The total cost of the monitoring for 2009 was estimated at \$47,714. The LID was responsible for 29% of that cost, or \$13,670. The remainder of the cost was from sample laboratory analysis, which was paid for by the Minnesota Pollution Control Agency (MPCA). However, since not all the planned sampling was completed, the cost to the LID dropped to \$7,640. Tasks five through thirteen of the TMDL Study remain to be completed. These remaining tasks include a nutrient loading and turbidity assessment, evaluation of water quality data, TMDL modeling, implementation strategies, effectiveness monitoring, excess nutrient and turbidity TMDL project reports, draft and final TMDL report, and a public fact sheet. The SWCD is currently working with the Minnesota Pollution Control Agency (MPCA) to finalize a budget and timeline for completion of the Chisago Lakes Chain of Lakes Watershed TMDL study. The SWCD, on behalf of the LID, is working to have a contract in place with the MPCA in early 2010 to continue the TMDL study.

**Objective 2:** Develop, calibrate, validate and run scenarios with a Soil and Water Assessment Tool (SWAT) model to gain understanding of nutrient and sediment movement within the Chisago Lakes watershed. The Chisago Lakes SWAT model will be consistent with the Sunrise River and St. Croix River SWAT models.

- Soil and Water Assessment Tool Model

HDR, Inc., an engineering firm hired by the LID, began developing a Soil and Water Assessment Tool (SWAT) model to better understand the behavior of nutrient movement through the Chisago Lakes watershed. HDR, Inc. has gathered extensive data and divided the watershed into sub-watersheds, which was the first of three phases of SWAT model development. HDR held a lunch presentation in August 2009 for LID members. At the presentation, HDR

further explained the SWAT model and its benefits. In December 2009, HDR supplied a copy of the SWAT Model as-is in electronic form to the county. The model has yet to be calibrated. The remaining two phases of the SWAT model will be completed after significant water quality monitoring data has been collected.

**Objective 3:** Monitor nutrients, aquatic life and other parameters to determine water quality concentration trends and loading.

- The SWCD was hired by the LID to carry out the Chisago Lakes LID Chain of Lakes Watershed Project Monitoring Plan for 2009-2010. Together, LID Board Members and SWCD staff chose key sampling points which will help determine water quality concentration trends and loading.

**Objective 4:** Establish a program to annually monitor and assess the water quality of the lakes within the Chisago Lakes watershed. The resultant report will provide information about lake water quality and interpretation of trends in the quality.

- The SWCD was hired by the LID to carry out the Chisago Lakes LID Chain of Lakes Watershed Project Monitoring Plan for 2009-2010. Together, LID Board Members and SWCD staff chose key sampling points which will help determine water quality concentration trends and loading. There was limited monitoring data in 2009 due to a severe drought condition.

**Objective 5:** Create and approve a map delineating the boundaries of the Chisago Lakes watershed showing the connections to the Sunrise River.

- At the April 6, 2009 LID meeting, the LID Board approved a map delineating the boundaries of the Chisago Lakes watershed showing the connections to the Sunrise River.

**Objective 6:** Partner with local communities in the effort to connect areas of high density, unsewered, undersized, riparian lots to centralized sewer systems.

- The LID has budgeted \$30,000 within its 2010 proposed budget to assist the City of Lindstrom in the sewerage of Glader Lane, Glader Boulevard and Lakelawn Drive. \$500 per new sewer hook-up will be provided to the City of Lindstrom as a cost share from the LID to lower the overall cost to landowners.

**Goal 2: Maintain the ditch and weir system to control water levels during high water events.**

**Objective 1:** Develop and implement a plan to maintain the high water level control system, including weirs and channels.

- Maintenance on the weirs and channels must follow the 2005 Emergency Management Plan for the Chisago Lakes Outlet Project, developed by HDR, Inc. (attached)

**Objective 2:** Perform periodic inspections and maintenance of the lake system channels and overflow weirs. Coordinate and initiate brush/debris clearing activities.

