Minnehaha Creek Watershed District *REQUEST FOR BOARD ACTION*

MEETING DATE: October 24, 2019

TITLE: Approval of Long Lake Local Water Management Plan

RES. NUMBER: 19-091

PREPARED BY: Becky Christopher

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REVIEWED BY: ☐Administrator ☐ Counsel ☐ Program Mgr.
☐ Board Committee ☐ Engineer ☐ Other

WORKSHOP ACTION:

☐ Advance to Board mtg. Consent Agenda. ☐ Advance to Board meeting for discussion prior to action.

☐ Refer to a future workshop (date):_____ ☐ Refer to taskforce or committee (date):_____

☐ Return to staff for additional work. ☐ No further action requested.

☒ Other: Requesting final action on October 24, 2019

PURPOSE or ACTION REQUESTED:
Approval of the City of Long Lake Local Water Management Plan

PROJECT/PROGRAM LOCATION:
City of Long Lake

PROJECT TIMELINE:

April 22, 2019	Long Lake LWMP draft submitted to MCWD
June 21, 2019	MCWD comments sent
September 9, 2019	Long Lake LWMP revised draft submitted to MCWD

PROJECT/PROGRAM COST:
N/A

PAST BOARD ACTION:

September 22, 2011	MCWD approval of Long Lake local water management plan (11-080)
January 11, 2018	Approval and adoption of MCWD Watershed Management Plan for the implementation period 2018-2027 (18-004)

SUMMARY:

Background:
MN Statutes § 103B.235 and MN Rules § 8410.0160 grant watershed districts the authority to review and approve local water management plans (LWMPs). Under this framework, watershed districts can assign responsibilities to local government units (LGUs) for carrying out implementation actions defined in the

watershed plan. The LWMP is a required element of the LGU comprehensive land use management plan which LGU's were required to adopt by the end of 2018.

The Minnehaha Creek Watershed District (MCWD or District) adopted its new Watershed Management Plan (Plan) in January 2018. The Plan is rooted in the District's Balanced Urban Ecology policy (BUE) as the principal strategy to accomplish its mission. The BUE policy recognizes the inter-dependence of the natural and built environment and that both benefit through a holistic planning approach. The BUE policy establishes the guiding principles of focus in areas of highest resource needs, flexibility to respond to emerging opportunities as a result of land use change in real time, and pursuing clean water goals in partnership with our communities.

The Plan establishes the District as a regional water planning agency. The Plan provides rationale for subwatershed-based planning and prioritization by which to focus implementation efforts for the 2018-2027 Plan cycle. The District has prioritized the subwatersheds of Minnehaha Creek, Six Mile Creek-Halsted Bay and Painter Creek-Jennings Bay based on a combination of resource needs and opportunities for management of some of the State's most prized recreational natural resources of Lake Minnetonka and Minnehaha Creek – including the Minneapolis Chain of Lakes.

In addition to these focused planning and implementation efforts, the District's approach watershed-wide is to remain responsive to opportunities created by local land use change or partner initiatives. The District's responsive approach relies on early and effective coordination by the District's communities to help identify opportunities to integrate plans and investments. As opportunities arise, the District will evaluate them against the resource needs and priorities defined for each subwatershed in the District's Plan and determine the appropriate response. The District has a wide range of services it can mobilize to address resource needs and support partner efforts, including data collection and diagnostics, technical and planning assistance, permitting assistance, education and capacity building, grants, and capital projects.

Integration of land use and water planning is the primary focus of the LWMP requirements set forth in the District's Plan. To effectively integrate the goals of MCWD and its LGUs in a way that maximizes community benefits and effectively leverages public funds, the District has invited a partnership framework with its communities. In addition to the legally required elements of LWMPs, as defined in State statute and rules, the MCWD Plan requires communities to propose a coordination plan which describes how the LGU and MCWD will share information and work together to integrate land use and water planning. Specifically, the purpose of a MCWD/LGU coordination plan is to:

1. Establish a framework to be informed as to current LGU land use and infrastructure planning and enable early coordination of land use and water resources management
2. Foster LGU development regulation that integrates water resource protection before plans are fixed
3. Identify and capitalize on project opportunities for improved water resources outcomes while maximizing other public and private goals

As established in the District's Plan, MCWD will prioritize implementation efforts and resource deployment based on its established priorities and LGU commitment to coordination. This commitment is demonstrated through the coordination plan and its implementation by the LGU.

<u>Long Lake LWMP Summary:</u>
The City of Long Lake (City) has submitted its LWMP for MCWD review and approval. District staff reviewed the LWMP and provided detailed comments regarding the goals and requirements of the District's Plan for consideration and incorporation into the LWMP.

The City of Long Lake occupies approximately 0.9 square miles and is located entirely within the Long Lake Creek subwatershed of MCWD. Primary water resources within the City include portions of Long Lake and Long Lake Creek. The subwatershed drains to Tanager Lake of Lake Minnetonka. Both Long Lake and Tanager Lake are impaired for nutrients.

The District has entered into a partnership with the cities of Long Lake, Orono, and Medina and the Long Lake Waters Association to develop a holistic plan to restore water quality and ecological health in the subwatershed. The District is currently leading a subwatershed assessment and development of an implementation roadmap that will identify project opportunities and strategies, partner roles, and potential funding sources.

The City has included the subwatershed partnership in its capital improvement plan and commits to continued coordination with the District and other partners through the development of the roadmap and subsequent implementation efforts. Other implementation priorities identified in the City's plan include enhancing its street sweeping program, implementing bioretention/infiltration practices, and reviewing road salt application practices and products.

As a required element of the LWMP, the City has developed a MCWD-City Coordination Plan (attached) which serves as a framework to support ongoing communication and promote value-added collaboration between the City and MCWD. The Coordination Plan covers the following areas: annual meeting, land use planning, regulatory coordination, public education and outreach, public improvement projects, data sharing, funding, and the Long Lake Creek Subwatershed Partnership.

The City has not proposed to acquire implementation authority for any MCWD water resource regulation and has proposed that the District retain Local Government Unit status for the Wetland Conservation Act.

Recommendation:

Staff has verified that the LWMP meets the requirements of Minnesota Statutes §103B.235, Minnesota Rules 8410.0160, and the MCWD Watershed Management Plan and recommends approval.

Attachments:

1. Long Lake Map
2. Long Lake Coordination Plan
3. Long Lake LWMP (via website)

RESOLUTION

RESOLUTION NUMBER: 19-091

TITLE: Approval of Long Lake Local Water Management Plan

WHEREAS, on January 11, 2018, the MCWD adopted its Watershed Management Plan (WMP) pursuant to Minnesota Statutes §103B.231 and Minnesota Rules 8410, which describes how the MCWD will fulfill its responsibilities under the Metropolitan Surface Water Management Act for implementation over the period 2018-2027, and which is guided by the organizational strategy and approach defined through the Balanced Urban Ecology policy; and

WHEREAS, the Balanced Urban Ecology policy prioritizes partnership with the land use community to integrate policy, planning, and implementation in order to leverage the value created when built and natural systems are in harmony; and

WHEREAS, the Balanced Urban Ecology policy rests on the guiding principles of focusing in areas of highest resource needs, being flexible to respond to opportunities that arise through land use changes, and working in partnership to achieve the MCWD's goals; and

WHEREAS, on watershed district adoption of its WMP, cities and towns (local government units or LGUs) within the watershed must prepare local water management plans (LWMPs) that meet content requirements of Minnesota Statutes §103B.235, Minnesota Rules 8410.0160 and the WMP; and

WHEREAS, the LWMP is a primary tool to provide a framework for increased early coordination of land use and water planning through the coordination plan that is a required component of the LWMP and the content of which is described in the WMP, Appendix A; and

WHEREAS, the MCWD will prioritize implementation efforts and resource deployment based on its established priorities and LGU commitment to coordination as demonstrated through the coordination plan and its implementation by the LGU; and

WHEREAS, the City of Long Lake (City) has revised its LWMP and submitted it to the MCWD for review and approval; and

WHEREAS, MCWD staff reviewed the draft LWMP, provided detailed written comments on the LWMP, and thereafter worked with City staff to achieve the development of a proposed LWMP for consideration by the MCWD Board of Managers; and

WHEREAS, the Metropolitan Council has reviewed the LWMP and provided its written comments to the MCWD in a letter on May 22, 2019, and the MCWD has fully considered the comments; and

WHEREAS, the LWMP states that the City does not choose to exercise sole regulatory authority but, instead, wishes that the MCWD continue to require permits for the use and development of land, and otherwise exercise its regulatory authority, within the meaning of Minnesota Statutes §103B.211, subd. 1(a)(3); and

WHEREAS, the LWMP states that the City elects for the District to continue to act as the Local Government Unit responsible to implement the Minnesota Wetland Conservation Act; and

WHEREAS, the LWMP contains a coordination plan that meets the standards set forth in the MCWD WMP, Appendix A; and

WHEREAS, the MCWD has determined that the final revised LWMP meets the requirements of Minnesota Statutes § 103B.235, Minnesota Rules 8410.0160, and is consistent with the MCWD WMP including Appendix A, "Local Water Plan Requirements";

NOW, THEREFORE, BE IT RESOLVED, that the MCWD hereby approves the City of Long Lake Local Water Management Plan; and

BE IT FURTHER RESOLVED, that the Board approves the associated coordination plan and adopts it on behalf of the MCWD; and

BE IT FINALY RESOLVED that the City is to adopt and implement its LWMP within 120 days, and to notify the MCWD within 30 days thereafter that it has done so.

Resolution Number 19-091 was moved by Manager _____, seconded by Manager _____.
Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date:_____.

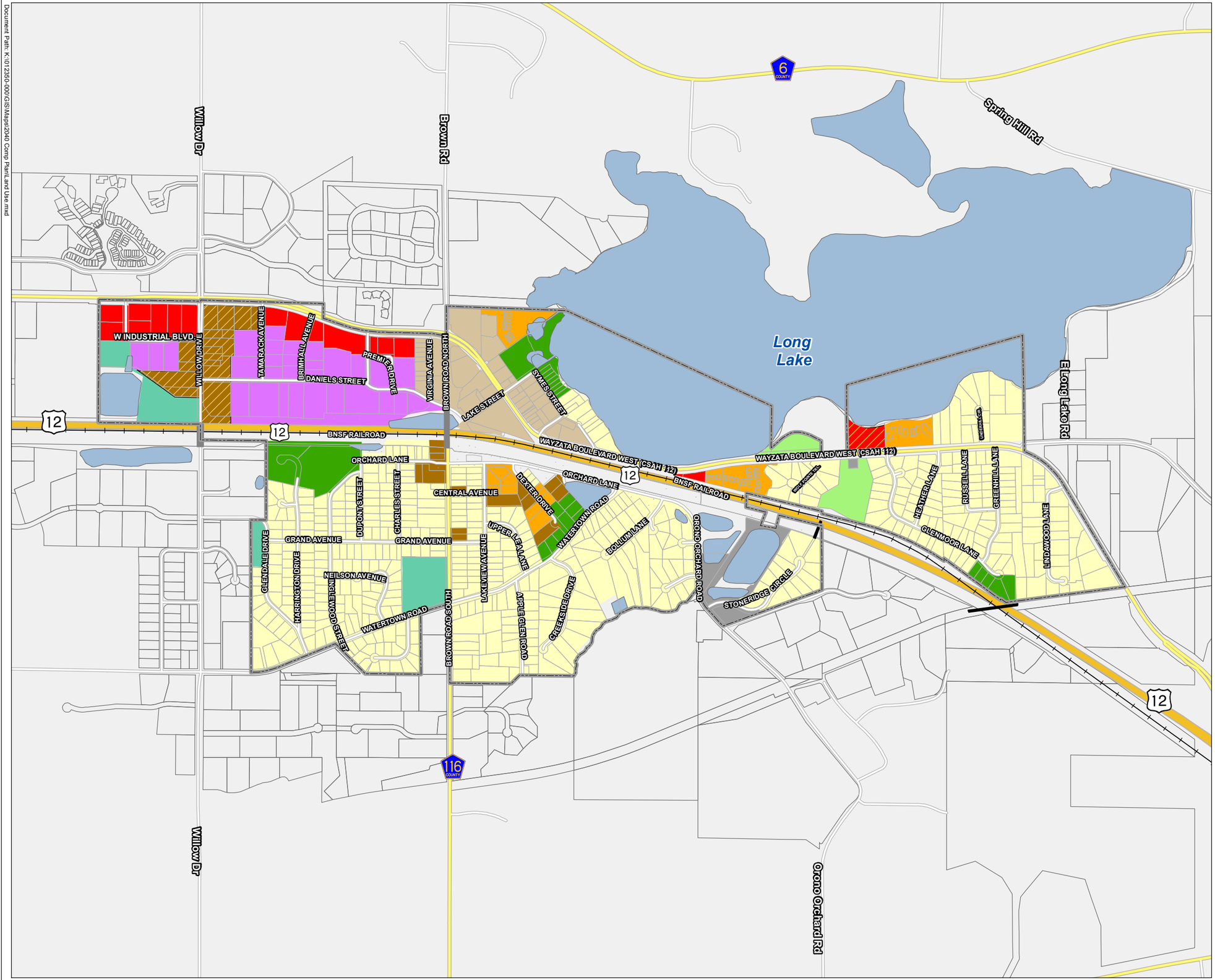
_____ Date: _____.
Secretary

Document Path: K:\01\23\50-000\GIS\Maps\2040 Comp Plan\Land Use.mxd

CITY OF LONG LAKE

Long Lake, Minnesota
2040 Comprehensive Plan
Proposed Land Use Map

Figure 8



- Long Lake Boundary
- Parcels
- Lakes/Ponds
- Pedestrian Bridge
- Vehicle Bridge

2040 Land Use Plan

- Business/Light Industrial
- Commercial
- Downtown Village Mixed Use
- Institutional
- Low Density Residential
- Multiple Family Residential - High Density
- Multiple Family Residential - Medium Density
- Multiple Family Residential - Medium Density/Commercial
- Open Space - Private
- Park
- Planned Commercial Business
- Utility

N

0 1,000 Feet

wsb

8. MINNEHAHA CREEK WATERSHED COORDINATION PLAN

8.1. Background

The Minnehaha Creek Watershed District (MCWD/District) Watershed Management Plan (WMP/Plan) focuses on partnership with the land use community and incorporates a subwatershed focus to address areas of significant resources needs with a level of complexity that requires sustained effort and coordination across multiple partners. While operating on a subwatershed scale, focused within the priority areas indicated in its WMP, the MCWD is remaining responsive to its communities District-wide by providing technical resources, regulatory coordination, and in some cases, funding. MCWD partnership and level of response is driven by early coordination of land use planning.

As part of the development of the District's Plan, communities provided information as to local goals, plans, and priorities. This information was used to broadly characterize opportunities and to inform the development of District implementation plans. The City of Long Lake, partially within the Long Lake Creek Subwatershed and the Lake Minnetonka Subwatershed, understands the importance of protecting Long Lake and downstream Lake Minnetonka. Within the City of Long Lake, the WMP has identified water resource issues of excess nutrients, degraded aquatic plant communities, and degraded, disconnected corridors caused by altered wetlands, common carp, stormwater runoff, internal phosphorus loading and water quality from upstream water bodies. Strategies identified to address these issues and drivers include wetland restoration, carp management, restoration of upstream water bodies and others. The City of Long Lake recognizes that implementation of these strategies may expand outside City boundaries and will require a partnership-driven approach with the MCWD, Long Lake Waters Association, and neighboring Cities. It is the intent of this Coordination Plan to provide a systematic approach to early coordination between the City of Long Lake and the MCWD to facilitate and maximize water resources implementation priorities together.

8.2. Purpose

The Minnehaha Creek Watershed District's (MCWD) approach to water resource planning recognizes the environmental, social, and economic value created when built and natural systems work in harmony. Through its WMP the MCWD emphasizes early coordination of land use and water resources planning with Cities to integrate water resources goals with other public and private goals to add this broader value and quality of life to the community. To maintain awareness of needs and opportunities to implement programs and projects that reflect the cooperation of other public and private partners, align investments, and secure a combined set of District, City, and partner goals, the MCWD requests that cities establish a coordination plan as part of the Local Water Management Plan that the City and MCWD can implement at a staff level. Improving coordination between land use planning at the City and watershed planning at the MCWD at the conceptual level planning phase will result in better projects that meet agency goals and are a more efficient use of public funds. Early coordination and collaboration between entities is the key to maximizing shared water resource goals and community goals for private redevelopment and public capital improvements. Through this coordination, it is the intent of the City to efficiently manage water quality concerns and maximize the asset value of the City's natural resources in the future.

8.3. Coordination

The following is a coordination plan, which will be adjusted and expanded as deemed appropriate by the City and MCWD during project implementation. It is anticipated that the City Administrator and Public Works Director will be the primary contacts for the coordination plan.

1. Annual meeting – City and MCWD staff will meet during the first quarter of each year to review the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) reports and activity from the previous year. Staff will also discuss draft Capital Improvement Plans (CIP) for each organization for the upcoming year. Opportunities for early coordination and review of land use change applications and regulatory coordination will also be reviewed to identify areas collaboration.

2. Land Use Planning – The City will continue to join with its partners in the Long Lake Creek Subwatershed Partnership in order to implement water resource priorities identified in the MCWD Watershed Management Plan, align local plans, and provide capital investment to identify opportunities where local investments intersect with natural resource goals. Through on-going coordination of land use planning and changes the City and MCWD will adaptively evaluate project opportunities and assess them against the established goals the partnership. Because there is little land left for development, the City expects changes in land use to be driven by redevelopment and infill development. The City will include the MCWD early on in potential land use changes and redevelopment projects so the MCWD can be value added to projects. Specific land use changes can be found in the Land Use Chapter of the 2040 Comprehensive Plan. **Figure 9** shows the City-owned parcels, which could provide an opportunity to partner with MCWD for water resource related projects.

3. Regulatory coordination – The City of Long Lake staff and consultants will endeavor to continue to route request for land use approvals including but not limited to, subdivisions, site plan approvals, WCA applications, infrastructure improvements, and park improvements to the District at concept plan phase in effort to maximize water resources benefits and streamline regulatory processes. Specific areas of regulatory coordination include the following:

    a. Pre-application meetings and permit reviews coordinated with MCWD early in the planning process.
    b. City assistance to support MCWD in construction site inspections and compliance
    c. MCWD will keep the City appraised of water resource violations and expectations for compliance.
    d. The City will require documentation of required MCWD permits in advance of issuing applicable City permits. Approved MCWD permits will be stored with other project documentation for future reference.
    e. City road, infrastructure, facilities and land improvements that require MCWD permits will be coordinated as part of the annual meeting and otherwise early in the CIP process so that the regulatory process may be efficient and integrated water and natural resource improvements may be explored.
    f. The primary person responsible for regulatory coordination at the City of Long Lake is the City Administrator and the Public Works Director and the Permitting Program Manager at MCWD.

4. Public Outreach and Education – The City will continue to distribute a newsletter and post on the City website to spread awareness of stormwater related issues. The City will help promote the MCWD's educational workshop and events to private homeowners and developers. The MCWD's educational workshops cover topics such as winter maintenance training, installing turf alternatives, and informational sessions on the Master Water Steward program. The City will coordinate with the MCWD on other educational efforts when possible to avoid duplicating efforts.

5. Aligning Planning and Investments: The MCWD can provide technical resources and planning assistance to assist the City and its partners in the Long Lake Creek Subwatershed in aligning public and private investments providing value to its residents and the environment. In addition to leveraging District technical and financial assistance, the City will support the District as it may pursue external funding resources to support capital project implementation within the Long Lake Creek Subwatershed. Identified capital projects will be reviewed and updated annually.

