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WaterWise: THE CITY OF MINNETRISTA

“Crooked Waters,” Rolling Hills and Valued Green Space



The City of Minnetrista is a largely residential community located near Lake Minnetonka in western Hennepin County. Minnetrista, a Native American word meaning crooked waters, most likely reflects the curving bays of Lake Minnetonka, smaller lakes and the two major watersheds of Minnehaha Creek and Painters Creek that lie within city boundaries.

What sets Minnetrista apart is a rural feel to the community. A handful of dairy farms still operate within city borders, descendants of the first homesteaders to come to the area. A rare octagonal barn is listed on the National Register of Historic Buildings. Many of the 4,100 residents enjoy hobby farming and horseback riding. Apple orchards dot the landscape. Residents and visitors enjoy more than 800 acres of parks, trails and open area, including Gales Wood, 410 acres of recently donated parkland.

The town government was organized in 1859 and incorporated as a city in 1960. Today, it enjoys a calculated rate of development with about 70 new households added annually. “We have taken a deliberate, planned approach to how Minnetrista is developed. We want to preserve the rural feeling of our community,” notes Minnetrista Mayor Cheryl Fischer.

Minnetrista City Council Member Lisa Whalen, a proponent of wetland and stream protection who is also involved with MCWD and the Pioneer-Sarah Creek Watershed activities, explains that “Minnetrista is located in an environmentally sensitive area with many wetlands, creeks and lakes. Our job is to protect these resources by asking hard questions every time a new development is proposed.” Recently, a developer agreed to deed wetlands that were along Six-Mile Creek to the city in order to ensure that the area was not improperly developed with docks and launching sites. “We were concerned about riparian access so we worked with the developer to protect this stretch by making it public land. It worked very well,” says Whalen.

The City of Minnetrista has developed a close working relationship with the Minnehaha Creek Watershed District (MCWD), particularly in working to protect wetlands in the city. “We have very strict ordinances dealing with wetlands,” says Fischer. “We work with MCWD on wetland protection and environmentally sen-

sitive development, both through our water management plan and our permitting process. We generally do not let a permit out for development until the MCWD board has approved their permits. This way, developers don’t get ahead of themselves on what they can or cannot do.”

“We have a highly detailed template and checklist that goes out to commercial and residential developers. This standardized template incorporates both the city’s permit requirements and MCWD’s permit requirements,” explains Minnetrista City Planner Ron Fuchs. “This front-end effort really pays off by helping to eliminate confusion about the site in question. We also require that developers provide us with one main contact. This way we can track down the responsible party if there’s a problem at the site such a silt fence collapsing. It makes it easier to get it fixed so there’s minimal damage to the natural resources.”

Minnetrista holds remnants of the Big Woods forest, which used to cover much of the Lake Minnetonka area. One of Minnetrista’s comprehensive planning goals is to preserve the city’s green spaces and natural environment. “We are very protective of our mature trees,” says Whalen. “We have many stands of beautiful hardwoods. When a development recently went in, we asked the developer to redesign the layout so an old stand of trees wouldn’t be bulldozed.” The city works closely with developers when a site is developed. “We encourage the use of conservation subdivision design; this approach concentrates the development in one area, leaving a large percentage of a site open as green space,” explains Fuchs.

“Our storm water management plan and city ordinances are key to protecting our natural resources,” notes Whalen. “We also rely on citizen advocates to raise flags when necessary. Having watershed guidelines in place helps us do this.”

Minnetrista continues to work with its neighboring cities and watershed districts as partners in protecting the area’s natural resources. “We work closely with the MCWD. We rely on them to help us,” explains Fisher. “They are our ears and eyes in what is sometimes a complicated permitting process as well as in ongoing monitoring. It’s critical to understand the relationship between land use controls and environmental protection.”

MCWD SYMPOSIUM ABOUT LAKE MINNETONKA'S JENNINGS BAY WATER QUALITY PRODUCES RECOMMENDATIONS

Process featured top national panel of experts in limnology, hydraulics, lake restoration & other disciplines; "Value Methodology" process will help improve Jennings Bay, Painters Creek & overall lake area

The Jennings Bay contributory watershed of Lake Minnetonka is comprised primarily of rolling farmland, dispersed residential development and wetlands with Painters Creek flowing into the Bay. It is the most westerly bay of Lake Minnetonka and lies in the northwest corner.

But the water quality in Jennings Bay is the poorest of any in Lake Minnetonka. In the MCWD annual water quality report card, Jennings Bay has received below-average low grades for many years. Ongoing water quality monitoring tests generally show unacceptable levels of phosphorous and poor water clarity while game fish and healthy aquatic life are greatly diminished. Between 1971 and 1986, the watershed received diverted wastewater discharges from a Maple Plain treatment plant, contributing to the deterioration of the Bay. Although the wastewater treatment discharges ceased in 1986, the bay continues to exhibit all the signs of a struggling water body.