- The channels in the system receive regular maintenance according to the Emergency Management Plan for the Chisago Lakes Outlet Project. This plan requires a maintenance schedule of four times per year, however, inspections were only completed twice in 2009.

**Objective 3:** Provide engineering services for planned maintenance of the drainage system. This requires hydraulic design, surveying of drainage system, scheduling maintenance crews, and inspecting maintenance work.

- This objective is met by HDR, Inc. Several problems were discovered during a fall maintenance tour of the drainage system. These problems will be addressed in the spring of 2010.

**Objective 4:** Proceed with actions to purchase and acquire property from landowners located south of County Road 19 and east of Ivywood Trail in an upstream direction at a fair price for the two-foot freeboard boundary.

- The LID is receiving assistance on this objective from the Chisago County Attorney's office and HDR, Inc. The LID Board accepted a cost proposal from SRF in December 2009 to complete flowage easement acquisitions for the 28 parcels located south of County Road 19 and east of Ivywood Trail.

**Goal 3: Encourage environmentally sound land use practices for urban and agricultural areas to protect water quality within the Chisago Lakes watershed.**

**Objective 1:** Work cooperatively with local units of government, including Chisago County, in the process of evaluating, proposing, adopting, and promoting Stormwater (and erosion control) Management Standards targeted to the specific needs of individual communities. The LID will draft a preliminary recommended, updated model stormwater erosion ordinance.

- A draft model ordinance has been completed by HDR, Inc. for the LID. Motions of support have been received by Center City, Chisago City and Lindstrom.

**Objective 2:** Create a map of stormwater runoff systems within the Chisago Lakes watershed and develop a system to prioritize stormwater infiltration projects.

- The LID met with representatives from Center City and Lindstrom in October 2009 to discuss stormwater runoff systems. The City of Lindstrom was able to provide the LID with a map containing known stormwater runoff systems, as well as a power point presentation of prioritized stormwater infiltration projects within the city.

**Objective 3:** Establish a matching fund to provide incentives for local units of government (cities, townships, county), schools and private landowners within the Chisago Lakes watershed to design and install Best Management Practices for infiltration and volume reduction controls of stormwater runoff. This fund would be for retrofitting existing conditions, and would not be used to mitigate stormwater control problems generated by future development activities.

- Lakeside Elementary School Stormwater Retrofit Project  
During the September 8, 2008 LID Board meeting a motion was approved to establish a \$50,000 per year matching fund to implement Stormwater Best Management Practices (a 50% matching fund) to reduce the pollutant loading into the Chisago Lakes Chain of Lakes. The LID coordinated with the Chisago Soil and Water Conservation District (SWCD), Great River Greening, and Chisago City to design infiltration areas to treat the majority of the runoff from the 11 acre Lakeside Elementary School property. Approximately 9,500 square feet of rain gardens were installed. A gully stabilization area will also be constructed in 2010 as part of this project. The school's teachers, students and maintenance staff have offered to be responsible for the long term maintenance of the infiltration areas. Construction for the project began in September 2009. A community rain garden planting event was held on September 26, 2009. An army of 52 volunteers helped to plant 4,500 plants. The total project cost was \$72,362.00. The cost share portion for this project from the LID was \$36,000. The remainder of the cost was provided by Great River Greening, a non-profit, community-based organization that restores and maintains urban natural resources throughout the Twin Cities area.

Photographs from the rain garden installation at Lakeside Elementary School



Digging/Preparing for planting



Volunteers planting at Lakeside School



Rain garden after planting

**Objective 4:** Promote the installation of agricultural best management practices that will reduce sediment and pollutant loading (fertilizers, pesticides and animal waste runoff) to improve the water quality within the Chisago Lakes watershed.

- The LID is in discussions with the SWCD to assist in accomplishing this objective.