6. The City understands that the process to align investments begins at the concept stage of project development and recognizes that in addition to a future competitive grant program, the MCWD may offer technical resources and planning assistance to assist the City in aligning public and private investments providing value to its residents and the environment.

7. Funding – The City seeks support from the MCWD in terms of grant funding for water quality projects. The City requests that MCWD staff continue to provide information about upcoming grants and other funding opportunities internal and external to the MCWD.

8. Communication – The primary contact person responsible for implementation of the coordination plan is (indicate position) at the City of Long Lake and the Policy Planning Manager at the MCWD.

9. Data Sharing – City staff will coordinate with MCWD staff to share any new or relevant data on an annual basis to ensure consistency. This data could be related to any newly completed studies water quality monitoring, or Best Management Practice (BMP) performance monitoring, among other things.

10. Public Improvement Projects – City staff members will provide yearly updates on plans for public improvement projects. This will be coordinated as part of the annual meeting while discussing the draft CIP. Maintenance activities for stormwater infrastructure will be provided to MCWD as part of the MS4 recording process and as part of City inspection reports. The CIP will be updated annually.

    Street reconstruction projects are planned for most upcoming years in the City. Some street reconstruction projects include storm sewer replacement. The City will send the MCWD where future street reconstruction projects are planned when they are added to the CIP, so the MCWD can provide recommendations and technical planning assistance for how water quality improvements could be incorporated into larger City projects.

11. Long Lake Creek Subwatershed Partnership – The City will continue to coordinate and collaborate with the Cities of Medina and Orono, the Long Lake Water Association (LLWA) and MCWD to address water quality issues as part of the Long Lake Creek Subwatershed Partnership. The goal of the partnership is to combine collected data, align local plans and coordinate capital improvement projects to improve water quality and ecological health throughout the subwatershed. The City looks to MCWD, as the regional agency, to facilitate the coordination and provide technical expertise to the group. The group members will meet regularly to discuss these efforts. The Long Lake Creek Subwatershed Assessment is currently being developed and once complete, will identify action items and roadmap for the continued partnership.

WATER RESOURCES MANAGEMENT PLAN

CITY OF LONG LAKE

LONG LAKE, MN

September 2019

Prepared for:
City of Long Lake
450 Virginia Ave
Long Lake, MN 55356

WSB PROJECT NO. R-013376-000

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APPENDICES

1. INTRODUCTION

1.1. Water Resources Management Plan Purposes

This Water Resources Management Plan (WRMP, Plan, the plan) will serve as a comprehensive planning document to guide the City of Long Lake in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources. This plan is also consistent with the goals and policies of the Metropolitan Council's *Water Resources Management Policy Plan*, and Minnehaha Creek Watershed District. This plan may be periodically amended to remain current with local practices and policies. The purposes of the water management programs are to:

- Protect, preserve, and use natural surface and groundwater storage and retention systems;
- Minimize public capital expenditures needed to correct flooding and water quality problems;
- Identify and plan for means to effectively protect and improve surface and groundwater quality;
- Establish more uniform local policies and official controls and strive for regional uniformity in surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Identify the unique connection between surface water and groundwater and look for opportunities to promote groundwater recharge, where beneficial;
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The Long Lake Water Resources Management Plan addresses these purposes.

1.2. Executive Summary

The Long Lake Water Resources Management Plan is organized as follows:

- ***Section 1 Introduction*** provides background information and summarizes the plan contents.
- ***Section 2 Land and Water Resource Inventory*** details the physical setting including the history, natural resources, and land uses within the City.
- ***Section 3 Agency Cooperation*** outlines other governmental controls and programs that affect stormwater management.
- ***Section 4 Assessment of Problems and Corrective Actions*** presents the City's water management related problems and issues.
- ***Section 5 Goals and Policies*** outlines the City's goals and policies pertaining to water management.
- ***Section 6 Implementation Program*** presents the implementation program for the City of Coon Rapids, which includes defining responsibilities, prioritizing, and listing the program elements.
- ***Section 7 Financial Considerations*** outlines the continued administration of this plan with respect to plan updates and amendments.
- ***Section 8 MCWD Coordination Plan*** discusses coordination efforts to be completed with Minnehaha Creek Watershed District to increase communication and planning efforts.

2. LAND USE

2.1. Location

The City is located within Hennepin County on the south shore of Long Lake. The City contains 613 acres of land and water resources within its corporate boundaries and is surrounded by the City of Orono. The City is located in the west portion of the Twin Cities Metropolitan area.

The entire watershed is within the Metropolitan Urban Service Area (MUSA). The Metropolitan Urban Service Area, or "MUSA," is the area in the seven counties in which the Metropolitan Council ensures that regional services and facilities, such as sewers and major highways, are provided or planned.

2.2. Existing Land Use

The existing land use in the City consists of a mix of industrial, commercial, residential, open space, and transportation corridors (**Figure 1**). Approximately 40 percent of the City is currently residential land use. In addition, public land uses comprise a large amount of developed acreage due to the current right-of-way requirements for TH 12 and other road corridors in the City. Less than 1% of the City is currently undeveloped.

The City has a natural surface water conveyance system that generally drains the western portion of the City north into Long Lake and then into Long Lake Creek. Long Lake Creek ultimately flows south into Lake Minnetonka. The majority of the City was developed prior to 1980 along these natural drainage systems.

2.3. Future Land Use

Future planned land uses and zoning within the City are described in the 2040 Comprehensive Plan: Chapter 4 Land Use. The Plan describes the 2040 land use goals as maintaining and supporting the pattern of the established residential neighborhoods and existing businesses while having a village-oriented downtown. However, it is also recognized that older areas of the City need investment and revitalization to maintain thriving businesses and residential neighborhoods. Figure 8 in Appendix A shows the City's proposed land uses.

Recent land use planning studies for the downtown redevelopment area include the Downtown Master Plan and Design Guidelines prepared by Hoisington Koegler Group, Inc. in 2001, and the Downtown Parking Study prepared by the Hoisington Koegler Group and WSB in 2006. Future development and redevelopment will be required to meet the City's Design Standards, Zoning Ordinances (Wetland Systems, Water Management, and Floodplain Management Sections), Comprehensive Plan and this LWMP. Redevelopment activities and in-fill development within the City should complement existing land use and density, and are expected to continue as the population of the surrounding area continues to grow.

2.4. Recreation

The City of Long Lake offers a variety of recreational opportunities through its network of parks and trails. Below is a list of municipal parks:

- Nelson Lakeside Park
- Holbrook Park
- Hardin Park
- Dexter Park

Additionally, the Minnesota DNR maintains a trail through the City. The Luce Line State Trail is a 63-mile-long former railroad grade which was developed for biking, hiking, horseback riding, and mountain biking.

2.5. Fish and Wildlife Habitat

The City provides habitat for a variety of small mammals, reptiles, birds, amphibians, and insects. Maintenance of habitat for wildlife species is important to ecological stability of the City's natural areas. **Figure 2** shows the map of habitat and land cover as classified by the Minnesota Land Cover Classification System (MLCCS). The majority of the land cover is developed, with some areas of forest and herbaceous covering.

Information from the DNR indicates there is a variety of moderately unique fish and wildlife habitat within the City, much of which is located near or in Long Lake. Long Lake is often stocked by the DNR to supplement natural reproduction. A Lake Survey Report for Long Lake can be found at the DNR Website.

2.6. Shoreland Management Ordinance

Long Lake has adopted a shoreland management ordinance in accordance with DNR criteria. The City's shoreland ordinance (in Section 17A) is part of the City's overall zoning ordinance. The City has also adopted a wetland ordinance entitled "W" Wetlands Systems District (Section 17). Sections 17 and 17A of the City's zoning ordinance are provided in **Appendix B**.

2.7. Floodplain Zoning

The City participates in the National Flood Insurance Program (NFIP) and in 2004 the Federal Emergency Management Agency (FEMA) issued the initial Flood Insurance Rate Map (FIRM) for the City. The FIRM maps were then updated in 2016 by FEMA. FIRM panels numbered 27053C0302E and 27053C0306E were adopted by reference into the City's Ordinance Section 17B as the official Flood Plain Zoning District Map. Section 17B of the City's zoning ordinance is also provided in **Appendix B**. **Figure 3** illustrates the FEMA mapped flood hazard zones in Long Lake.

2.8. Additional Land Use Control

City code requires project owners to obtain a Building Permit (Section 4) for the construction or alteration of any structure. In addition, Section 17A of City Code (Water Management) requires all grading or filling activities to obtain a building permit prior to commencing construction. The ordinance requires preparation of storm water management components for all projects for the purposes of erosion and sediment control and water quality treatment. The code refers to the Minnehaha Creek permit program.

For development and redevelopment within the downtown area of the Long Lake, the City requires projects to be implemented in a manner consistent with the *Downtown Master Plan and Design Guidelines*. These guidelines include several items that help to reduce development impacts on water resources including:

- Promoting the preservation and siting of business establishments in a compact configuration and a scale that accommodates pedestrian travel within the downtown area and surrounding neighborhoods.
- Preservation and enhancement of desirable environmental features on property such as mature trees, vegetative buffer areas, stabilizing significant slopes, and installing water management features.

Section 33 of City Code addresses Tree Preservation and Landscape Standards in an effort to recognize and preserve existing natural resources of the community, and to encourage the greening of the City.

A description of the City's Design Standards and Administrative Processes are included in **Appendix D**. The City's policy is to refer all project proposers to the MCWD standards in the early stages of a development planning process for a larger project or following an application for a building permit for any land disturbing activity.

At this time, the City is deferring erosion and sediment control regulation (MCWD Rule B) to the MCWD along with MCWD Rules C, D, E, F, G and N.

- Rule B Erosion Control
- Rule C Floodplain Alteration
- Rule D Wetland Protection
- Rule E Dredging
- Rule F Shoreline Improvements
- Rule G Waterbody Crossing
- Rule N Stormwater Management

The City entered into an agreement with the MCWD for maintenance on some of the storm water treatment ponds located in the City. This and other agreements as executed (e.g., with MnDOT for the TH12 storm water ponds) they are incorporated into **Appendix C** of the Plan.

2.9. Private Development Stormwater Maintenance

Stormwater management ponds constructed on private developments are required to be covered by drainage and utility easements that are dedicated to the City. Developers are required to submit an operations and maintenance plan as well as a maintenance agreement for proposed stormwater BMPs. Current and future landowners are required to maintain the stormwater BMPs including but not limited to removing trash and debris, inspecting inlets and outlets, removing sediment buildup, and stabilizing and restoring eroded areas. In the event the landowner fails to maintain the stormwater BMP in good working condition acceptable to the City, the City may enter the property and correct any deficiencies.

2.10.NPDES Phase II

The MPCA implemented the NPDES Phase II Stormwater Program in March 2003. Phase II requires municipal separate storm sewer systems (MS4s) in urban areas with populations over 10,000 and under 100,000 to obtain an NPDES permit. Permits for construction sites greater than one acre will also be required as part of the Phase II. The City has submitted its Stormwater Pollution Prevention Plan and Notice of Intent in conformance with the MPCA guidelines. The application that was sent to the MPCA is included in **Appendix E.**

3. WATER RESOURCE INVENTORY

This section of the WRMP describes the regional climate of Minnesota, includes a general overview of the major surface water resources (lakes, wetlands, ditches, drainage patterns, and storm water ponds/facilities) within the City, and provides a discussion of the hydrologic modeling completed for the City and for the TH12 realignment project. This section also discusses how the detailed hydrologic data and modeling will be used by the City to guide and evaluate future development projects.

3.1. Climate and Precipitation

The climate within the Minneapolis/St. Paul metropolitan area is described as a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers, and cold winters. The total average annual precipitation is approximately 31 inches, of which approximately one-third occurs in the months of June, July, and August. The annual snowfall average is about 54 inches, which is equivalent to approximately 5.4 inches of water.

In 2013, the National Oceanic Atmospheric Administration (NOAA) published the Atlas 14 Precipitation-Frequency document which showed an increase in rainfall intensity from the previously referenced Technical Paper 40 precipitation values. The City uses the Atlas 14 precipitation data for design purposes. A rainfall event having a 99% chance of occurrence in a given year over a 24-hour period is approximately 2.9 inches. A rainfall event having a 1% chance of occurrence in a given year over a 24-hour period is approximately 7.83 inches. The 1%, 10-day snowmelt runoff is 7.2 inches. Additional rainfall information for the area can be obtained from the National Weather Service website or from the State Climatologist website.

Table 2: Atlas 14 Rainfall Depths for 24-hr Event

Return Period	Rainfall Depth (inches)
1-yr	2.5
2-yr	2.9
5-yr	3.6
10-yr	4.3
50-yr	6.3
100-yr	7.3

Additional information on the climate of the area is provided in the MCWD Water Resources Management Plan or online at http://climate.umn.edu/.

3.2. Geology and Topographic Information

3.2.1. Soils

The surficial geology of the Long Lake area consists of unconsolidated sediments of glacial deposits, derived from the Grantsburg Sublobe of the Superior Lobe. The glacial sediments were deposited during the most recent glacial event, the Late Wisconsinian, which ended about ten thousand years ago. These deposits consist of till, outwash, and lacustrine (lake derived) deposits composed of mixed sands, silts, clays, and gravels. The hydraulic soil group and textural classification of soils are important indicators of the runoff potential and infiltration capacity of the

soil, thus they should be considered when implementing BMPs.

The hydraulic soil group classifications for the soils in the City are shown in **Figure 4**.

The four soil classifications are defined as follows:

Group A – These soils have high infiltration rates even when thoroughly wetted. The infiltration rates range from 0.3 to 0.5 inches per hour. These soils consist chiefly of deep, well drained to excessively drained sands and gravel. Group A soils have a high rate of water transmission, therefore resulting in a low runoff potential.

Group B – These soils have moderate infiltration rates ranging from 0.15 to 0.30 inches per hour when thoroughly wetted. Group B soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures.

Group C – These soils have slow infiltration rates ranging from 0.05 to 0.15 inches per hour when thoroughly wetted. Group C soils have moderately fine to fine texture.

Group D – These soils have very slow infiltration rates ranging from 0 to 0.05 inches per hour when thoroughly wetted. Group D soils are typically clay soils with high swelling potential, soils with high permanent water table, soils with a clay layer at or near the surface, or shallow soils over nearly impervious material.

3.2.2. Surficial Hydrogeology

The unconsolidated glacial deposits range in thickness from 150 to 300 feet within the boundaries of the City. Due to its lower permeability, the clay-rich till generally yields less ground water than the sandy and gravelly outwash deposits. In fact, the till can act as a confining layer if thick enough and broad enough. Groundwater flow in the unconsolidated glacial deposits is generally from north to south. The water table is approximately 950 feet above mean sea level.

3.2.3. Bedrock Geology

The depth to bedrock ranges from 50 to 400 feet within the boundaries of the City. Long Lake sits on the western edge of the Twin City Basin, a bowl-like structure in the bedrock. At this location the bedrock strata dips gently toward the east. The youngest and stratigraphically highest bedrock underlying the City is the St. Peter Sandstone. Underlying the St. Peter Sandstone is the Prairie Du Chien Dolostone that is the only other uppermost bedrock in Long Lake.

3.2.4. Bedrock Hydrogeology

The City water supply comes from two municipal wells in bedrock aquifers. Four bedrock aquifers underlie the City of Long Lake. They are the St. Peter Sandstone, Prairie du Chien- Jordan, the Franconia-Ironton-Galesville, and the Mount Simon-Hinckley. These aquifers are separated by lower permeability confining layers. The first encountered bedrock aquifer is the St. Peter Sandstone that is relatively thin in the Long Lake area, the second aquifer is the Prairie du Chien-Jordan Aquifer. The St. Lawrence Confining Layer separates the Prairie du Chien-Jordan Aquifer from the underlying Franconia-Ironton-Galesville Aquifer. The Eau Claire Confining Layer separates the Franconia-Ironton-Galesville Aquifer from the deepest aquifer, the Mt. Simon-Hinckley Aquifer. The groundwater flow direction in the bedrock aquifers is generally southeast in the Long Lake area.

The lower part of the St. Peter Sandstone that is found in Long Lake contains multicolored beds of mudstone, siltstone and shale with interbedded very coarse sandstone. Many sand grains in the lower part are dark gray in color.
The Prairie du Chien-Jordan Aquifer is made up of the Prairie du Chien Group and the Jordan

Sandstone. The Prairie du Chien Group consists of a sandy dolostone with minor amounts of shale. The Jordan Sandstone is a fine to coarse grained quartzose sandstone with minor amounts of shale. The Prairie du Chien-Jordan is the most heavily used aquifer in Hennepin County, with potential yields in excess of 2,000 gallons per minute. Underlying the Prairie du Chien-Jordan is the St. Lawrence Confining Layer. The St. Lawrence is comprised of lower permeability siltstone and dolostone and acts to hydrologically separate the overlying Prairie du Chien-Jordan from the underlying Franconia-Ironton-Galesville.

The Franconia-Ironton-Galesville Aquifer is made up of the Franconia Formation, comprised of glauconitic sandstone with some shale and dolomite; the Ironton Sandstone, and the Galesville Sandstone. This aquifer is commonly used for domestic water supply wells in the north and northwestern portions of Hennepin County. Underlying the Franconia-Ironton- Galesville is the Eau Claire Confining Layer. The Eau Claire consists of siltstone, shale, and silty sandstone and serves to hydrologically separate the overlying Franconia-Ironton- Galesville from the underlying Mount Simon-Hinckley.

The Mount Simon-Hinckley Aquifer is made up of the Mount Simon and Hinckley Formations. The Mount Simon Formation is a silty, fine- to coarse-grained sandstone with thin beds of very fine- to fine-grained sandstone and minor shale beds. The Hinckley is absent in most places, but where it occurs it is in remnants on the order of tens of feet thick.

3.2.5. Recharge Zones

Recharge to the bedrock aquifers beneath the City of Long Lake occurs in two ways, vertically and laterally. Vertical recharge occurs through overlying glacial sediments and other bedrock aquifers. This is accomplished because even low permeability units allow some leakage of ground water through them. Lateral recharge occurs as ground water moves laterally from outside the City or County, through the aquifer. The lateral recharge to the bedrock aquifers in Long Lake comes from the north-northwest.

Recharge to the water table aquifer occurs primarily from precipitation and surface water groundwater interactions as well as laterally from outside the City.

3.2.6. Local Groundwater Models

The Hennepin County Conservation District (HCD) in cooperation with the Minnesota Department of Health has developed a County wide multi-layer groundwater model. This model may be a valuable tool in dealing with many of Long Lake's groundwater issues. This model could be useful with issues such as; wellhead protection, storm water infiltration ponds, wetland issues, well siting, dewatering, etc.

The Minnesota Pollution Control Agency (MPCA) developed a Metropolitan Groundwater Model in 2000. This model is a regional model focusing on the seven County metropolitan area including Hennepin County. The model is simple and coarse discretized, including only known major hydrogeologic features. The focus of the MPCA model is more for evaluating groundwater contamination and remediation of the Quaternary aquifer and the Prairie Du Chien aquifer. The MPCA model and the HCD model utilize the Multi-Layer Analytical Element Model (MLAEM). The HCD model however is characterized as a single layer.