"Water quality data gathered since the mid-'70s on Jennings Bay has consistently been well below that of other areas," says Glenda Spiotta, MCWD Planner and Program Manager. "Point and non-point source phosphorous loading has a direct impact on algae growth. The water quality of Painters Creek, which drains into the bay, was also degraded by past discharges from a treatment plant and by agricultural land use and other drainage alterations over the years."

The MCWD convened an expert panel managed by HDR Engineering Inc., of Minneapolis to conduct a one-week workshop in February-March of this year. The panel members and their areas of expertise were:

Dr. Eric Dibble, Mississippi State University, Fish/Aquatic Plant Interactions

Dr. Lowell Klessig, University of Wisconsin, Surface Water Use and Shoreline Development/Land Use

Dr. John Madsen, Minnesota State University, Macrophyte Ecology

Dr. Curtis Richardson, Duke University, Wetlands

Dr. William Walker, Environmental Engineer, Loading/Modeling Stormwater

Dr. Eugene Welch, University of Washington, Lake Restoration

Gordon Culp, Smith Culp Consulting, Panel Facilitator

The panel used the Value Methodology (VM) process during their workshop, which provides a structured process consisting of sequential phases for identifying and evaluating alternatives. "In the past, the MCWD focused more on one aspect or another of lake management, but by bringing experts from diverse fields together for a concentrated effort, we have covered the fisheries,



PHOTO: GREG HELGESON

National water quality experts take questions during their public presentation recently about the challenges and possible solutions for Jennings Bay.

habitat, recreational, engineering and biological issues in a unified and strategic manner," notes Bob Beduhn, Vice President/Water Resources at HDR Engineering.

In this case, these alternatives involved control measures that can maintain or improve the water quality of Jennings Bay. Some of the measures and concepts developed by the panel may also apply to other areas within Lake Minnetonka, but this particular study focused on Jennings Bay. Phases of the VM approach include:

Information Phase

Brainstorming Phase

Evaluation Phase

Investigation Phase

Recommendation Phase

During the information phase, local officials and consultants presented their work to the expert panel. Staff from the Minnesota Department of Natural Resources (DNR), Minnesota Pollution Control Agency (MPCA), Three Rivers Park District, Minnehaha Creek Watershed District, Wenck and Associates, Emmons and Olivier, HDR Engineering Inc. and Dick Osgood presented information to the Panel.

After the information phase, the panel focused brainstorming on ideas to 1) reduce internal phosphorus loading to the Bay and 2) to control external phosphorus loading from Painters Creek Watershed. The Panel determined that the MCWD needs to collect additional information on water quality, water flow and wetlands soil chemistry, and lake sediment chemistry to fully understand the interactions of the lake and its water quality. However, during the process, the panelist developed three improvement scenarios for the Bay. (See top of WaterPro, page 3.)

JENNINGS BAY WATER QUALITY CHALLENGE AND POSSIBLE IMPROVEMENT SCENARIOS

Jennings Bay water quality is the poorest in Lake Minnetonka. The bay bottom holds large amounts of accumulated phosphorous which contributes to algae growth. Painters Creek, flowing into the Bay, carries more storm water run-off with additional phosphorous.

IMPROVEMENT SCENARIO ONE MAINTAIN EXISTING WATER QUALITY. Reportedly some residents on the shores of Jennings Bay have stated that they would be satisfied if existing water quality were maintained and it was not allowed to worsen. Because of the existing water quality, boat traffic is less in the Bay than other parts of the lake, a fact that appeals to some residents. Increasing development in the watershed will require that added methods for control of phosphorus loadings be implemented to maintain existing water quality. The panel concluded that the clean-up strategies would include control of external loads through improved best management practices (BMPs) combined with modifications of wetland areas that have a significant potential to retain phosphorus.

IMPROVEMENT SCENARIO TWO ACHIEVE A TOTAL PHOSPHORUS CONCENTRATION OF LESS THAN 60 PPB IN JENNINGS BAY. Reducing current levels of phosphorus to 60 ppb would improve water clarity but probably not to the point that problems with macrophytes (bottom rooted weeds) would be significant. Blue green algae blooms would be reduced and environment for fish would improve. Both external and internal loads of phosphorus would have to be controlled.

IMPROVEMENT SCENARIO THREE ACHIEVE A TOTAL PHOSPHORUS CONCENTRATION OF LESS THAN 40 PPB IN JENNINGS BAY. This concentration is the generally considered goal for full use of lakes in the North Central Hardwood Forest eco-region. However, the panel anticipates that increased clarity will encourage the growth of macrophytes. The analysis conducted by the panel indicates that it will take a very aggressive combination of control methods to approach this goal and that achieving 40 parts per billion (ppb) may not be practical.