**Goal 4: Support safe and balanced recreational use of surface water.**

**Objective 1:** Make recommendations to the Chisago County Board on development of a code of rules to regulate surface water use – provide fair balance between competing lake related interests.

- The LID has a working relationship with the Chisago County Sheriff Water Patrol. Concerns of wake zones and water travel speed are discussed at LID meetings with the Sheriff's Water Patrol Officers.

**Goal 5: Restore, improve and maintain navigation channels between the lakes: Big Green/Little Green, South Center/North Center, North Center/North Lindstrom, North Lindstrom/South Lindstrom**

**Objective 1:** Provide engineering services to evaluate easement needs, survey easements, and draw up easement plans.

- HDR, Inc. has provided the engineering services which have led to specific easement needs and plans. The LID has hired Hansen, Thorp, Pellinen, Olson, Inc. (HTPO) to further assist in the title work of the necessary easements for the channel between North Center Lake and North Lindstrom Lake.

**Objective 2:** Complete acquisition of easements: including downstream from Lake Ellen, outlet from North Center into channel to North Lindstrom, downstream from Wallmark Lake, and between Chisago Lake and Chisago County 83.

- HDR, Inc. has researched the acquisition of beneficial easements. Kristine Fuge, Assistant County Attorney, and HTPO have also assisted in this project.

**Objective 3:** Remove debris and accumulated sediments in navigation channels, particularly the channel between Green and Little Green Lakes.

- Green Lake/Little Green Lake Channel Dredging  
Upon discussions with the Chisago County Sheriff Water Patrol, the LID saw a safety need to straighten and widen the channel connecting Green Lake and Little Green Lake. The LID coordinated the dredging operation with BVF Inc., an excavating company. A backhoe and dumpster were placed on a barge and dredging operations ensued. When the dumpster was filled with sediment, the barge would come back to shore. The backhoe would then unload the dumpster contents into a dump truck, which then transported the dredged sediment to a farm on the north side of Chisago City. The project took just under a week to complete. The channel between Green Lake and Little Green Lake is now wider, straighter and much safer for boat traffic to navigate through. The project was completed in August 2009. The Green Lake

Association donated \$270.00 towards this project. The total cost of the project was \$25,000.



Barge going out to excavate channel.



Backhoe unloading excavated sediment into truck on shore; (l to r) Fred Woodward, Al Wahlgren, Mary McCarthy, Chris DuBose, Rick Ekstrand



View of the channel between Green Lake and Little Green Lake during excavation activities.

**Objective 4:** Design a navigable channel between North Lindstrom and North Center lakes

- Easements are currently being acquired for this navigable channel. Once easements are acquired, design activities can begin.

**Objective 5:** Facilitate the reconstruction of the bridge at CSAH 20 and the restoration of a navigable channel between North Lindstrom and North Center lakes.

- The LID has completed no actions on this objective at this time.

**Goal 6: Protect, encourage and restore native shoreline to improve fish and wildlife habitat.**

**Objective 1:** Educate and encourage lakeshore owners to preserve and restore native vegetation and buffer strips.

- There was no activity pertaining to this objective in 2009; however, the LID has budgeted \$2,000 for this education in 2010.

**Goal 7: Promote environmental education, awareness and stewardship within the Chisago Lakes watershed.**

An Education Specialist position was created in July 2009 by expanding the current LID administration position of Mary Christopherson to include education and outreach responsibilities.

**Objective 1:** Promote participation by Lakeside Elementary students in the annual Chisago County Children's Water Festival.

- Children's Water Festival  
The Chisago County Children's Water Festival was held on September 25, 2009 at Wild Mountain Recreation Area in Taylors Falls. Approximately 750 fifth grade students attended the festival from Chisago County. There were 28 stations for students to learn many different aspects of water resource education. Mary Christopherson, LID Education Specialist, ran a station titled Soil Erosion and our Lakes. The children were taught how activities that cause erosion on land can harm our lakes and waters. The LID donated \$500 to this educational festival.