The City completed its Wellhead Protection Plan Part I in 2003 and Part II in 2004. **Figure 5** shows the boundaries of the City's drinking water supply management area (DWSMA) and the wellhead protection area. Additional information relating to wellhead management and groundwater sensitivity analyses are provided in **Appendix G**.

3.3. Surface Water Resource Data

Several surface water features are present in the City that provide water-based recreation opportunities and wildlife habitat. The primary water-based recreation areas are Long Lake and Long Lake Creek. Long Lake Creek and ravines within the City also serve as wildlife corridors, as do the parks and golf courses. Because the City is almost fully developed, preservation of the existing corridors and development of buffer areas will be encouraged through the City's land use planning and administration activities. Additional information on each of these surface water features follows.

3.3.1. Wetlands

The MCWD in 2001-2003 completed a wetland function and value assessment for wetlands larger than one-quarter acre in size in the City using a variant of the Minnesota Routine Assessment Method (MnRAM). Currently the MCWD acts on behalf of the City as the LGU responsible for administering the Wetland Conservation Act (WCA). MCWD 's wetland regulatory program (Rule D) is based on the aforementioned functional management classification.

The National Wetland Inventory Map shown in **Figure 6**, shows the location and type of wetlands within the City of Long Lake. In addition to these wetlands, there are several storm water detention basins within the City that provide some of the benefits of a natural wetland system. MnDOT also has detailed wetland delineation information along the TH12 realignment corridor.

There are currently two areas within the City that contain wetlands over five acres. Both are currently subject to long-term, site-specific regulations which prohibit development in these areas. These requirements are in addition to the wetland regulations in Section 17A of the Zoning Ordinance. The first area is a 5.9-acre Outlot B in the Wolf Pointe Woods subdivision which is encumbered by a permanent drainage and utility easement. The second area is Outlot A of the Fleming Trail Addition. Item 11 of the Fleming Trail Addition Declaration of Covenants prohibits development of Outlot A, and Item 4 requires that impacts on existing natural vegetation must be minimized.

3.3.2. Major Bodies of Water

Long Lake (DNR Inventory No. 27-0160P) is a 320-acre basin located on the northern limits of the City of Long Lake. The DNR has classified Long Lake as a Recreational Development Lake. Information is available from the DNR and the MCWD regarding basin morphology, water quality, fisheries, lake levels, and a bathometric map on DNR's Lake Finder webpage and MCWD's web pages.

The lake outlet is a concrete weir within an 8-foot wide box culvert located on the south side of the lake just west of Union Cemetery. The runout elevation is listed by the DNR as 944.25 (NGVD 1929). There was a historical discussion regarding the appropriate runout elevation of the lake at the time of the outlet's reconstruction. The end result was a Mn/DNR Commissioner's Order to set the present outlet elevation of the lake.

The lake is used for fishing, water skiing, swimming, and other water-resources based activities. Water quality is commonly judged by the water clarity. The water clarity is dependent upon the amount of algae present, which is generally controlled by the amount of available phosphorus. Reducing the phosphorus available will generally improve water clarity.

The MCWD has established an in-lake target phosphorus concentration of 40 µg/l. The 2009 average in-lake total phosphorus (TP) concentration of 83.9 µg/l exceeds the MCWD target concentration and the MPCA's standard. Long Lake is included on the 2018 MPCA's 303(d) list of impaired waters for excessive nutrients and Long Lake is also listed as impaired for mercury fish consumption advisory. For mercury, a state-wide TMDL has been completed and received final approval by the EPA in March 2007. A TMDL was completed in 2014 for excessive nutrients.

The portion of the City that drains directly to Long Lake is, for the most part, entirely developed. Additional improvements may include retrofitting the existing storm drainage system with water quality treatment devices and/or the diversion of storm water away from Long Lake. In an effort to improve the water quality of Long Lake, the MCWD has sponsored the introduction of alum and constructed storm water treatment ponds within the City Park near Symes Street. The City recently restored the ravine draining into Long Lake and constructed a water quality treatment BMP along the ravine within the Nelson Lakeside Park.

3.3.3. Streams and Ditches

Long Lake Creek is a DNR regulated watercourse that flows from Long Lake south into Lake Minnetonka. A drainage ditch system that originates in Orono discharges into Long Lake in the northwest portion of the City. This system discharges to a ravine near Daniel Street and outlets into Long Lake Park west of Symes Street and Lake Street.

A system of natural drainage swales, a natural drainage ravine and Long Lake Creek are located within the boundaries of the City. No public ditches exist within the City of Long Lake.

3.3.4. Land-locked Basins

MCWD has identified landlocked subwatershed units in the eastern part of the city located south of Highway 12. These locations are shown in Appendix C of the MCWD Comprehensive Watershed Management Plan. Stormwater abstraction within the drainage area of the land-locked basin will be used to address any stormwater quality and quantity issues. Outletting of land-locked basins is a last resort, not to increase downstream flow or flooding/erosion potential.

3.4. General Drainage Patterns

The City is located entirely within the MCWD and is part of the Long Lake Creek Watershed as illustrated in **Figure 7**. The general direction of surface water flow within the subwatershed is towards the south into Lake Minnetonka.

The western portion of the City drains generally to Long Lake and the eastern portion of the City drains to Long Lake Creek and south to Lake Minnetonka. The City has numerous points of drainage originating from the City of Orono and many points of drainage into the City of Orono.

3.5. Hydrologic Modeling

3.5.1. 1997 Modeling

The Long Lake Ravine subwatershed was modeled in 1997, by the MCWD for use in the design of regional pond(s) using the TR-20 computer model developed by the National Resource Conservation Service (NRCS). At that time, the MCWD had proposed to expand an existing wetland complex west of Industrial Boulevard to serve as a storm water detention and treatment basin.

3.5.2. 1998 Modeling

Several hydrologic modeling efforts have been completed for the Long Lake area starting in about 1998 as part of this WRMP and preliminary design stages of the TH 12 realignment. In 1998, the City was divided into seven distinct subwatersheds for the original DRAFT WRMP. Four of the subwatersheds were included in the detailed model.

The 1998 modeling was based upon from City staff regarding historical observations (City Public Works Superintendent Marv Wurzer has worked for the City for over 20 years which have included several large rainfall events), field observation, consideration of existing and future land use conditions, and examination of drainage patterns. Based upon these considerations, the 1998 hydrologic model developed for the City was developed only for the Long Lake Ravine (LLR), East Brown Road (EBR), Long Lake Watertown (LLW), and the Long Lake Creek (LLC) subwatersheds.

The existing subwatershed drainage patterns were evaluated for the Long Lake WRMP using the HydroCADTM version 4.522 computer model, which uses the TR-20 methodology.
Contour, topographic, culvert size, and invert information obtained from Mn/DOT and MCWD was used for the development of the hydrologic model for the four subwatersheds. Land use information from the other models, the City of Long Lake zoning map, and the City of Orono Draft Storm Water Management Plan was also used to develop the 1998 model.

3.5.3. 2001 Modeling

This section summarizes the hydrologic modeling completed since 1998 for the purposes of completing of this WRMP and for the TH 12 realignment. In 2001, it was obvious that the proposed realignment of TH 12 (generally along the former Burlington Northern railroad) would result in several alterations to the drainage patterns. As of 2001, MnDOT had completed modeling of approximately 60 percent of the City using XP-SWMM computer model to assist in the design of storm sewer and storm water retention and detention areas for the proposed TH 12 realignment. A summary of the hydrologic data for the drainage areas modeled is provided in **Appendix F**.

The MCWD, Mn/DOT, and the City models were developed to guide different management decisions. A meeting was held on June 15, 1998, between the MCWD, Mn/DOT, and the City of Long Lake technical representatives to discuss the various modeling assumptions and results. The modeling assumptions and approaches vary somewhat, but the results are generally consistent.

A second meeting was held on July 25, 2001, again with representatives of MnDOT, MCWD, and the City of Long Lake. The main focus of the meeting was to discuss the status of the City's WRMP and the coordination of hydrologic modeling efforts between MnDOT and the City. At this meeting, the group agreed that incorporating the most recent MnDOT modeling information into the City WRMP was the most efficient approach to completion of the plan. The group also concluded that using the MnDOT modeling information to guide future water management decisions in the City would be beneficial for two reasons. First, the thought was that following approval of MnDOT modeling for TH 12, the permit application review process for MCWD could be streamlined and become more efficient for projects in the areas covered by the model. This remains true today, although the focus has shifted much more towards water quality and volume control in the past 10 years.

The second benefit was that development projects in areas covered by the MnDOT model would have been eligible to take advantage of the regional ponds constructed as part of the TH 12 project provided the development was consistent with the future land use (hydrologic) conditions that MnDOT used to develop the model. While this may still have some merit, projects using the MnDOT regional ponds may be eligible, but would require approval of a regional stormwater plan in accordance with Section 7 of the MCWD Stormwater Management Rule.

3.5.4. 2003 Modeling

The 2003 MCWD Hydrologic, Hydraulic, and Pollutant Loading Study (HHPLS) subdivided the Long Lake subwatershed into 53 subwatershed units and included detailed modeling of the current and 2020 hydraulic and hydrologic conditions in the subwatershed. As part of this study effort, the entire watershed was modeled for both existing and future water resource management problem identification and prioritization. The modeling efforts included hydrologic and hydraulic, lake analysis, pollutant loading, and groundwater modeling. Rates and volumes for the City can be requested from MCWD.

Some of the existing and future outcomes for modeled locations (lakes, ponds, channels, and crossings) within the subwatershed are scour potential, normal and high water levels, peak discharge, and peak velocity for the 1.5 year, 24-hour and 100-year, 24-hour events, and the 100-year, 10-day snowmelt event.

3.5.5. Trunk Highway 12 Reconstruction

Several regional storm water ponds were created in Long Lake and Orono as part of the TH 12 project. As stated earlier in the plan, these regional ponds were designed based on future land use assumptions (in 2001) to meet water quality and water quantity control requirements.

4. PROBLEMS AND CORRECTIVE ACTIONS

Outlined below is an assessment of known existing and potential water resource-related problems. These problems have been identified based on an analysis of the land and water resource data collected as part of this Plan preparation and through information from the City. A description of any existing or potential problems within the topic area has been listed and future corrective actions have been incorporated into an implementation plan.

4.1. Lake and Stream Water Quality Problems

Problem 4.1.A Impaired waters to which the City discharges to are listed in **Table 4-1**.

Table 4-1

Waterbody/Watercourse (AUID)	Year Added to List	Affected Use	Pollutant/Stressor	TMDL Status
Long Lake (ID – 27-0160-00)	1998	Aquatic Consumption	Mercury in Fish Tissue	Complete
Long Lake (ID – 27-0160-00)	2010	Aquatic Recreation	Excess Nutrients	Complete
Tanager Lake (ID – 27-0141-00)	2010	Aquatic Recreation	Excess Nutrients	Complete

Corrective Action 4.1.A The Environmental Protection Agency (EPA) has approved the statewide TMDL mercury study. No action by the City is needed.

The Upper Minnehaha Creek Watershed Nutrient and Bacteria TMDL Study and Restoration Strategy Report were completed in 2014. A total phosphorus (TP) load reduction was assigned to the City for Long Lake and Tanager Lake. Annual load TP load reduction for Long Lake is 135 lbs/year and for Tanager Lake is 37 lbs/year.

The City will continue to implement BMPs as part of street reconstruction projects as feasible. The City will also continue with their street sweeping program to remove leaves and other organics prior to discharging into waterbodies.

If additional TMDLs are identified that affect the City, the City shall participate in the stakeholder process to develop the TMDL and implementation plan. The City is committed to protecting water quality and would consider partnering with MCWD and/or adjacent communities for specific projects.

Problem 4.1.B The possibility of contamination exists when there are connections between groundwater and surface water.

Corrective Action 4.1.B The Hennepin County Groundwater Plan has not been formally adopted; however, the county is implementing many aspects of the plan. The City completed a Part 1 Wellhead Protection Plan in 2003 and a Part 2 Wellhead Protection Plan in 2004 (**Appendix G**). The WHPA and DWSMAs in the City of Long Lake are illustrated in **Figure 5.** The water supply system has no evidence of contamination from human origin or naturally occurring contaminants. The aquifer used for the City water supply is considered non-vulnerable to contamination because it is covered by fine-grained geologic materials that hydraulically separate it from the surface waters. In fact, the water quality meets or exceeds the Federal Safe Drinking Water Act.

Potential sources of aquifer contamination are other wells that reach the aquifer. Water quantity in the system meets needs and the only concern would be the pumping effects of high-capacity wells that may alter the boundaries of the delineated WHPAs, reduce the hydraulic head in the aquifer, or cause the movement of contamination toward public water supply wells.

4.2. Flooding and Stormwater Rate Control Concerns

Problem 4.2.A The outlet for the Nelson Lakeside Park system frequently gets clogged and needs regular maintenance to prevent water backup through the system.

Corrective Action 4.2.A The City will look into an outlet improvement project to provide an overflow structure with an improved skimmer that would prevent clogging from debris.

4.3. Impacts of Water Quantity or Quality Management Practices on Recreational Opportunities

Problem 4.3.A The City has not experienced any impacts to recreational opportunities as the result of water quantity or quality impacts.

Corrective Action 4.3.A No corrective action needed. However, if areas develop or redevelop, the project will be subject to the policies of the MCWD. The City will look to partner with MCWD and adjacent communities if any issues arise.

4.4. Impacts of Stormwater Quality on Fish and Wildlife Resources

Problem 4.4.A The City has not experienced any impacts on fish and wildlife resources.

Corrective Action 4.4.A No corrective action needed. However, if areas develop or redevelop, the project will be subject to the policies of the MCWD. The City will look to partner with MCWD and adjacent communities if any issues arise.

4.5. Impacts of Erosion and Sedimentation on Water Resources

Problem 4.5.A Soil erosion and sediment transportation associated with re-development may impact the quality of water and storage volume available within City lakes, streams, and ditches.

Corrective Action 4.5.A The City has updated the erosion control requirements in the stormwater ordinance. New develop and redevelopment will also be subject to the policies of the MCWD.

Problem 4.5.B Long Lake has natural ravines and drainage ways that are prone to bank erosion. Care must be taken to ensure that the introduction of stormwater into these systems and flow within the ravines does not cause bank erosion. Soil erosion also can create pond and drainage way performance and maintenance issues.

Corrective Action 4.5.B Land disturbing activities in the City will comply with the erosion and sediment control and permitting requirements of MCWD. The City will conduct feasibility studies at the any specific locations identified as issues to determine the best energy dissipation and permanent stabilization techniques for these areas to resolve the erosion problem.

4.6. Impact of Land Use Practices and Development on Water Resource Issues

Problem 4.6.A Selected areas of the City have been exposed to increased rates and volumes of stormwater runoff as a result of an increase in impervious surface area. Other land development and land use practices have negatively impacted both water quality and quantity outside the City limits. The City will look into partnering with MCWD on future projects to reduce impacts from development and improve water quality.

Corrective Action 4.6.A The City will implement policies and projects in this SWMP. Additionally, areas that develop or redevelop will be subject to the policies of the MCWD. The City places high priority on maintaining local parks and open spaces. The use of natural landscaping in these areas will help minimize runoff and erosion concerns. When maintenance or upgrading to local parks, trials, or open spaces is required, the City will look for opportunities to install additional BMPs to help further reduce erosion and runoff concerns.

Problem 4.6.B The MCWD has identified several Key Conservation Areas within the City. These areas are generally located over the Long Lake Creek drainage area located just south of Long Lake.

Corrective Action 4.6.B The City will work with MCWD to appropriately protect these areas where possible.

4.7. Adequacy of Existing Regulations to Address Adverse Impacts on Water Resources

Problem 4.7.A The City generally has adequate regulatory controls in place to manage and mitigate adverse impacts on public waters and wetlands. However, additional ordinances or ordinance updates are necessary to continue to successfully manage water resources.

Corrective Action 4.7.A The MCWD will retain permitting authority within the City. The City will continue to implement the City's NPDES SWPPP as well as implement the policies with this SWMP. The City will review and revise existing ordinances, as necessary. Also, the City will update the erosion control requirements in the stormwater ordinance. Ordinances will be updated to include submission of preliminary plats to the MCWD. Ordinances will be updated within 180 days of MCWD plan approval.

Information regarding the standards and review logistics for projects within the City of Long Lake will be conveyed with existing permitting and preliminary plat review processes.

4.8. Education Program

Problem 4.8.A The City recognizes the need for community education programs to increase public awareness of water resource management and improve the quality of stormwater runoff.

Corrective Action 4.8.A The City will continue to provide educational content and opportunities to residents, businesses, developers, and others. These efforts may include postings on the City website and publishing a newsletter to spread awareness of stormwater related issues. The City will work with MCWD on educational efforts when possible to avoid duplicating efforts. Information from the MCWD Communication's Committee and other entities could be included in the City newsletter, which is published quarterly.

4.9. Identification of Potential Problems Anticipated to Occur in the Next 20 years

Problem 4.9.A The City is generally fully developed, with little opportunity to construct stormwater management projects.

Corrective Action 4.9.A Upon new development and redevelopment, the stormwater management policies of the MCWD will apply. By applying these policies, previously untreated areas will have treatment and implementation of BMPs.

The City will also pursue alternative funding through local, state, and/or federal grants for a regional stormwater treatment and reuse system to treat stormwater in the downtown area. The City does not currently have funding for this project but will explore options and opportunities to complete such a project.

Problem 4.9.B Determining the performance of existing stormwater infrastructure throughout the City.

Corrective Action 4.9.B Included in the City's SWPPP are established BMPs aimed at storm sewer inspection and maintenance training programs. The City is to annually inspect 20 percent of completed City owned BMPs and 100 percent of pollution control devices. The City will also evaluate inspection records to determine if inspection frequency should be increased or decreased. More information on the City's stormwater maintenance and inspection program can be found in the SWPPP located in **Appendix E**.

Below are the maintenance and inspection activities the City intends to undertake to ensure that their drainage system is performing efficiently and effectively:

1. Visually inspect stormwater ponds every year to determine if the ponds are performing adequately.
2. When a pond has reached half of its design life expectancy it should be surveyed to determine its remaining dead storage volume. Once the pond has lost half of its dead storage volume, the accumulated sediment should be removed from the pond.
3. Inspect storm sewer outfalls once in the spring and once in the fall for evidence of scouring or the presence of significant deposition of silt. Scouring problem areas will be noted and stabilized. In areas where silt deposition is evident, which is indicative of significant erosion upstream, an inspection of the upstream watershed will be made to identify the source of erosion. Once this erosion problem is determined suitable, corrective measure will then be undertaken to correct the problem.

Problem 4.9.C Locate potential flooding areas in the downtown area.

Corrective Action 4.9.C The City will complete a feasibility study to analyze flooding areas as well as strategies to minimize flooding and create water quality improvements.

Problem 4.9.D Increasing prevalence of polycyclic aromatic hydrocarbons (PAHs) in stormwater ponds from runoff of roadways and other surfaces.

Corrective Action 4.9.D Identify stormwater ponds that are contaminated and follow protocol on the MPCA website for disposal of dredged material. The City also bans the use of materials that contain PAHs for paved surfaces for future development and redevelopment.

Problem 4.9.E Increasing prevalence of chloride in surface and groundwater in the Twin Cities from road salt runoff from roadways and other impervious surfaces.

Corrective Action 4.9.E
The City will work to implement preventative measures to reduce the chloride runoff used in deicing before it reaches surface and/or groundwater. The City currently uses a sand-salt mix consisting of 15% salt and 85% sand. The City conducts street sweeping efforts at least twice annually including in the spring, fall and on an as-needed basis in higher priority areas or where street maintenance work has been completed. Additional preventative measures will include education and outreach for salt applicators (commercial or private), promote winter best practices, partnering with MCWD for training, and other initiates noted in the Twin Cities Metropolitan Area Chloride Management Plan.