THE PANEL DEVELOPED DETAILED BACK-UP INFORMATION IN THEIR REPORT. A SUMMARY OF THEIR RECOMMENDATIONS IS AS FOLLOWS:

- Agreement should be reached among stakeholders on the desired uses and related water quality criteria for Jennings Bay.
- The MCWD should work closely with the appropriate parties to implement Best Management Practices described in the report.
- The MCWD should conduct tests of wetland areas in the Painters Creek Watershed to determine the phosphorus retention capacity by conducting soil chemistry tests.
- The MCWD should implement wetland modifications and management in those areas where testing determines that soils have significant capacity to retain phosphorus.
- If Scenario Two or Three water quality goals are selected, collect and analyze lake sediment core samples to determine correct alum dose requirements.
- The MCWD should expand its program of flow, water quality and wetland soil chemistry data.
- The MCWD should assign a staff person to be responsible for data quality & continuity.

The MCWD is now working within its existing programs to implement the recommendations of the panel. These existing programs include the current District-wide Hydrology and Hydraulics Study; the District's annual hydro-monitoring efforts; Stream assessment projects; Local Water Plan reviews; ongoing District permitting program; Wetland Function and Values Assessments and the U.S. Army Corps of Engineer's project management plan for environmental restoration. The District is working in a public/private partnership with its staff, other governmental units and their private consultants to ensure the coordination of these programs.

HDR ENGINEERING AND MCWD RECOGNIZED FOR NOKOMIS PROJECT

Consulting Engineers Council of Minnesota awards Lake Nokomis water quality improvement project

— Wenck Engineering provided initial research and design

— Partnership of many professionals brings science and engineering expertise to Lake Nokomis clean-up

HDR Engineering Inc. of Golden Valley was recently recognized by the Consulting Engineers Council of Minnesota (CEC/M) with an award for its water quality improvement work for Lake Nokomis in south Minneapolis. Increased algae blooms in summer months from phosphorous carried by stormwater runoff and other sources had affected swimming, fishing and other recreational activities.

The long-range cleanup efforts for Lake Nokomis have involved many professionals and citizens over a period of years. Wenck Engineering identified the water quality issues with Lake Nokomis and Hiawatha and executed the planning, diagnostics and feasibility work, including all the modeling and monitoring. Wenck also developed the preliminary designs while HDR handled the construction contract.

\$2 million dollars of water quality improvements included:

- Rerouting of five storm water systems
- Installation of two swirl technology grit chambers
- Installation of an Obermeyer adjustable weir
- Technical assistance in coordinating carp/rough fish removal
- Technical assistance in conducting a whole lake alum treatment
- Construction and permitting service to create three wetlands

MCWD CONTINUES TO STREAMLINE PERMIT APPLICATION PROCESS FOR HOMEOWNERS

MCWD cities encouraged to offer permit brochures at city halls

If the idea of applying for a permit through Minnehaha Creek Watershed District seems daunting at the least, take heart. The District continues to actively work on demystifying the permit application process for homeowners by offering several options.

The District recently published a permit brochure primer that outlines who may need to apply for a permit and how to access more information. "We want residents in the District to be able to experience a smooth, efficient transaction from when they first inquire about a possible permit to the end of the process," says Mike Wyatt, MCWD District Technician in the MCWD Permitting Division. "The Division handles more than 450 annual permit requests. Most of these are residences built near water resources such as wetlands, ponds, creeks, streams and lakes," explains Wyatt. "But not all of the development that requires MCWD permits are near water so it's best to check with us at the front end of the process."

Each city or township in the District also has its own permit requirements for building or property improvement projects that abut water resources. "City or township permits may be different from those permits required by the MCWD," says Wyatt. "We try very hard to work closely with District cities when multiple permits are required." Copies of the MCWD permit brochure are also available for District cities to offer to their residents.

For citizens who know what permit they need to apply for, the appropriate MCWD permit application is available for downloading at www.minnehahacreek.org. Citizens can also call the District office at 952/471-0590 or stop by the Minnehaha Creek Watershed Office at 2500 Shadywood Road in Navarre at the Gray Freshwater Center.

City officials who would like multiple copies can also call the District office for help.



RENAE SCHUBERT NAMED MCWD COMPLIANCE OFFICER/DISTRICT TECHNICIAN

Schubert brings knowledge, personal enthusiasm and resourcefulness to the position

Rena Schubert has been named the new Compliance Officer/District Technician for the Minnehaha Creek Watershed District (MCWD). Schubert's dual role will focus on enforcement of the MCWD permitting requirements with residents, builders and developers and on communications with cities and officials about flooding, erosion and water quality issues within the District's boundaries.

Schubert was previously an intern at the MCWD while she completed her B.S. in Natural Resources and Environmental Studies, Water and Soil and Soil Conservation at the University of Minnesota. She graduated in December 2001.

"I'm very excited to join an organization that understands water quality management issues and does such an outstanding job of enforcing laws and regulations while also educating the public about clean water practices," says Schubert. "I'm looking forward to working with and assisting homeowners, cities, builders and developers so that together we can make a difference in the quality of life and the environment here in the metropolitan area with its numerous valuable water resources."



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