**Objective 2:** Promote water resource education by collaborating with organizations such as the East Metro Water Education Program, Metro Watershed Partners, Project NEMO (Nonpoint source pollution Education for Municipal Officials), Blue Thumb, and PICKM water quality educators.

- Mary Christopherson attended a Pine, Isanti, Chisago, Kanabec, Mille Lacs (PICKM) watershed team meeting in August, as well as an MPCA Environmental Education workshop in September. She also has attended St. Croix Basin Water Resources Planning Team meetings and continues to network within water resource education organizations.

**Objective 3:** Provide an opportunity, at least once yearly, for county, city, township officials and planning commissions to receive education on how their land use decisions have a direct impact on non-point runoff pollution.

- A workshop meeting was hosted by the LID to obtain input from local government entities in April regarding the development of the LID's Water Resource Management Plan. At the workshop goals for the LID were identified and prioritized.

**Objective 4:** Promote public outreach and awareness of the various LID programs.

- Chisago Lakes Home and Garden Show  
The Annual Chisago Lakes Home and Garden Show was held on February 28<sup>th</sup> and March 1<sup>st</sup>. The LID staffed a booth at the show. Al Wahlgren analyzed data from seven surveys completed by citizens at the Chisago Lakes Home Show. The top lake usage priorities were listed as boating and swimming, and water sports. The top lake concerns were weeds, boating and swimming.
- Children FIRST Club  
Children FIRST Club is an after school program run by Community Partnership with Youth and Families. Mary Christopherson has presented sessions on stormwater run-off education and prevention to children involved in this program at Lakeside Elementary School in Chisago City and North Branch Middle School in North Branch. At both locations the students learned about non-point source pollution through a hands-on activity. The activity demonstrated to students what an average storm drain collects during a rainfall event and how the water from storm drains can impact the water quality and aquatic environments of local streams, rivers and lakes.
- An article was included in the Fall Environmental Connections newsletter which discussed the LID and highlighted the rain garden project at Lakeside Elementary School in Chisago City which was completed in September.

**Objective 5:** Develop and maintain a web site which provides information and education on LID activities for residents.

- The LID posts information on the Chisago County Environmental Services webpage. LID monthly meeting minutes and area lake levels can be found at this location; in the future it will include resources for lakeshore management, weeds, and other pertinent lake issues.

**Goal 8: Promote the reduction or control of non-native aquatic invasive species.**

**Objective 1:** When appropriate, provide contingency funds to cover costs associated with special lake association requests for treatment of non-native aquatic invasive species.

- The LID is investigating a DNR grant opportunity regarding the treatment of weeds in lakes.

**Objective 2:** Partner with the Minnesota Department of Natural Resources on watercraft inspections at boat landings.

- The LID plans to partner with the DNR on aquatic invasive species prevention. The LID will hire a DNR intern to complete watercraft inspections at rotating boat landings in 2010.

**Objective 3:** Partner with other organizations researching new methods to control non-native aquatic invasive species such as iron augmentation of lake sediment to control curly leaf pondweed.

- The LID has obtained information regarding Rush Lake Association's attempts to control non-native aquatic invasive species with iron augmentation.

## Conclusion

The LID had a productive 2009. The major projects completed in 2009 include the Green Lake dredging and the installation of several rain gardens at Lakeside School in Chisago City. Also, the Total Maximum Daily Load study was initiated, which includes intensive water quality monitoring. The LID has put plans in place for 2010 to complete additional projects in the Chisago Lakes Area with the goal of improving the health and quality of our lakes. In addition to projects, many administrative changes took place in 2009 for the LID. The creation of an Education Specialist position aids in helping to keep our lakes healthy through public outreach and education. The LID also restructured its budget and spending to align with more specific goals and objectives for the future.



Channel leading from Chisago Lake to Green Lake.