4.10. Availability and Adequacy of Existing Information to Manage Water Resources

Problem 4.10.A The City will need to maintain and update information developed within this SWMP.

Corrective Action 4.10.A The City will continue to update the hydrologic/hydraulic model and Geographic Information System (GIS) database as new development and redevelopment occur.

Problem 4.10.B Locate all drainage easements within the City and enforce requirement for drainage easements with redevelopment projects.

Corrective Action 4.10.B The City will conduct a project to identify and log all drainage easements. When redevelopment happens in the City, drainage easements will be required.

Problem 4.10.C The City recognizes that there is currently not enough water quality monitoring data available to determine the effects of stormwater quality on area lakes.

Corrective Action 4.10.C The City defers to and supports the water quality monitoring activities of the MCWD.

5. GOALS AND POLICIES

5.1. Summary

The primary goal of Long Lake's WRMP is to provide a framework for effective surface water management and to bring the City into statutory compliance. This includes guiding redevelopment activities and identifying and implementing retrofits to the existing system. These retrofits consist of both projects and programs. Additionally, the plan provides clear guidance on how Long Lake intends to manage surface water in terms of both quantity and quality.

The goals and policies described in this section are intended to incorporate the foundation of several regional, state, and federally mandated programs. They are not meant to replace or alter the regional, state, and federally mandated programs, rules, and regulations, but to serve as an enhancement and provide some general policy guidelines. The goals address the management strategies of Minnehaha Creek Watershed District (MCWD) and are consistent with the objectives set forth in the State Wetland Conservation Act (WCA) and the Federal Nationwide Urban Runoff Program (NURP). Cooperation, collaboration, and partnering results in projects that are less likely to conflict with the goals of the affected entities, are better able to meet long-term goals, and are generally more cost-effective.

This section outlines the goals and policies specific to surface water management in Long Lake. Goals and policies are grouped by their relationship to the key issues listed below:

- Section 5.2 – Water Quantity
- Section 5.3 – Water Quality
- Section 5.4 – Erosion Control
- Section 5.5 - Wetlands
- Section 5.6 – Public Participation, Information, and Education
- Section 5.7 – Maintenance and Inspection
- Section 5.8 – Recreation, Fish and Wildlife
- Section 5.9 – Groundwater
- Section 5.10 – Finance

5.2. Water Quantity

Goal: Control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of runoff.

Policies

1. Permanent stormwater management shall meet the requirements of Minnehaha Creek Watershed District and the City's Ordinance.
2. The City will require corrective maintenance and the use of appropriate best management practices (BMPs) to preserve the hydraulic capacity of water bodies. This includes the cooperative agreement between the City and MCWD for the construction and maintenance of sedimentation basins, wet detention basins and related facilities in Long Lake Park and the retention and treatment of stormwater runoff before its discharged into Long Lake.
3. The City will continue using regional detention areas whenever practical; however, for new construction stormwater abstraction using on-site facilities will be used where practical and effective.

4. For development or redevelopment projects outside the drainage area covered by the MnDOT drainage system, the runoff rates shall not increase for the 1, 10, and 100-year Atlas 14 rainfall events.
5. Emergency overflows, outlets to drainage systems or other provisions shall be provided if the available storm water storage capacity is inadequate to prevent flooding of adjacent structures.
6. The minimum building elevation (lowest floor elevation) for all structures must be 2 feet above the established 100-year peak levels.
7. Increased volumes of runoff due to development should be minimized by abstraction, limiting impervious cover and encouraging infiltration of stormwater where soil conditions are appropriate.
8. The City encourages the use of alternative landscape techniques and low impact development to reduce rates and volumes of runoff.
9. The City encourages the use of stormwater abstraction BMPs to control stormwater on-site for areas draining to land-locked basins.
10. The City will require no net loss of floodplain storage from development or redevelopment projects.
11. The design storm for the future local collection system evaluation and design will be a 10- year return period event. Local storm sewer systems will generally be designed using the Rational Formula.

5.3. Water Quality

Goal: Minimize impact of future development activities on water quality of Long Lake, Long Lake Creek, and wetlands. Achieve water quality standards in Long Lake, Long Lake Creek, and wetlands consistent with intended use and classification.

Policies

1. Proposed developments will identify all reasonable steps to avoid water quality impacts and mitigate with appropriate BMPs (stormwater abstraction preferred), to minimize the water quality impacts of receiving waters. The City encourages the use of low-impact development integrated management practices.
2. The City will require corrective maintenance and the use of appropriate best management practices (BMPs) to preserve water quality. This includes the cooperative agreement between the City and MCWD for the construction and maintenance of sedimentation basins, wet detention basins, and related facilities in Long Lake Park and the retention and treatment of stormwater runoff before it is discharged into Long Lake.
3. The City shall use BMPs to reduce phosphorus nutrient loading to Long Lake Creek downstream of Long Lake to meet MCWD phosphorus reduction goal.
4. The City shall maintain a response plan to minimize impacts of hazardous spills.
5. The City will support MCWD efforts in developing regional water quality ponds and other stormwater BMPs whenever practical.
6. The City will support Phosphorus Turf Fertilizer Use Restrictions and MCWD information and education efforts to reduce nutrient loading to lakes, creeks, and wetlands.
7. The City shall promote the reduction or minimization of hard-surfaced areas through the implementation of City ordinances and standards.
8. The City will balance protection of wetlands, utilization of wetlands to protect the water quality of other water resources (i.e., wetland, lake, stream), and use of wetlands to provide flood control.

9. The City encourages the use of alternative landscape techniques and materials to reduce water quality impacts as described in the Minnesota Stormwater Manual.
10. The City will manage City properties in accordance with the appropriate best management practices.
11. The City will coordinate and cooperate with MCWD on the management of all dredging projects.

5.4. Erosion Control

Overall Goal: Minimize soil erosion through enforcement and education.

Policies

1. Erosion control plans meeting the requirements of MCWD rules shall be required for grading activities.
2. All construction sites that are required to obtain a NPDES permit must comply with the erosion and sediment control conditions of that permit. Erosion and sediment control BMPs are to be installed before land disturbing activities begin and shall be maintained until the site is re-stabilized.
3. The City shall support MCWD erosion control education efforts and encourages use of construction and erosion control practices in Metropolitan Council's Urban Small Site BMP Manual and the Minnesota Stormwater Manual.

5.5. Wetlands

Overall Goal: Increase the wetland values within the City, where feasible.

Policies

1. The City shall support the administration of the Minnesota Wetland Conservation Act (WCA) by the MCWD. In accordance with MCWD requirements, the City will require 1:1 mitigation for wetland excavation impacts not covered under the WCA.
2. The City will encourage treatment of storm water runoff prior to discharge to wetlands.
3. The City shall encourage the maintenance of a natural buffer around natural wetlands.
4. The City shall support the restoration of disturbed wetlands within the City.
5. The City will support existing wetland regulation activities and has established a Wetland Systems Ordinance that is included in Appendix B. The Minnesota Wetland Conservation Act will be administered by the MCWD. The MCWD has competed a Wetland Function and Value Assessment for wetlands throughout the watershed district and is available in Appendix E.

5.6. Public Participation, Information and Education

Goal: Increase public participation and knowledge in management of the water resources.

Policies:

1. The City support the MCWD and other water resource management organizations in their public information efforts.

5.7. Maintenance and Inspection

Goal: Preserve the function of water resource facilities through routine inspection and regular maintenance activities.

Policies:

1. As part of their NPDES permit, the City will develop and implement an annual inspection and maintenance plan for water resource facilities (see listed activities 1-3 above).
2. The City shall require maintenance of privately-constructed treatment ponds.
3. The City shall require adequate maintenance-related access for public and private water resources facilities (i.e., ponds, etc.).
4. The City will require corrective maintenance and the use of appropriate best management practices (BMPs) to preserve water quality and hydraulic capacity of water bodies. This includes the cooperative agreement between the City and MCWD for the construction and maintenance of sedimentation basins, wet detention basins, and related facilities in Long Lake Park and the retention and treatment of stormwater runoff before its discharged into Long Lake.
5. The City will complete the required pond inventory and maintenance requirements as required in the NPDES MS4 Permit.

5.8. Recreation, Fish and Wildlife

Goal: Improve fish and wildlife habitat and water resource-based recreational opportunities where feasible.

Policies:

1. Natural areas and wildlife habitat intended for preservation shall be protected during construction by appropriate BMPs.
2. Encourage the preservation of vegetative buffers around ponds and wetlands to provide habitat for wildlife.
3. The City shall support programs for controlling exotic and invasive species of plants and animals.
4. The City will support new opportunities to integrate water resources based recreation activities and wildlife interests within wildlife corridors.

5.9. Groundwater

Goal: Prevent contamination of the aquifers and promote groundwater recharge.

Policies:

1. The City shall develop and implement controls to protect wellhead areas identified in their Wellhead Protection Plans, Parts I and II.
2. The City shall promote proper well abandonment.
3. The City will consider alternatives to conventional storm water detention to enhance groundwater recharge through infiltration.
4. The City will implement and enforce the existing Water Conservation Plan. The City shall encourage the use of alternative landscape techniques and materials to reduce dependency on groundwater supplies.

5.10. Finance

Goal: Establish funding sources to finance water resources management activities.

Policies:

1. The City shall identify and implement possible funding sources for water resources management.
2. The City will actively pursue grants, donations, and in-kind contributions to help fund water resources management.
3. The City shall assist citizens and businesses in their efforts to improve water quality, improve water quantity controls, and/or upgrade wetlands when feasible.

6. IMPLEMENTATION PROGRAM

6.1. Introduction

The Implementation Section is intended to provide guidance in carrying out the plan objectives. The implementation program summarizes the schedule for and cost of recommended actions. Lastly, procedures for amending the plan are discussed. Table 6 summarizes the Implementation Priorities of this WRMP.

6.2. Official Controls

The City currently does not have official controls in place that will provide for protection of water resources to the same degree as the MCWD Rules. However, the Plan will ensure protection of water resources in the City to the same degree as MCWD Rules by authorizing the MCWD to continue to require permits for the use and development of land, otherwise exercise its regulatory authority, within the meaning of Minnesota Statutes Section 103B.211, subd. 1(a)(3)(l).

City code requires project owners to obtain a Building Permit (Section 4) for the construction or alteration of any structure. In addition, Section 17A of City Code (Water Management) requires all grading or filling activities to obtain a building permit prior to commencing construction. The ordinance requires preparation of stormwater management components for all projects for the purposes of erosion and sediment control and water quality treatment. The code refers to the Minnehaha Creek permit program and City staff conducting either a planning review or building permit review informs project owners of the MCWD Rules and Permit Program.

6.3. Implementation Priorities

The implementation plan includes identification and prioritization of capital improvements, administration, inspections, permitting, plan amendments, financing alternatives, public involvement, and monitoring programs. Prioritization of improvements is based on a review of all recommended actions. Table 6 provides a schedule and approximate funding for those projects listed.

6.3.1. Street Sweeping

The City has operated a semi-annual street sweeping program of all streets in the City. The City has determined that the current street sweeping program as a BMP will partially meet the requirements for both the subwatershed from Long Lake to Tanager Lake and the subwatershed area upstream of Long Lake.

Based on samples taken from street sweepings by the nearby City of Plymouth and tested by the University of Minnesota, the samples were found to have a concentration of 235.5 mg/kg of phosphorus. These findings are more conservative than the report “Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout Programs in the Chesapeake Bay Basin” prepared by the Center for Watershed Protection. It was determined the enhanced street sweeping program (vacuum sweepers) removed 1.0 lbs of phosphorus per street mile.

The City of Long Lake uses a high efficiency broom street sweeper compared to the vacuum-assist sweeper for the City of Plymouth. The overall reduction due to street sweeping can be expressed as a percentage change for the two types of street sweepers. The street dirt yield for the vacuum-assist sweeper is 63% whereas the high efficiency broom yields a 20% removal efficiency based on the report “Evaluation of Street Sweeping as a Stormwater- Quality-Management Tool in Three Residential Basins in Madison, Wisconsin” prepared by the United

States Geological Survey. A high efficiency broom is used to sweep all streets within Long Lake twice a year.

This information was used to generate the City's estimated annual phosphorus load reduction. The estimated annual total phosphorus load reduction within the MCWD is 7.7 lbs/year, 2.5 lbs/year in the Long Lake to Tanager Lake subwatershed, and 5.2 lbs/year in the subwatershed tributary to Long Lake. This is a conservative estimate of 0.31lbs of TP/street mile/sweep compared with the City of Plymouths' findings of 1.0 lbs of TP/street mile/sweep. This difference is due to the type of street sweeper used. To ensure an accurate analysis of the phosphorus removal, the City will record the total amount of sediment removed and sample the sediment to determine the concentration of phosphorus.

The City has identified street sweeping as a significant BMP towards reducing the overall phosphorus load to Minnehaha Creek. Based on the removal efficiencies for a vacuum-assist sweeper compared to the high efficiency broom sweeper, the City will look to upgrade to a vacuum-assist sweeper to achieve a higher removal rate. The City will also consider an increase in the frequency of sweeping to achieve an even higher removal rate.

6.3.2. Bioretention / Infiltration

The area downstream of Long Lake (within the City limits from Long Lake to Tanager Lake) will have phosphorus load reductions through a combination of bioretention / infiltration system(s) and street sweeping. This area is very residential with several existing stormwater ponds and wetlands limiting the availability of space to construct bioretention / infiltration system(s).

One site was identified on institutional property in subwatershed LLC 47 for construction of a bioretention / infiltration system that would result in an annual phosphorus load reduction of 5.7 pounds/year from a drainage area of 14 acres. The current phosphorus load was calculated using the Simple Method for Estimating Phosphorus Export, in the Minnesota Stormwater Manual. Bioretention / infiltration BMPs have a 100% phosphorus removal rate for the portion of the area draining to the BMP.

Additionally, the City completed a surface water improvement project in Nelson Lakeside Park. Improvements were made to stabilize the ravine which flows through the park to the MCWD maintained stormwater detention ponds and a riparian subsurface gravel filter was constructed to provide water quality treatment for the contributing downtown redevelopment area. The total load reduction as a result of this project is estimated to be 9.5 lbs TP/yr.

6.4. Implementation Plan

Planning level estimates of capital expenditures have been made. Future anticipated projects are also listed. The activities have been distributed throughout a 10-year implementation plan extending through 2028 (Table 6). This table also includes miscellaneous maintenance/public works issues.

Table 6 provides an estimated annual cost of the implementation plan. Table 6 also provides a time frame in which to complete each identified activity. This table will assist in accomplishing the major goals of this plan; to accommodate development projects in the City while protecting the water resources within and surrounding the City.

The Implementation Plan will be reviewed on an annual basis, along with the City's CIP, and will be summarized and reported to the City Council in an annual report. At that time, each proposed improvement is to be reconsidered, City budgets adjusted, and additional improvements added to the program. Any changes to the Implementation Plan will be submitted to MCWD.

6.4.1. Amendments to the Plan

The Long Lake Water Resources Management Plan is intended to extend through at least the year 2028. For the plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, and management practices. Amendment proposals can be requested any time by any person or persons either residing or having business within the City.

6.4.2. Request for Amendments

Written requests for plan amendment are submitted to the City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision.

6.4.3. Staff Review

A decision is made as to the validity of the request. Three options exist: 1) reject the amendment; 2) accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date; or 3) accept the amendment as a major issue, with major issues requiring an immediate amendment. In acting on an amendment request, staff shall recommend to the City Council whether or not a public hearing is warranted.

6.4.4. Council Consideration

The amendment and the need for a public hearing shall be considered at a regular or special Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) are made.

6.4.5. Public Hearing, Council, MCWD and Met Council Review

This step allows the public input based on the public sentiment. Council shall determine when the public hearing should occur in the process. Based on the Public hearing, Council could approve of the amendments, and, if necessary, refer the amendments to the MCWD Board for comment and approval. If the proposed amendments are considered major changes, the Plan will be sent to the Metropolitan Council for review.

6.4.6. Council Adoption

Final action on an amendment following approval by the MCWD, is Council adoption. However, prior to the adoption, an additional public hearing could be held to review the plan changes and notify the appropriate stakeholders.

6.4.7. Annual Report to Council

A brief annual report will be prepared by City staff summarizing development changes, capital improvements, and other water resources management related issues that have occurred over the past year.

The annual report should include an update on available funding sources for water resource issues. Grant programs are especially important to review since they may change annually. These changes do not necessarily require individual amendments. The reports can, however, be considered when the plan is brought up to date. The report should be completed by June 30th to allow implementation items to be considered in the normal budget process. Copies of the report should be submitted annually to the MCWD in a format approved by the MPCA and the MCWD. The annual update can also serve as an important public information tool. A summary could be published in the City's newsletter.

TABLE 6.1

SURFACE WATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Capital Improvement Projects (CIP)														
1	Storm sewer improvements paired with Street CIP items.	$75,000	Storm Water Utility Fund		$20,000			$25,000			$30,000			To be implemented when street reconstruction projects are constructed.
2	Nelson Lakeside Park Outlet Improvement- Design and construct a replacement outlet to alleviate clogging and prevent water backups.	$25,000	MCWD Grants/ Storm Water Utility Fund			$25,000								
3	Water Quality Projects Downstream of Long Lake - Bioretention or infiltration BMPs for phosphorus removal to meet MCWD load reduction requirements.	$26,000	MCWD Grants/ Storm Water Utility Fund		$8,000			$8,000			$10,000			
4	Assess and identify any identified localized flooding area by the MCWD subwatershed models	$3,000	Storm Water Utility Fund, MCWD, Grants			$1,000			$1,000			$1,000		
5	Undertake projects to restore potential wetlands outlined in the MCWD Functional Assessment Report	$65,000	MCWD Grants/ Developers				$30,000						$35,000	

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Operation and Maintenance														
6	Conduct inspections and clean up of illicit discharges and illegal dumping within the City	$10,000	Stormwater Utility Revenue	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
7	Conduct erosion control inspections of construction sites	$5,000	Stormwater Utility Revenue	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	
8	Plan review and inspection of long term operation and maintenance of BMPs.	$15,000	Stormwater Utility Revenue	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	
9	Inspect 20% of storm sewer system including outfalls, ponds, and structural pollution control devices	$18,000	Stormwater Utility Revenue	$1,800	$1,800	$1,800	$1,800	$1,800	$1,800	$1,800	$1,800	$1,800	$1,800	
10	Inspect all identified structural pollution control devices and BMPs once per year.	$10,000	Stormwater Utility Revenue	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
11	Sweep streets each spring and other strategic areas more frequently.	$100,000	Stormwater Utility Revenue	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	
12	Conduct annual pond surveys to schedule and prioritize the necessary maintenance projects.	$120,000	Stormwater Utility Revenue	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	
13	Complete a City-wide pond inventory and identify maintenance requirements needed. Review and update inventory as needed.	$11,600	Stormwater Utility Revenue		$10,000			$800			$800			

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Official Controls														
14	Prepare and distribute annual newsletter and distribute information in City mailing regarding surface water management	$4,000	Stormwater Utility Revenue	$400	$400	$400	$400	$400	$400	$400	$400	$400	$400	
15	Maintain and update website for surface water management education per NPDES permit	$3,000	Stormwater Utility Revenue	$300	$300	$300	$300	$300	$300	$300	$300	$300	$300	
16	Maintain and update GIS database, storm sewer map, and hydrologic model	$10,000	Stormwater Utility Revenue	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
17	Hold annual public meetings to educate residents and business owners on surface water management	$4,000	Stormwater Utility Revenue	$400	$400	$400	$400	$400	$400	$400	$400	$400	$400	
18	Provide annual training workshops to educate City staff about surface water management	$8,000	Stormwater Utility Revenue	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800	
19	Prepare and submit annual SWPPP report and MCWD report	$5,000	Stormwater Utility Revenue	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	
20	Maintain and submit annual inspection reports, maintenance records, and other documentation in conformance with the NPDES permit	$5,000	Stormwater Utility Revenue	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	

No.	Project Description	10 Year Total Cost Estimate [1,3]	Possible Funding Sources [2]	Proposed Cost By Year[1]										Comments
				2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Monitor and Study														
21	Coordinate with MCWD in the development and implementation of TMDLs - specifically in the identification of BMPs to address the Long Lake and Tanager TMDLs.	$25,000	MCWD Grants / Storm Water Utility Fund / Clean Water		$5,000		$5,000		$5,000		$5,000		$5,000	
22	Review planning and zoning policies and ordinances and update as needed to comply with Surface Water Management Plan and MCWD rules	$2,000	MCWD Grants/ Storm Water Utility Fund	$500			$500			$500			$500	
23	Review mowing, fertilizing, and herbicide application practices and review alternative products (as available)	$4,000	Storm Water Utility Fund		$800		$800		$800		$800		$800	
24	Long Lake Creek Subwatershed Assessment - Continue to coordinate with MCWD, City of Orono, City of Medina, and the Long Lake Water Association on the Long Lake Creek Subwatershed Partnership. Coordinate the implementation of action items once the Long Lake Creek Subwatershed Assessment is complete.	$16,000	MCWD Grants/ Storm Water Utility Fund			$1,000		$5,000		$5,000		$5,000		
25	Review road salt application practices and review alternative products (as available). Implement projects or other management actions based on the Minnesota Pollution Control Agency's Twin Cities Metro Chloride TMDL when applicable.	$2,500	Storm Water Utility Fund		$500		$500		$500		$500		$500	
	TOTAL	$572,100		$32,200	$76,000	$58,700	$68,500	$70,500	$39,000	$37,200	$78,800	$37,700	$73,500	

[1] Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2018 costs and does not account for inflation. Costs generally include labor, equipment, materials, and all other costs necessary to complete each activity. Some of the costs outlined above may be included in other operational costs budgeted by the City.

[2] Funding for stormwater program activities projected to come from following sources - Surface Water Management Fund, Developers Agreements, Grant Funds, General Operating Fund, or Special Assessments.

[3] Staff time is not included in the cost shown.

7. FINANCE

The City of Long Lake funds its stormwater management activities primarily through the fees collected through its Stormwater Utility Fund. The balance is used roughly once every three years during street reconstruction projects to improve storm sewer systems and provide new water quality treatment systems in those areas.

The City will continue to use the Stormwater Utility Fund as the primary source of funding for the needed projects and activities relating to surface water management. The City will continue to explore grant funding programs to supplement these funds and review the utility fee rates on a regular basis. A summary of major categories of funding sources is provided below.

7.1. Ad Valorem Tax

General taxation is the most common revenue source used to finance government services, including minor maintenance measures for drainage and water quality facilities. Using property tax has the effect of spreading the cost over the entire tax base of a community.

A special tax district can also be used to raise revenue. The special tax district is similar to the administrative structure under general taxation except that all or part of the community may be placed in the tax district. The principle is to better correlate improvement costs to benefited or contributing properties.

7.2. Special Assessments

Municipalities are familiar with the use of special assessments to finance special services from maintenance to construction of capital improvements. The assessments are levied against properties benefiting from the special services. The philosophy of this method is that the benefited properties pay in relation to benefits received. The benefit is the increase in the market value of the properties.

7.3. Development Charges

Fees charged to new development which generate runoff can be charged to finance infrastructure needed to serve the development. This is a useful tool in communities that are rapidly developing.

7.4. User Charges

User charges, which support surface water utilities, are mechanisms by which a City can generate funds through billings similar to water and sewer billings. The principle is to charge for services rendered to properties generating runoff, as well as the service to properties being protected from the effects of runoff, without consideration to an increase in market value of the property.

During implementation, action plans for each component of the utility implementation are developed. The action plans identify tasks, resources, responsibilities, schedules, and measurements. A link between the recommended rate structure and the data base is developed during Implementation.

7.5. Grants

State grants are available for surface water management and nonpoint source pollution. However, it is generally not a good financial practice to rely on grants for a service program. This source of revenue is not dependable and requires constant speculation as to its availability. Grants are useful but should only be used to supplement a planned local revenue source.

Table 13: **Advantages and Disadvantages of Funding Alternatives**

Funding Method	Advantages	Disadvantages
Ad Valorem Tax	1. Administrative structure in place. 2. Simple and accepted source of revenue. 3. Allows for a larger revenue base. 4. Through tax districts contributors pay.	1. No incentive to reduce runoff or pollution. 2. No relationship to level of benefits received. 3. Discontinuous source of revenue. 4. Limitations on amount due to budget constraints.
Special Assessments	1. Only benefited properties pay. 2. No competition with general services. 3. Benefits directly related to cost for service. 4. Assessment can be deferred in hardship cases.	1. Rigid procedural requirements. 2. Runoff contributions cannot be assessed. 3. Difficult to determine and prove benefit. 4. May place an unfair burden on some.
Development Charges	1. New development generating runoff pays for runoff management. 2. Administrative structure for reviewing plans and collecting fees is in place. 3. Systems can be tailored to the specific needs through regulatory changes. 4. No competition with general services.	1. Only address problems within the vicinity of the new development, not usually existing developments. 2. Only address prevention not correction of major problems. 3. Limited usefulness as a financing mechanism. 4. Limited new development pressure within existing City limits.
User Charges	1. Properties pay relative to their contribution. 2. Not in competition with general funds. 3. Existing and new developments both pay. 4. Continuous, dedicated, source of revenue.	1. Some initial costs in development of rate formula and philosophy. 2. May require an expanded administrative structure.
Grants	1. Reduce cost burden to residents in the community.	1. Undependable source of revenue, irregular schedule. 2. Increase administrative costs and matching funds generally required. 3. Considerable lead time from application to receiving.

8. MINNEHAHA CREEK WATERSHED COORDINATION PLAN

8.1. Background

The Minnehaha Creek Watershed District (MCWD/District) Watershed Management Plan (WMP/Plan) focuses on partnership with the land use community and incorporates a subwatershed focus to address areas of significant resources needs with a level of complexity that requires sustained effort and coordination across multiple partners. While operating on a subwatershed scale, focused within the priority areas indicated in its WMP, the MCWD is remaining responsive to its communities District-wide by providing technical resources, regulatory coordination, and in some cases, funding. MCWD partnership and level of response is driven by early coordination of land use planning.

As part of the development of the District's Plan, communities provided information as to local goals, plans, and priorities. This information was used to broadly characterize opportunities and to inform the development of District implementation plans. The City of Long Lake, partially within the Long Lake Creek Subwatershed and the Lake Minnetonka Subwatershed, understands the importance of protecting Long Lake and downstream Lake Minnetonka. Within the City of Long Lake, the WMP has identified water resource issues of excess nutrients, degraded aquatic plant communities, and degraded, disconnected corridors caused by altered wetlands, common carp, stormwater runoff, internal phosphorus loading and water quality from upstream water bodies. Strategies identified to address these issues and drivers include wetland restoration, carp management, restoration of upstream water bodies and others. The City of Long Lake recognizes that implementation of these strategies may expand outside City boundaries and will require a partnership-driven approach with the MCWD, Long Lake Waters Association, and neighboring Cities. It is the intent of this Coordination Plan to provide a systematic approach to early coordination between the City of Long Lake and the MCWD to facilitate and maximize water resources implementation priorities together.

8.2. Purpose

The Minnehaha Creek Watershed District's (MCWD) approach to water resource planning recognizes the environmental, social, and economic value created when built and natural systems work in harmony. Through its WMP the MCWD emphasizes early coordination of land use and water resources planning with Cities to integrate water resources goals with other public and private goals to add this broader value and quality of life to the community. To maintain awareness of needs and opportunities to implement programs and projects that reflect the cooperation of other public and private partners, align investments, and secure a combined set of District, City, and partner goals, the MCWD requests that cities establish a coordination plan as part of the Local Water Management Plan that the City and MCWD can implement at a staff level. Improving coordination between land use planning at the City and watershed planning at the MCWD at the conceptual level planning phase will result in better projects that meet agency goals and are a more efficient use of public funds. Early coordination and collaboration between entities is the key to maximizing shared water resource goals and community goals for private redevelopment and public capital improvements. Through this coordination, it is the intent of the City to efficiently manage water quality concerns and maximize the asset value of the City's natural resources in the future.

8.3. Coordination

The following is a coordination plan, which will be adjusted and expanded as deemed appropriate by the City and MCWD during project implementation. It is anticipated that the City Administrator and Public Works Director will be the primary contacts for the coordination plan.

1. Annual meeting – City and MCWD staff will meet during the first quarter of each year to review the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) reports and activity from the previous year. Staff will also discuss draft Capital Improvement Plans (CIP) for each organization for the upcoming year. Opportunities for early coordination and review of land use change applications and regulatory coordination will also be reviewed to identify areas collaboration.

2. Land Use Planning – The City will continue to join with its partners in the Long Lake Creek Subwatershed Partnership in order to implement water resource priorities identified in the MCWD Watershed Management Plan, align local plans, and provide capital investment to identify opportunities where local investments intersect with natural resource goals. Through on-going coordination of land use planning and changes the City and MCWD will adaptively evaluate project opportunities and assess them against the established goals the partnership. Because there is little land left for development, the City expects changes in land use to be driven by redevelopment and infill development. The City will include the MCWD early on in potential land use changes and redevelopment projects so the MCWD can be value added to projects. Specific land use changes can be found in the Land Use Chapter of the 2040 Comprehensive Plan. **Figure 9** shows the City-owned parcels, which could provide an opportunity to partner with MCWD for water resource related projects.

3. Regulatory coordination – The City of Long Lake staff and consultants will endeavor to continue to route request for land use approvals including but not limited to, subdivisions, site plan approvals, WCA applications, infrastructure improvements, and park improvements to the District at concept plan phase in effort to maximize water resources benefits and streamline regulatory processes. Specific areas of regulatory coordination include the following:

    a. Pre-application meetings and permit reviews coordinated with MCWD early in the planning process.
    b. City assistance to support MCWD in construction site inspections and compliance
    c. MCWD will keep the City appraised of water resource violations and expectations for compliance.
    d. The City will require documentation of required MCWD permits in advance of issuing applicable City permits. Approved MCWD permits will be stored with other project documentation for future reference.
    e. City road, infrastructure, facilities and land improvements that require MCWD permits will be coordinated as part of the annual meeting and otherwise early in the CIP process so that the regulatory process may be efficient and integrated water and natural resource improvements may be explored.
    f. The primary person responsible for regulatory coordination at the City of Long Lake is the City Administrator and the Public Works Director and the Permitting Program Manager at MCWD.

4. Public Outreach and Education – The City will continue to distribute a newsletter and post on the City website to spread awareness of stormwater related issues. The City will help promote the MCWD's educational workshop and events to private homeowners and developers. The MCWD's educational workshops cover topics such as winter maintenance training, installing turf alternatives, and informational sessions on the Master Water Steward program. The City will coordinate with the MCWD on other educational efforts when possible to avoid duplicating efforts.

5. Aligning Planning and Investments: The MCWD can provide technical resources and planning assistance to assist the City and its partners in the Long Lake Creek Subwatershed in aligning public and private investments providing value to its residents and the environment. In addition to leveraging District technical and financial assistance, the City will support the District as it may pursue external funding resources to support capital project implementation within the Long Lake Creek Subwatershed. Identified capital projects will be reviewed and updated annually.

6. The City understands that the process to align investments begins at the concept stage of project development and recognizes that in addition to a future competitive grant program, the MCWD may offer technical resources and planning assistance to assist the City in aligning public and private investments providing value to its residents and the environment.

7. Funding – The City seeks support from the MCWD in terms of grant funding for water quality projects. The City requests that MCWD staff continue to provide information about upcoming grants and other funding opportunities internal and external to the MCWD.

8. Communication – The primary contact person responsible for implementation of the coordination plan is (indicate position) at the City of Long Lake and the Policy Planning Manager at the MCWD.

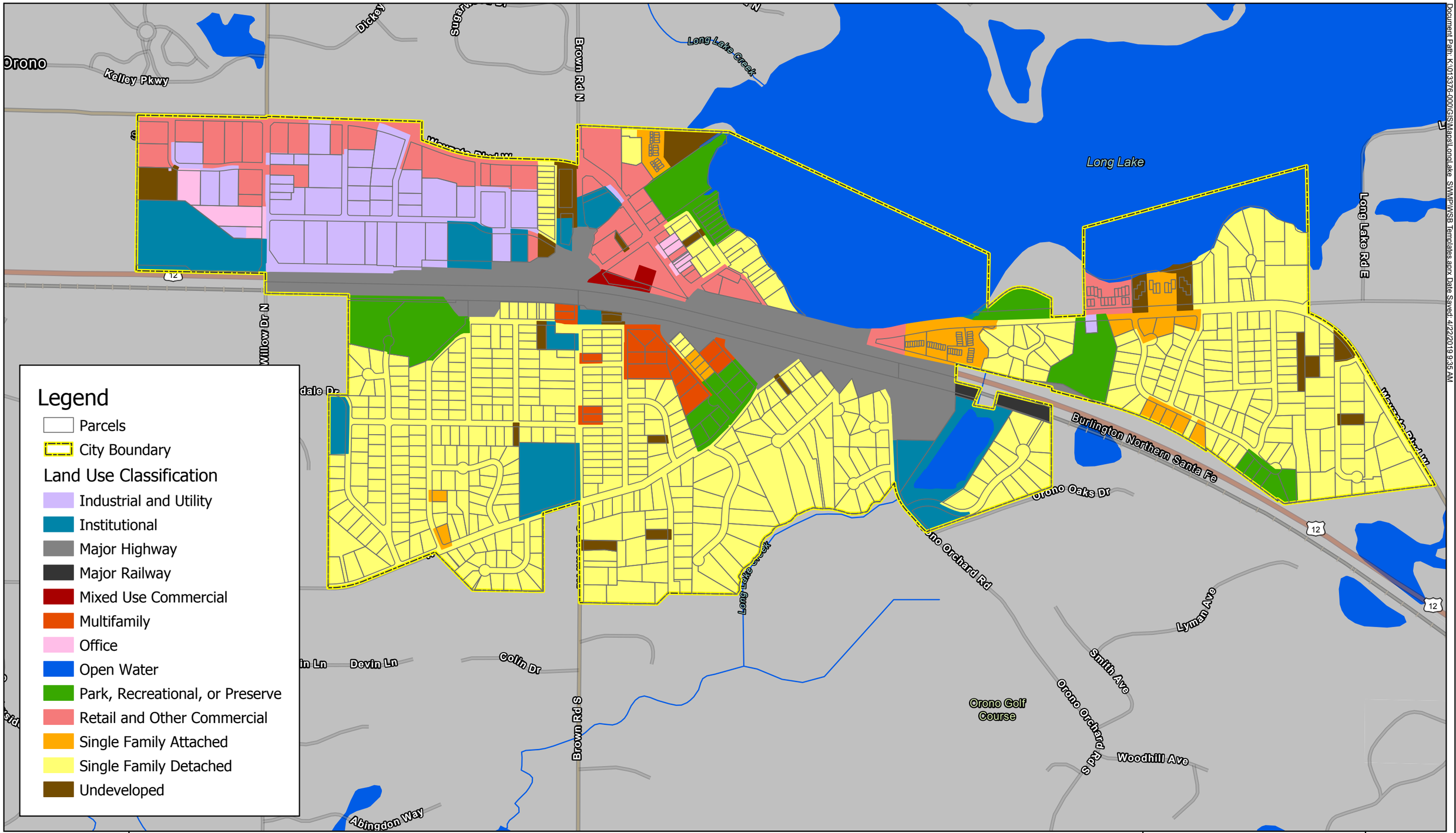
9. Data Sharing – City staff will coordinate with MCWD staff to share any new or relevant data on an annual basis to ensure consistency. This data could be related to any newly completed studies water quality monitoring, or Best Management Practice (BMP) performance monitoring, among other things.

10. Public Improvement Projects – City staff members will provide yearly updates on plans for public improvement projects. This will be coordinated as part of the annual meeting while discussing the draft CIP. Maintenance activities for stormwater infrastructure will be provided to MCWD as part of the MS4 recording process and as part of City inspection reports. The CIP will be updated annually.

    Street reconstruction projects are planned for most upcoming years in the City. Some street reconstruction projects include storm sewer replacement. The City will send the MCWD where future street reconstruction projects are planned when they are added to the CIP, so the MCWD can provide recommendations and technical planning assistance for how water quality improvements could be incorporated into larger City projects.

11. Long Lake Creek Subwatershed Partnership – The City will continue to coordinate and collaborate with the Cities of Medina and Orono, the Long Lake Water Association (LLWA) and MCWD to address water quality issues as part of the Long Lake Creek Subwatershed Partnership. The goal of the partnership is to combine collected data, align local plans and coordinate capital improvement projects to improve water quality and ecological health throughout the subwatershed. The City looks to MCWD, as the regional agency, to facilitate the coordination and provide technical expertise to the group. The group members will meet regularly to discuss these efforts. The Long Lake Creek Subwatershed Assessment is currently being developed and once complete, will identify action items and roadmap for the continued partnership.

Appendix A - Figures



CITY OF LONG LAKE

Figure 1 - Existing Land Use

Water Resources Management Plan
City of Long Lake

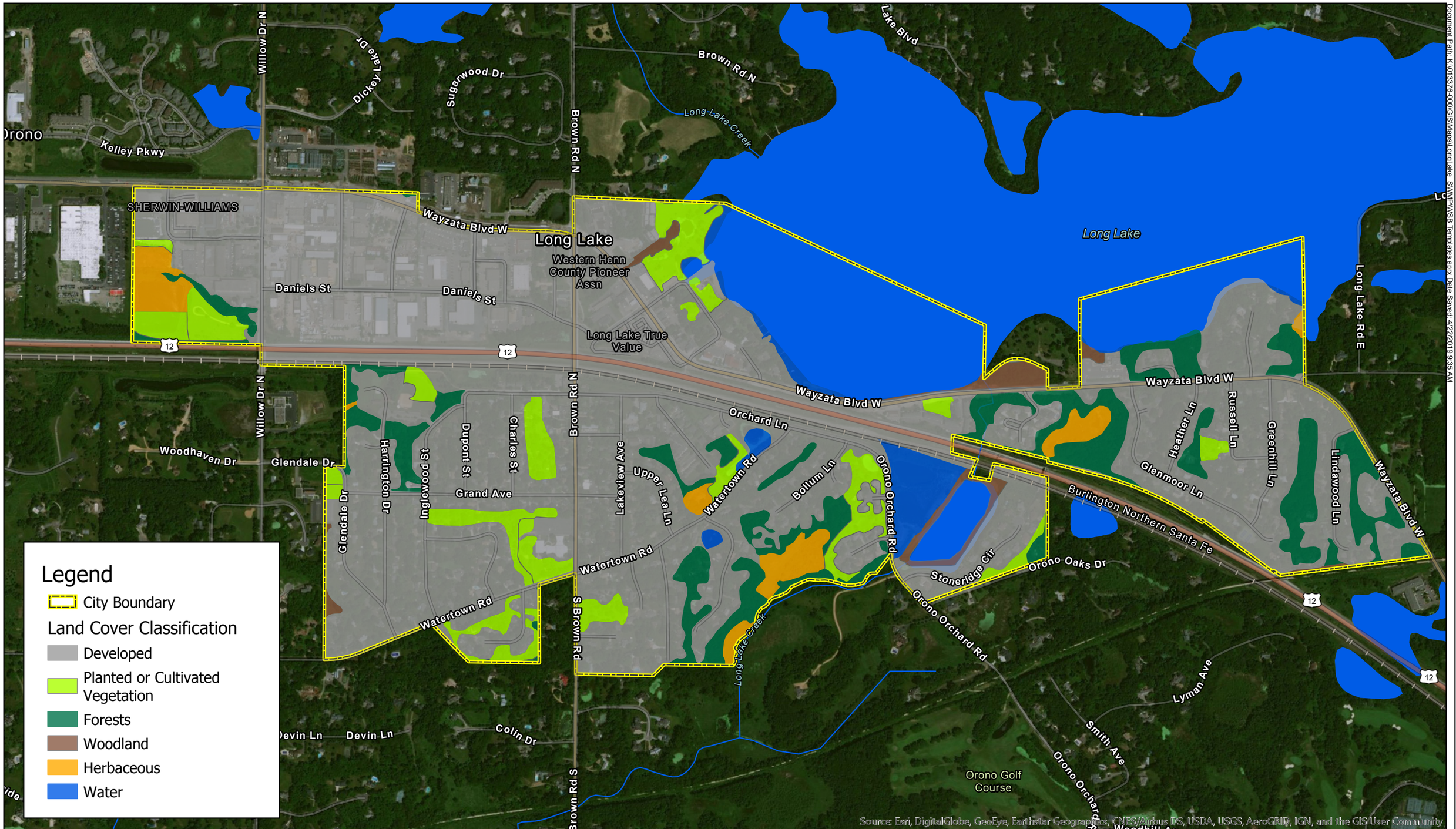
Source: Met Council 2016 Land Use

N

0 750 Feet

1 inch = 750 feet

wsb



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CITY OF LONG LAKE

Figure 2 - MLCCS

Water Resources Management Plan
City of Long Lake

Source: MnDNR

N

0 750 Feet

1 inch = 750 feet

wsb

CITY OF LONG LAKE

Figure 3 - FEMA Floodplain

Water Resources Management Plan
City of Long Lake

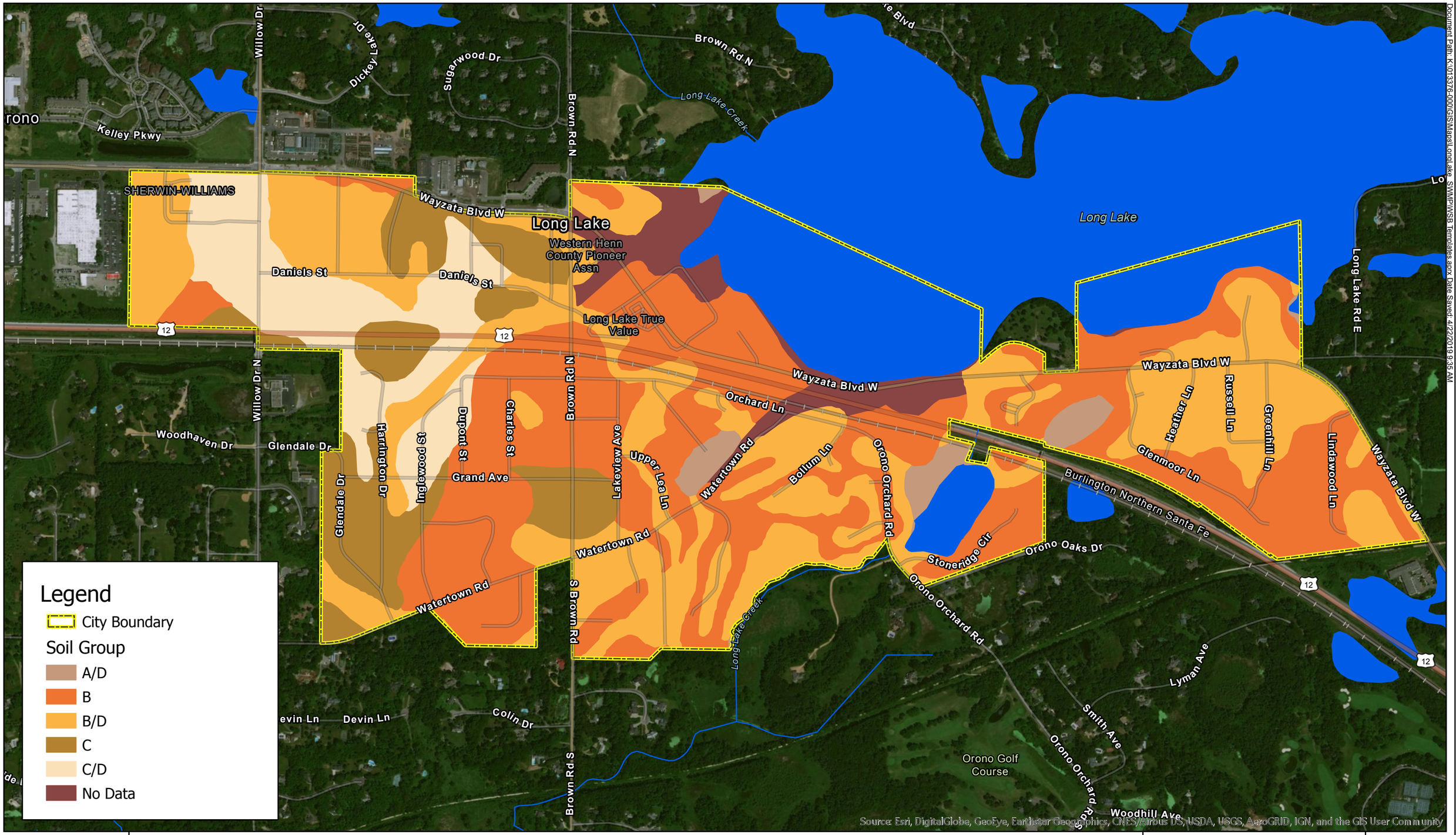
Source: FEMA, 2016

N

0 750 Feet

1 inch = 750 feet

wsb



CITY OF LONG LAKE

Figure 4 - Hydrologic Soil Groups

Water Resources Management Plan
City of Long Lake

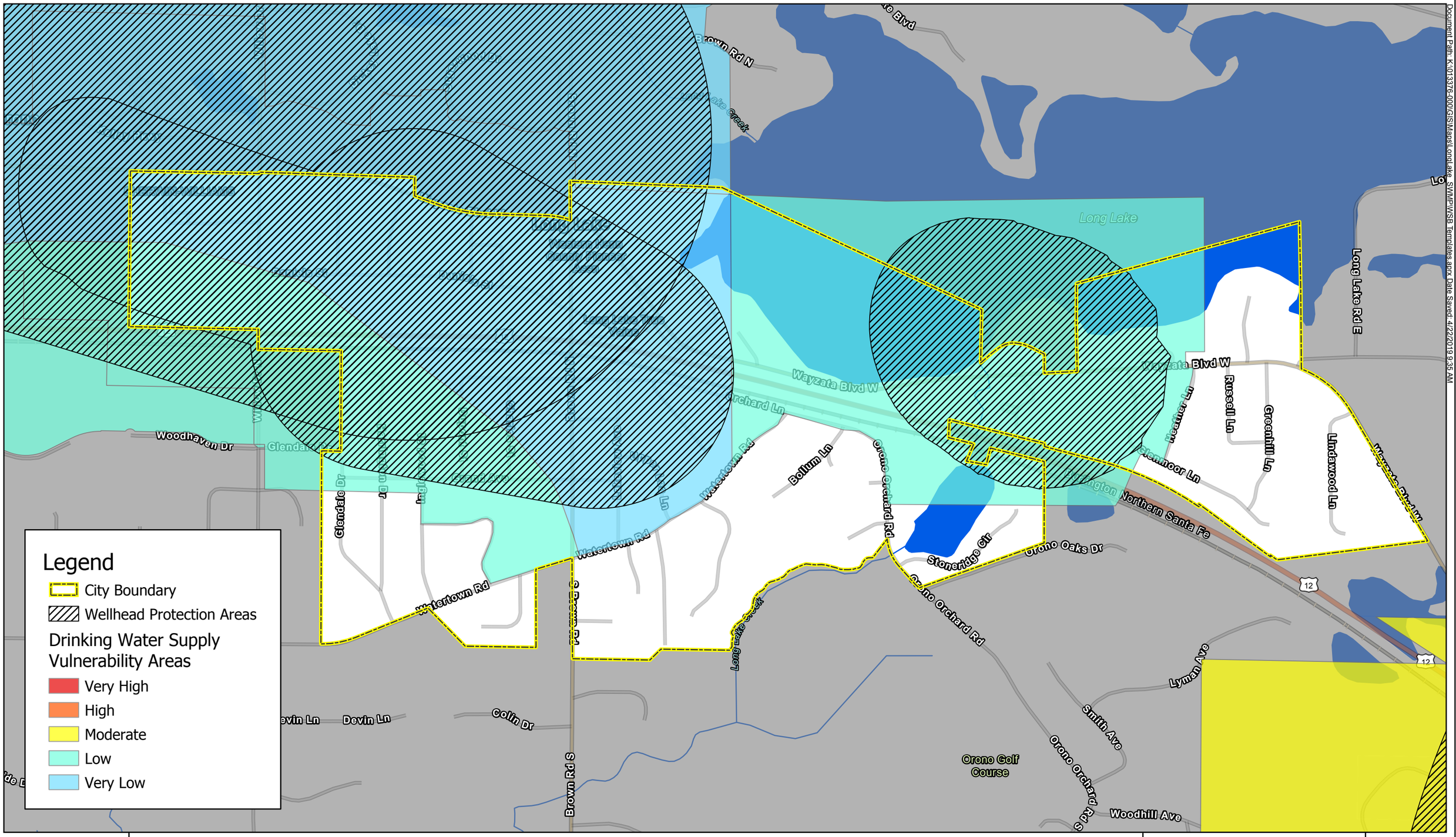
Source: NRCS Soil Survey

N

0 750 Feet

1 inch = 750 feet

wsb



CITY OF LONG LAKE

Figure 5 - Groundwater Protection

Water Resources Management Plan
City of Long Lake

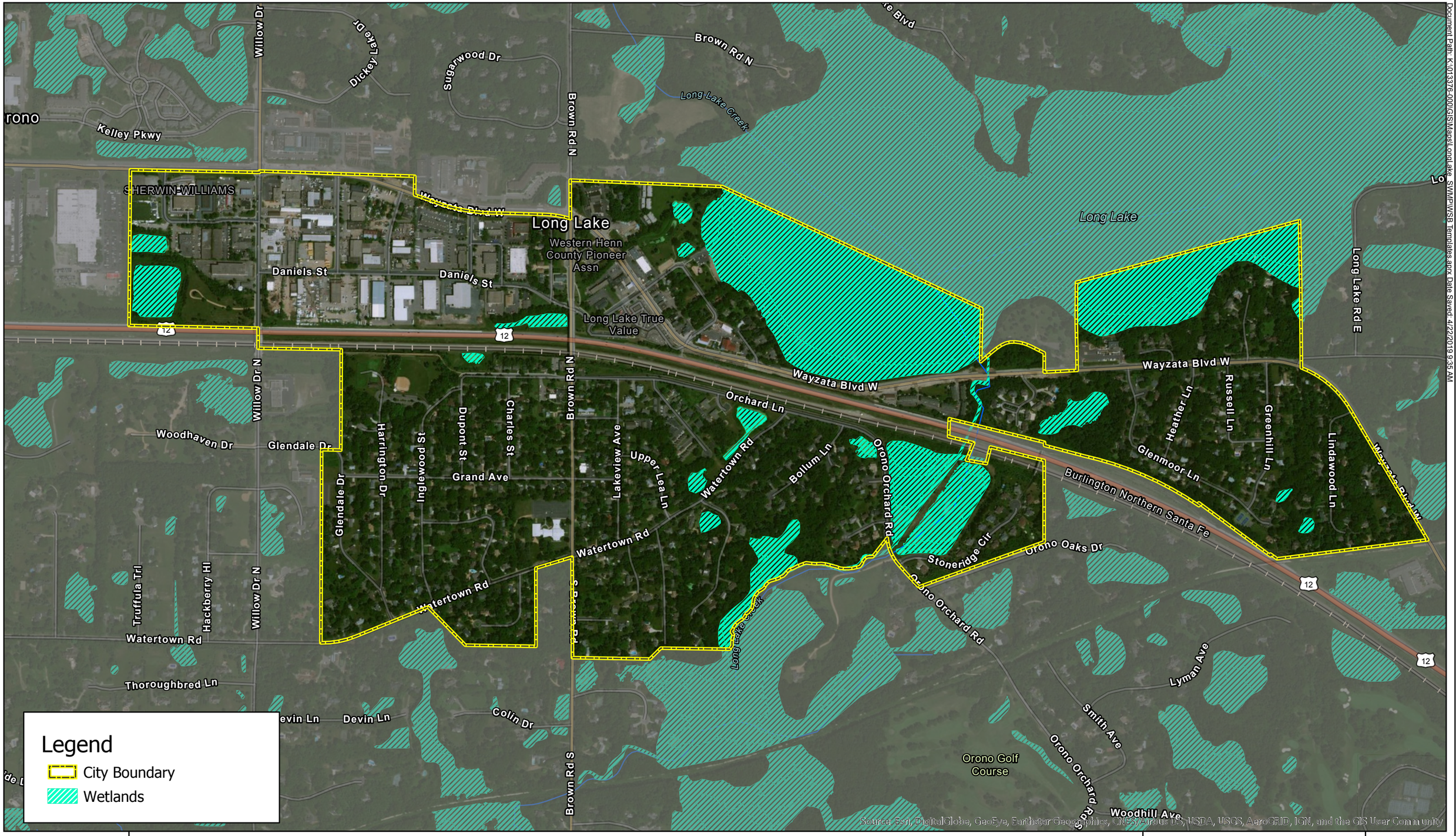
Source: MN Department of Health, 2019

N

0 750 Feet

1 inch = 750 feet

wsb



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CITY OF LONG LAKE

Figure 6 - National Wetland Inventory (NWI)

Water Resources Management Plan
City of Long Lake

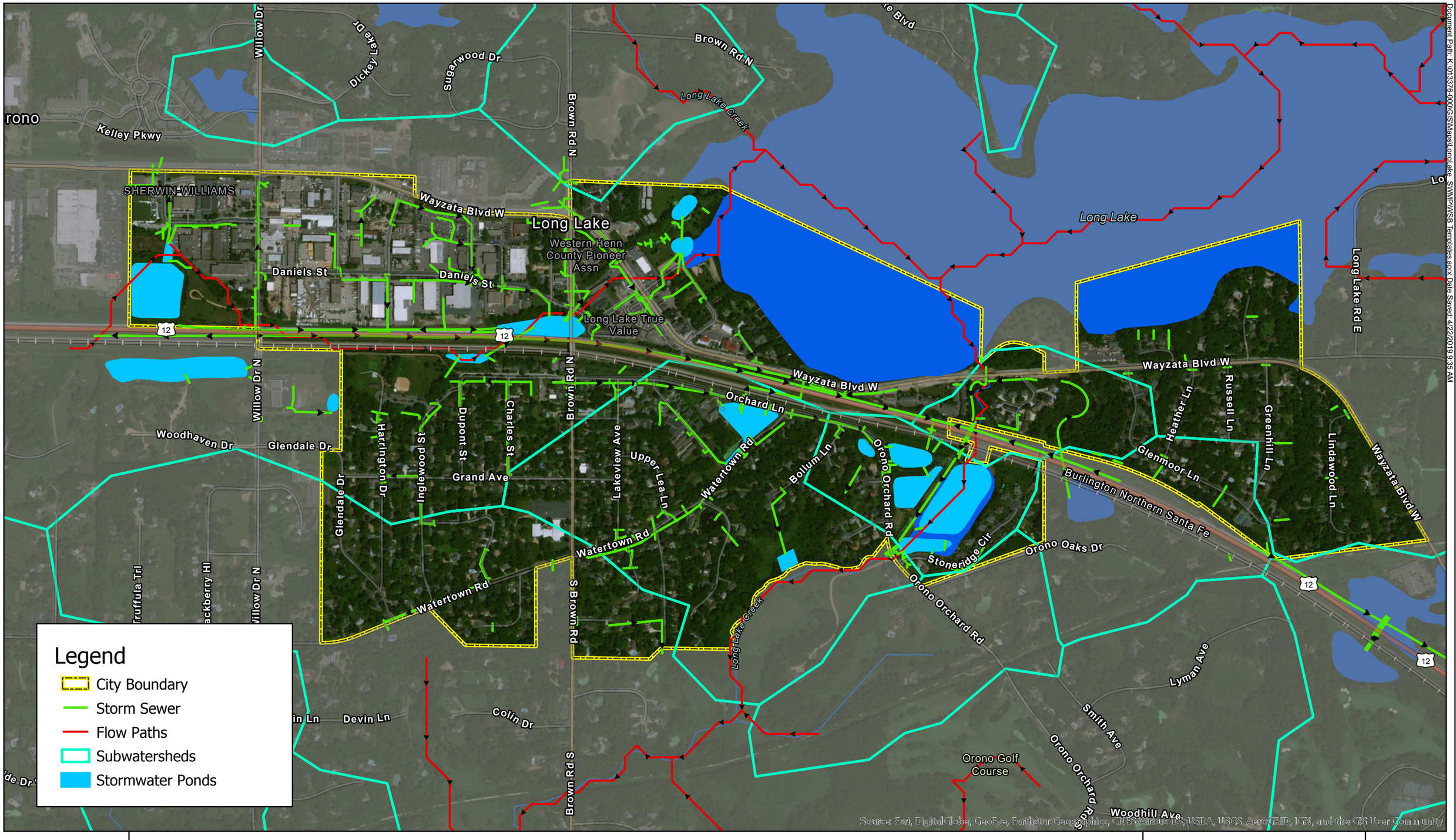
Source: MN DNR

N

0 750 Feet

1 inch = 750 feet

wsb



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CITY OF LONG LAKE

Figure 7 - Stormwater Drainage

Water Resources Management Plan
City of Long Lake

Source: MN DNR, Long Lake

N

0 750 Feet

1 inch = 750 feet

wsb

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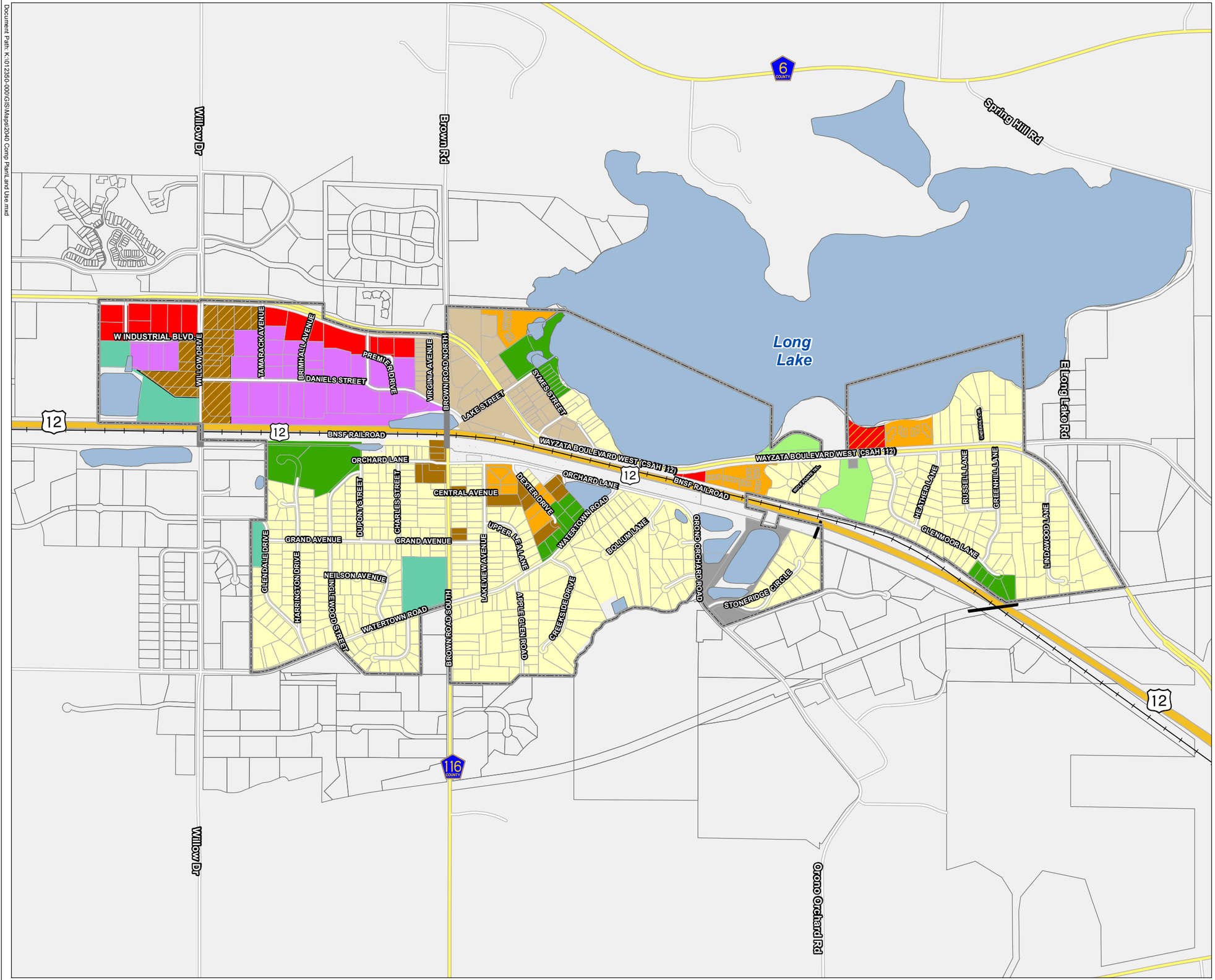
CITY OF LONG LAKE

Long Lake, Minnesota
2040 Comprehensive Plan
Proposed Land Use Map

Figure 8



- Long Lake Boundary
- Parcels
- Lakes/Ponds
- Pedestrian Bridge
- Vehicle Bridge

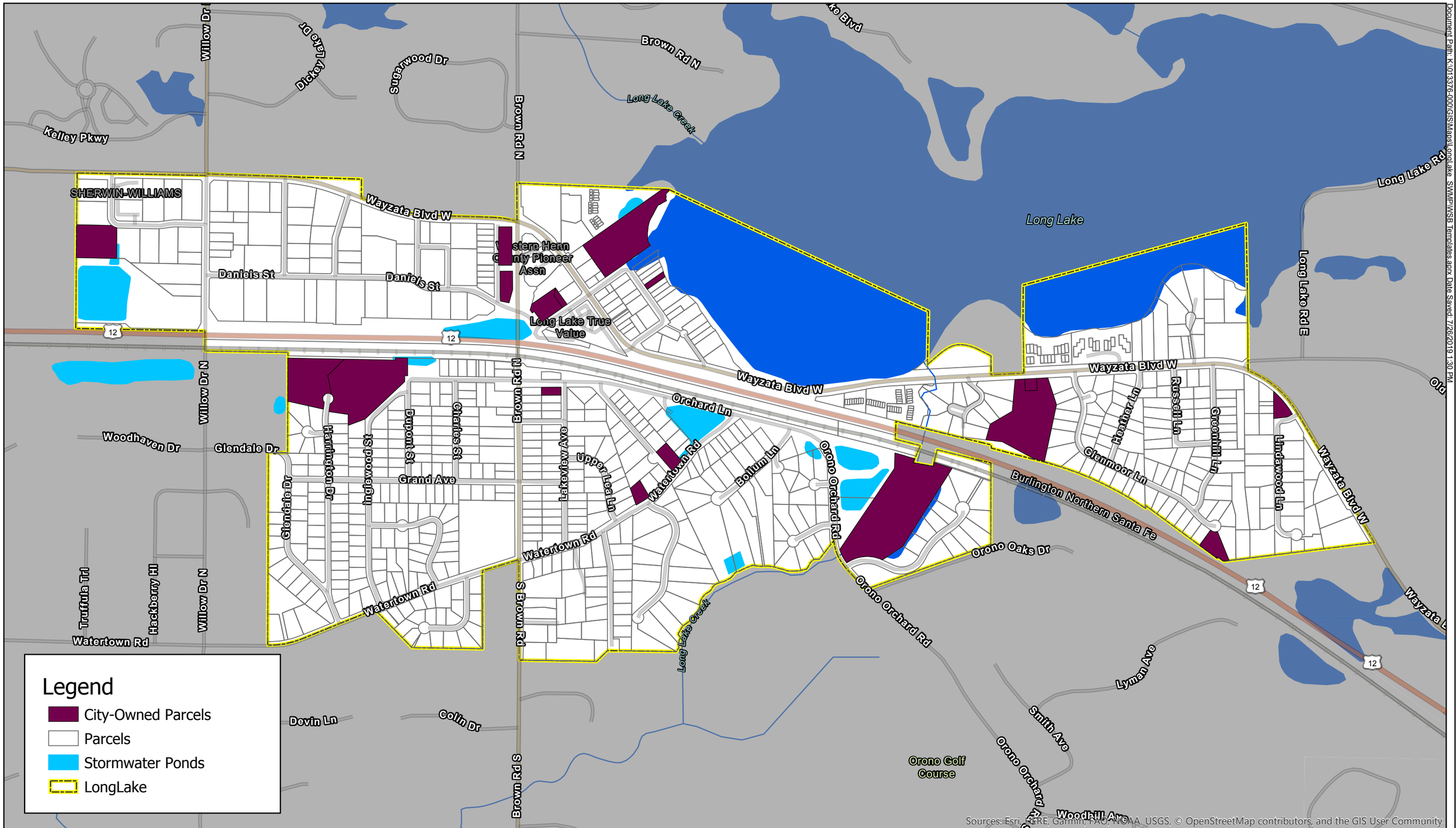
2040 Land Use Plan

- Business/Light Industrial
- Commercial
- Downtown Village Mixed Use
- Institutional
- Low Density Residential
- Multiple Family Residential - High Density
- Multiple Family Residential - Medium Density
- Multiple Family Residential - Medium Density/Commercial
- Open Space - Private
- Park
- Planned Commercial Business
- Utility

N

0 1,000 Feet

wsb



CITY OF LONG LAKE

Figure 9 - City-Owned Parcels

Water Resources Management Plan
City of Long Lake

N

0 750 Feet
1 inch = 750 feet

wsb

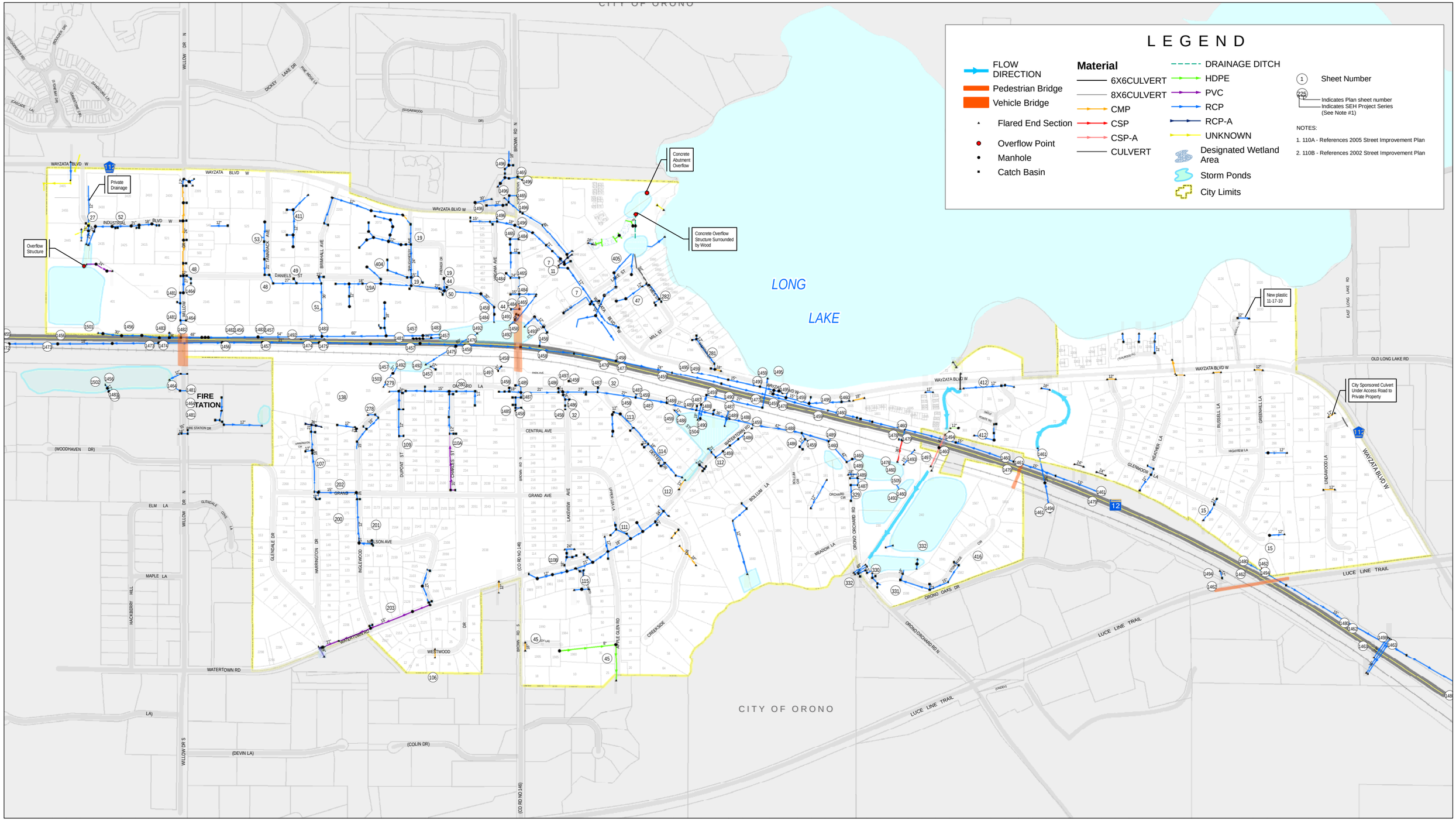


Figure 11A Storm Sewer System Map

LONG LAKE, MINNESOTA

0 175 350 700 1,050 1,400 Feet

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Appendix B - Ordinances

SECTION 17. "W" WETLAND SYSTEMS DISTRICT

Subd. 1. Purpose. A district relating to low lands, marshes, wetlands, drainage ways, water bodies, and water courses regulating alteration and development of such lands and providing for the issuance of permits therefore, and specifically to:

A. Reduce danger to the health, safety and welfare of the residents of Long Lake by protecting surface and ground water supplies from the impairment which results from incompatible land uses and alterations, and by providing safe and sanitary drainage.

B. Restrict and control land development so it will not impede the flow of flood water or cause danger to life or property.

C. Designate suitable land uses that are compatible with the preservation of the natural vegetation and marshes which are a principal factor in the maintenance of constant rates of water flow through the year and which sustain many species of wildlife and plant growth.

D. Regulate runoff of surface waters from developed areas to prevent pollutants such as motor oils, sand, salt and other foreign materials from being carried directly into the nearest natural stream, lake or other public or private waters.

E. Regulate the alteration of wetland systems to prevent excessive sediment pollution, increased and rapid water runoff, excessive nutrient runoff pollution and to maintain the aesthetic appearance of the wetlands.

F. Prevent the development of structures in areas which will adversely affect the public passage and use of creeks, marshes, low lands and water courses within the City.

Subd. 2. District Application.

A. The "W" Wetland Systems District shall be applied to and superimposed upon all Residential, Commercial, or Industrial Districts contained herein existing or amended by the text and map of this Ordinance. The regulations and requirements imposed by the "W" Wetland Systems District shall be in addition to those established for the district which jointly apply. Under the Joint Application of Districts, the more restrictive requirements shall apply.

B. The Wetland Systems District within the City of Long Lake is defined and established to include those areas which include any water course, natural drainage system, water body, or wetland, that may be subject to periodic flooding, overflow, or seasonally high water tables. The district boundary lines shall be established at the edge of the aforesaid areas as depicted in the Long Lake Comprehensive Plan. The Wetland areas indicated in said plan are composed of soils groups 8, 9, 10 and 11 as defined by the U.S.D.A. Soils Conservation Service. These specific soils groups are characterized

as unsuitable for development due to their poor drainage qualities, flooding proneness, poor texture, high water table depth and general organic content.

Subd. 3. Permitted Uses. The following operations and uses are permitted in the "Wetland Systems District" as a matter of right, subject to any other applicable code, ordinance or law:

A. Grazing, farming, nurseries, gardening, and harvesting of crops.

B. Sustained yield forestry and tree farms.

C. Conservation of soil vegetation, water, fish and wildlife.

D. Scientific research and educational activities that teach principles of ecology and conservation.

E. Leisure activities such as hiking, nature studies, canoeing, boating, camping, water-skiing, skin-diving, horseback riding, field trails, and general outdoor recreation including play and sporting areas that are not inconsistent with the intent of this Ordinance.

F. Essential services.

Subd. 4. Prohibited Uses. Except as may hereinafter be conditionally permitted, it shall be unlawful for any person to:

A. Place, deposit or permit to be deposited, debris, fill or any material including structures into, within or upon any water body, water course, or wetland, flood plain or natural drainage system.

B. Dig, dredge, or in any other way alter or remove any material from water bodies, water courses, wetlands, flood plains, or natural drainage system except to maintain the system.

C. Erect structures for human habitation.

D. Create ponds, dam or relocate any water course, or change the natural drainage system.

E. Clear and/or cut live trees or other vegetation.

F. Permanently store materials.

G. Erect signs.

H. Dispose of waste materials, including but not limited to sewage, garbage; rubbish and other discarded materials.

Subd. 5. Development Regulations.

A. Land owners or developers desiring to develop land or construct any dwelling or any other artificial obstruction on land located within any of the wetlands district within the City of Long Lake shall first submit a Conditional Use Permit application as regulated by this Ordinance and a plan of development, hereinafter referred to as "a wetland systems impact plan," which shall set forth proposed provision for sediment control, water management, maintenance of landscaped features, and any additional matters intended to improve or maintain the quality of the environment. Such a plan shall set forth proposed changes requested by the applicant and affirmatively disclose what, if any, change will be made in the natural condition of the earth, including loss or change of earth ground cover, destruction of trees, grade changes and its effect, if any, upon lakes, streams, water courses and marshes, lowlands and wetlands in the area. The plan shall minimize tree removal, ground cover change, loss of natural vegetation, and grade changes as much as possible, and shall affirmatively provide for the relocation or replanting of as many trees as possible which are proposed to be removed. The purpose of the wetland systems impact plan shall be to eliminate as much as possible potential pollution, erosion and siltation.

B. High Water Elevation. For lakes, ponds or flowages, no structure, except piers. and docks shall be placed at an elevation such that the lowest floor, including basement floor, is less than three (3) feet above the highest known water level. In those instances where sufficient data on known high water levels are not available, the elevation of the line of permanent shoreland vegetation shall be used as the estimated high water elevation. When fill is required to meet this elevation, the fill shall be allowed to stabilize, and construction shall not begin until the property has been inspected by the Building Inspector.

SECTION 17B FLOODPLAIN MANAGEMENT OVERLAY DISTRICT

Subd. 1. Purpose. The Legislature of the State of Minnesota has, in Minnesota Statutes Chapters 103F and Chapter 462 delegated the authority to local governmental units to adopt regulations designed to minimize flood losses. Minnesota Statute, Chapter 103F further stipulates that communities subject to recurrent flooding must participate and maintain eligibility in the National Flood Insurance Program. Therefore the City of Long Lake, Minnesota does ordain as follows:

A. Statement of Purpose. The purpose of this Section is to maintain the Community's eligibility in the National Flood Insurance Program and to minimize potential losses due to periodic flooding including loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

B. Warning of Disclaimer of Liability. This Section does not imply that areas outside of the flood plain district or land uses permitted within such districts will be free from flooding and flood damages. This Section shall not create liability on the part of the City of Long Lake or any officer or employee thereof for any flood damages that result from reliance on this Section or any administrative decisions lawfully made thereunder.

C. National Flood Insurance Program Compliance. This Section is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, so as to maintain the Community's eligibility in the National Flood Insurance Program.

Subd. 2. General Provisions.

A. Adoption of Flood Insurance Study and Flood Insurance Rate Map. The Flood Insurance Study, Volume 1 of 2 and Volume 2 of 2, Hennepin County, Minnesota, All Jurisdictions and the Flood Insurance Rate Map panels numbered 27053C0302E and 27053C0306E for the City of Long Lake, dated September 2, 2004, as developed by the Federal Emergency Management Agency, are hereby adopted by reference as the Official Flood Plain Zoning District Map and made a part of this Section.

B. Lands to Which Section Applies. This Section shall apply to all lands designated as flood plain within the jurisdiction of Long Lake. Flood plain areas within Long Lake shall encompass all areas designated as Zone A, Zone AE, Zone AO, or Zone AH as shown on the Flood Insurance Rate Map adopted in Section 2.1 of this Section.

C. Interpretation. The boundaries of the flood plain district shall be determined by scaling distances on the Official Flood Plain Zoning District Map. Where interpretation is needed as to the exact location of the boundaries of the flood plain

district, the City Planner shall make the necessary interpretation based on the ground elevations that existed on the site at the time the community adopted its initial floodplain Section and the regional (100-year) flood profile, if available. If 100-year flood elevations are not available, the community shall: 1) Require a flood plain evaluation consistent with Section 4.3 of this Section to determine a 100-year flood elevation for the site; or 2) base its decision on available hydraulic/hydrologic or site elevation survey data which demonstrates the likelihood the site is within or outside of the flood plain.

Subd. 3. Conflict With Pre-existing Zoning Regulations and General Compliance.

A. The Flood Plain District as Overlay Zoning District. The flood plain zoning district shall be considered an overlay zoning district to all existing land use regulations of the Community. The uses permitted in this Section shall be permitted only if not prohibited by any established, underlying zoning district. The requirements of this Section shall apply in addition to other legally established regulations of the Community and where this Section imposes greater restrictions, the provisions of this Section shall apply.

B. Compliance: No new structure or land shall hereafter be used and no structure shall be constructed, located, extended, converted, repaired, maintained, or structurally altered without full compliance with the terms of this Section and other applicable regulations which apply to uses within the jurisdiction of this Section. Within the Floodway and Flood Fringe, all uses not listed as permitted uses shall be prohibited. In addition, a caution is provided here that:

1. New manufactured homes, replacement manufactured homes and certain recreational vehicles are subject to the general provisions of this Section;

2. Modifications, repair and maintenance, additions, structural alterations or repair after damage to existing nonconforming structures and nonconforming uses of structures or land are regulated by the general provisions of this Section; and

3. As-built elevations for elevated structures must be certified by elevation surveys as stated in this Section.

Subd. 4. Permitted Uses, Standards, and Flood Plain Elevation Criteria

A. Permitted Uses in the Flood Plain. The following uses of land are permitted uses in the flood plain district:

1. Any use of land which does not involve a structure, a fence, an addition to the outside dimensions to an existing structure (including a fence) or an obstruction to flood flows such as fill, excavation, or storage of materials or equipment.

2. Any use of land involving the construction of new structures, a fence, the placement or replacement of manufactured homes, the addition to the outside dimensions of an existing structure (including a fence) or obstructions such as fill

or storage of materials or equipment, provided these activities are located in the flood fringe portion of the flood plain. These uses shall be subject to the development standards of this Section and the flood plain evaluation criteria of this Section for determining floodway and flood fringe boundaries.

3. Recreational vehicles are regulated by this Section.

B. Standards for Flood Plain Permitted Uses.

1. Fill shall be properly compacted and the slopes shall be properly protected by the use of riprap, vegetative cover or other acceptable method. The Federal Emergency Management Agency (FEMA) has established criteria for removing the special flood hazard area designation for certain structures properly elevated on fill above the 100-year flood elevation - FEMA's requirements incorporate specific fill compaction and side slope protection standards for multi-structure or multi-lot developments. These standards should be investigated prior to the initiation of site preparation if a change of special flood hazard area designation will be requested.

2. Storage of Materials and Equipment:
   a. The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.
   b. Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning or if placed on fill to the regulatory flood protection elevation.

3. No use shall be permitted which will adversely affect the capacity of the channels or floodways of any tributary to the main stream, or of any drainage ditch, or any other drainage facility or system.

4. All structures, including accessory structures, additions to existing structures and manufactured homes, shall be constructed on fill so that the lowest floor, including basement floor, is at or above the regulatory flood protection elevation. The finished fill elevation must be no lower than one foot below the regulatory flood protection elevation and shall extend at such elevation at least 15' beyond the limits of the structure constructed thereon.

5. All Uses. Uses that do not have vehicular access at or above an elevation not more than two feet below the regulatory flood protection elevation to lands outside of the flood plain shall not be permitted unless granted a variance by the Board of Adjustment. In granting a variance, the Board of Adjustment shall specify limitations on the period of use or occupancy of the use and only after determining that adequate flood warning time and local emergency response and recovery procedures exist.

6. Commercial and Manufacturing Uses. Accessory land uses, such as yards, railroad tracks, and parking lots may be at elevations lower than the regulatory flood protection elevation. However, a permit for such facilities to be used by the employees or the general public shall not be granted in the absence of a flood warning system that provides adequate time for evacuation if the area would be inundated to a depth and velocity such that when multiplying the depth (in feet) times velocity (in feet per second) the product number exceeds four (4) upon occurrence of the regional flood.

7. On-site Sewage Treatment and Water Supply Systems: Where public utilities are not provided: 1) On-site water supply systems must be designed to minimize or eliminate infiltration of flood waters into the systems; and 2) New or replacement on-site sewage treatment systems must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and they shall not be subject to impairment or contamination during times of flooding. Any sewage treatment system designed in accordance with the State's current statewide standards for on-site sewage treatment systems shall be determined to be in compliance with this Section.

8. All manufactured homes must be securely anchored to an adequately anchored foundation system that resists flotation, collapse and lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state or local anchoring requirements for resisting wind forces.

C. Flood Plain Evaluation

1. Upon receipt of an application for a permit for a use or other approval within the Flood Plain District, the applicant shall be required to furnish such of the following information as is deemed necessary by the City Planner for the determination of the regulatory flood protection elevation and whether the proposed use is within the floodway or flood fringe.

2. A typical valley cross-section(s) showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high water information.

3. Plan (surface view) showing elevations or contours of the ground, pertinent structure, fill, or storage elevations, the size, location, and spatial arrangement of all proposed and existing structures on the site, and the location and elevations of streets.

4. Photographs showing existing land uses, vegetation upstream and downstream, and soil types.

5. Profile showing the slope of the bottom of the channel or flow line of the stream for at least 500 feet in either direction from the proposed development.

6. The applicant shall be responsible to submit one copy of the above information to a designated engineer or other expert person or agency for technical assistance in determining whether the proposed use is in the floodway or flood fringe and to determine the regulatory flood protection elevation. Procedures consistent with Minnesota Regulations 1983, Parts 6120.5000 - 6120.6200 and 44 Code of Federal Regulations Part 65 shall be followed in this expert evaluation. The designated engineer or expert is strongly encouraged to discuss the proposed technical evaluation methodology with the respective Department of Natural Resources' Area Hydrologist prior to commencing the analysis. The designated engineer or expert shall:
   a. Estimate the peak discharge of the regional flood.
   b. Calculate the water surface profile of the regional flood based upon a hydraulic analysis of the stream channel and overbank areas.

7. Compute the floodway necessary to convey or store the regional flood without increasing flood stages more than 0.5 foot. A lesser stage increase than .5' shall be required if, as a result of the additional stage increase, increased flood damages would result. An equal degree of encroachment on both sides of the stream within the reach shall be assumed in computing floodway boundaries.

8. The City Planner shall present the technical evaluation and findings of the designated engineer or expert to the Governing Body. The Governing Body must formally accept the technical evaluation and the recommended Floodway and/or Flood Fringe District boundary or deny the permit application. The Governing Body, prior to official action, may submit the application and all supporting data and analyses to the Federal Emergency Management Agency, the Department of Natural Resources or the Planning Commission for review and comment. Once the Floodway and Flood Fringe District Boundaries have been determined, the Governing Body shall refer the matter back to the City Planner who shall process the permit application consistent with the applicable provisions of this Section.

Subd. 5. Utilities, Railroads, and Bridges in the Flood Plain District

A. All utilities and transportation facilities, including railroad tracks, roads and bridges, shall be constructed in accordance with state flood plain management standards contained in Minnesota Rules 1983 Parts 6120.5000 - 6120.6200.

Subd. 6. Subdivisions

A. No land shall be subdivided and no manufactured home park shall be developed or expanded where the site is determined to be unsuitable by the City Council for reason of flooding, inadequate drainage, water supply or sewage treatment facilities. The

Planning Commission shall review the subdivision/development proposal to insure that each lot or parcel contains sufficient area outside of the floodway for fill placement for elevating structures, sewage systems and related activities.

B. In the flood plain district, applicants for subdivision approval or development of a manufactured home park or manufactured home park expansion shall provide the information required in this Section. The Planning Commission shall evaluate the proposed subdivision or mobile home park development in accordance with the standards established in this Section.

C. For all subdivisions in the flood plain, the floodway and flood fringe boundaries, the regulatory flood protection elevation and the required elevation of all access roads shall be clearly labeled on all required subdivision drawings and platting documents.

D. Removal of Special Flood Hazard Area Designation: The Federal Emergency Management Agency (FEMA) has established criteria for removing the special flood hazard area designation for certain structures properly elevated on fill above the 100-year flood elevation. FEMA's requirements incorporate specific fill compaction and side slope protection standards for multi-structure or multi-lot developments. These standards should be investigated prior to the initiation of site preparation if a change of special flood hazard area designation will be requested.

Subd. 7. Administration

A. Permit Required. A Permit issued by the Building Official shall be secured prior to the erection, addition, modification, rehabilitation (including normal maintenance and repair), or alteration of any building or structure or portion thereof; prior to the use or change of use of a building, structure, or land; prior to the construction of a dam, fence, or on-site septic system, prior to the change or extension of a nonconforming use, prior to the repair of a structure that has been damaged by flood, fire, tornado, or any other source, and prior to the placement of fill, excavation of materials or the storage of materials or equipment within the flood plain.

B. State and Federal Permits. Prior to granting a permit or processing an application for a variance, the City Planner shall determine that the applicant has obtained all necessary state and federal permits.

C. Certification of Lowest Floor Elevations. The applicant shall be required to submit certification by a registered professional engineer, registered architect, or registered land surveyor that the finished fill and building elevations were accomplished in compliance with the provisions of this Section. The Building Official shall maintain a record of the elevation of the lowest floor (including basement) for all new structures and alterations or additions to existing structures in the flood plain district.

D. Notifications for Watercourse Alterations. The City Planner shall notify, in riverine situations, adjacent communities and the Commissioner of the Department of Natural Resources prior to the community authorizing any alteration or relocation of a watercourse. If the applicant has applied for a permit to work in the beds of public waters pursuant to Minnesota Statute, Chapter 103G, this shall suffice as adequate notice to the Commissioner of Natural Resources. A copy of said notification shall also be submitted to the Chicago Regional Office of the Federal Emergency Management Agency (FEMA).

E. Notification to FEMA When Physical Changes Increase or Decrease the 100-year Flood Elevation. As soon as is practicable, but not later than six (6) months after the date such supporting information becomes available, the City Planner shall notify the Chicago Regional Office of FEMA of the changes by submitting a copy of said technical or scientific data.

Subd. 8. Variances

A. A variance means a modification of a specific permitted development standard required in an official control including this Section to allow an alternative development standard not stated as acceptable in the official control, but only as applied to a particular property for the purpose of alleviating a hardship, practical difficulty or unique circumstance as defined and elaborated upon in a community's respective planning and zoning enabling legislation and this Section.

B. The Board of Adjustment may authorize upon appeal in specific cases such relief or variance from the terms of this Section as will not be contrary to the public interest and only for those circumstances such as hardship, practical difficulties or circumstances unique to the property under consideration, as provided for in the respective enabling legislation for planning and zoning for cities or counties as appropriate. In the granting of such variance, the Board of Adjustment shall clearly identify in writing the specific conditions that existed consistent with the criteria specified in this Section, any other zoning regulations of the Community, and the criteria specified in the respective enabling legislation which justified the granting of the variance. The following additional variance criteria of the Federal Emergency Management Agency must be satisfied:

1. Variances shall not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.

2. Variances shall only be issued by a community upon (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public

safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or Sections.

3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

C. Variances from the provisions of this Section may be authorized where the Board of Adjustment has determined the variance will not be contrary to the public interest and the spirit and intent of this Section. No variance shall allow in any district a use prohibited in that district or permit a lower degree of flood protection then the regulatory flood protection elevation. Variances may be used to modify permissible methods of flood protection.

D. The Board of Adjustment shall submit by mail to the Commissioner of Natural Resources a copy of the application for proposed variance sufficiently in advance so that the Commissioner will receive at least ten days notice of the hearing. A copy of all decisions granting a variance shall be forwarded by mail to the Commissioner of Natural Resources within ten (10) days of such action.

E. Appeals. Appeals from any decision of the Board of Adjustment may be made, and as specified in this Community's Official Controls and also Minnesota Statutes.

F. Flood Insurance Notice and Record Keeping. The City Planner shall notify the applicant for a variance that: 1) The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance and 2) Such construction below the 100-year or regional flood level increases risks to life and property. Such notification shall be maintained with a record of all variance actions. This Community shall maintain a record of all variance actions, including justification for their issuance, and report such variances issued in its annual or biennial report submitted to the Administrator of the National Flood Insurance Program.

Subd. 9. Nonconformities. A structure or the use of a structure or premises which was lawful before the passage or amendment of this Section but which is not in conformity with the provisions of this Section may be continued subject to the following conditions. Historic structures shall be subject to the provisions of this Section.

A. No such use shall be expanded, changed, enlarged, or altered in a way which increases its nonconformity.

B. A structural alteration within the inside dimensions of a nonconforming use or structure is permissible provided it utilizes flood resistant materials so as not to result in increasing the flood damage potential of that use or structure. A structural addition to a structure must be elevated to the regulatory flood protection elevation in accordance with this Section.

C. The cost of all structural alterations or additions both inside and outside of a structure to any nonconforming structure over the life of the structure shall not exceed 50 percent of the market value of the structure unless the conditions of this Section are satisfied. The cost of all structural alterations and additions constructed since the adoption of the Community's initial flood plain controls must be calculated into today's current cost which will include all costs such as construction materials and a reasonable cost placed on all manpower or labor. If the current cost of all previous and proposed alterations and additions exceeds 50 percent of the current market value of the structure, then the structure must meet the standards this Section for new structures.

D. If any nonconforming use of a structure or land or nonconforming structure is substantially damaged it shall not be reconstructed except in conformity with the provisions of this Section. The City Council may issue a permit for reconstruction if the use is located outside the floodway and, upon reconstruction, is adequately elevated on fill in conformity with the provisions of this Section.

E. If a substantial improvement occurs from any combination of a building addition to the outside dimensions of the existing building or a rehabilitation, reconstruction, alteration, or other improvement to the inside dimensions of an existing nonconforming building, then the building addition and the existing nonconforming building must meet the requirements of this Section for new structures, depending upon whether the structure is in the floodway or flood fringe, respectively.

Subd. 10. Penalties for Violation. A violation of the provisions of this Section or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variance) shall constitute a misdemeanor.

A. In responding to a suspected Section violation, the City Planner and the Community may utilize the full array of enforcement actions available to it including but not limited to prosecution and fines, injunctions, after-the-fact permits, orders for corrective measures or a request to the National Flood Insurance Program for denial of flood insurance availability to the guilty party. The Community must act in good faith to enforce these official controls and to correct Section violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

B. When a Section violation is either discovered by or brought to the attention of the City Planner, the City Planner shall immediately investigate the situation and document the nature and extent of the violation of the official control. As soon as is reasonably possible, this information will be submitted to the appropriate Department of Natural Resources' and Federal Emergency Management Agency Regional Office along with the Community's plan of action to correct the violation to the degree possible.

C. The City Planner shall notify the suspected party of the requirements of this Section and all other Official Controls and the nature and extent of the suspected violation of

these controls. If the structure and/or use is under construction or development, the City Planner may order the construction or development immediately halted until a proper permit or approval is granted by the Community. If the construction or development is already completed, then the City Planner may either (1) issue an order identifying the corrective actions that must be made within a specified time period to bring the use or structure into compliance with the official controls, or (2) notify the responsible party to apply for an after-the-fact permit/development approval within a specified period of time not to exceed 30-days.

D. If the responsible party does not appropriately respond to the City Planner within the specified period of time, each additional day that lapses shall constitute an additional violation of this Section and shall be prosecuted accordingly. The City Planner shall also upon the lapse of the specified response period notify the landowner to restore the land to the condition that existed prior to the violation of this Section.

Subd. 11. Amendments. All amendments to this Section, including revisions to the Official Flood Plain Zoning District Map, shall be submitted to and approved by the Commissioner of Natural Resources prior to adoption. The flood plain designation on the Official Flood Plain Zoning District Map shall not be removed unless the area is filled to an elevation at or above the regulatory flood protection elevation and is contiguous to lands outside of the flood plain. Changes in the Official Zoning Map must meet the Federal Emergency Management Agency's (FEMA) Technical Conditions and Criteria and must receive prior FEMA approval before adoption. The Commissioner of Natural Resources must be given 10-days written notice of all hearings to consider an amendment to this Section and said notice shall include a draft of the Section amendment or technical study under consideration.

Subd. 12. Travel Trailers and Travel Vehicles. Recreational vehicles that do not meet the exemption criteria specified below shall be subject to the provisions of this Section and as specifically spelled out below.

A. Exemption - Recreational vehicles are exempt from the provisions of this Section if they are placed in any of the areas listed below and further they meet the following criteria:

1. Have current licenses required for highway use.

2. Are highway ready meaning on wheels or the internal jacking system, are attached to the site only by quick disconnect type utilities commonly used in campgrounds and recreational vehicle parks and the recreational vehicle has no permanent structural type additions attached to it.

3. The recreational vehicle and associated use must be permissible in any pre-existing, underlying zoning use district.

B. Areas Exempted For Placement of Recreational Vehicles:

1. Individual lots or parcels of record.

2. Existing commercial recreational vehicle parks or campgrounds.

3. Existing condominium type associations.

C. Recreational vehicles exempted lose this exemption when development occurs on the parcel exceeding $500 for a structural addition to the recreational vehicle or exceeding $500 for an accessory structure such as a garage or storage building. The recreational vehicle and all additions and accessory structures will then be treated as a new structure and shall be subject to the elevation requirements and the use of land restrictions specified in this Section. There shall be no development or improvement on the parcel or attachment to the recreation vehicle that hinders the removal of the recreational vehicle to a flood free location should flooding occur.

D. New commercial recreational vehicle parks or campgrounds and new residential type subdivisions and condominium associations and the expansion of any existing similar use exceeding five (5) units or dwelling sites shall be subject to the following:

1. Any new or replacement recreational vehicle will be allowed in the floodway or flood fringe districts provided said recreational vehicle and its contents are placed on fill above the regulatory flood protection elevation determined in accordance with the provisions of this Section and proper elevated road access to the site exists in accordance with this Section. No fill placed in the floodway to meet the requirements of this Section shall increase flood stages of the 100-year or regional flood.

2. All new or replacement recreational vehicles not meeting the criteria above may, as an alternative, be allowed if in accordance with the following provisions. The applicant must submit an emergency plan for the safe evacuation of all vehicles and people during the 100 year flood. Said plan shall be prepared by a registered engineer or other qualified individual, shall demonstrate that adequate time and personnel exist to carry out the evacuation, and shall demonstrate that the provisions of this Section will be met. All attendant sewage and water facilities for new or replacement recreational vehicles must be protected or constructed so as to not be impaired or contaminated during times of flooding in accordance with this Section.

SECTION 17A: WATER MANAGEMENT

Subd. 1 Policy and Statement of Purpose

A. **Statutory Authorization**. This section is adopted pursuant to the authorization and policies contained in Minnesota Statutes Chapters 103B, 103F, 462, and 497 and Minnesota Rules, Parts 6120.2500-6120.3900, Minnesota Rules Chapters 8410 and 8420.

B. **Resolution of Policy**. Whereas, the City of Long Lake Comprehensive Land Use Plan and Water Resources Management Plan identify specific goals and policies related to the proper management of its shoreland, lakes, wetlands, water and soil resources, and;

Whereas, the City of Long Lake recognizes that the uncontrolled use of shorelands, wetlands, and land disturbing activities in general in the City affects the public health, safety and general welfar0e not only by contributing to the pollution of surface and ground waters, but also by impairing the local tax base, and;

Whereas, land development and use impact all receiving waters, especially lakes, streams and wetlands by contributing to their impairment through point and nonpoint pollution sources, and; Whereas, the City of Long Lake will soon adopt a Water Resources Management Plan that recognizes that its storm water system is integrated with the management of its natural lakes and wetlands and;

Now Therefore, City of Long Lake has determined that it is the best interests of the public to manage and implement its Comprehensive Plan and Water Resources Management Plan by a consolidated approach with this section as provided for in Subdivisions 1 through 10 to avoid conflict and duplication to the maximum practical extent.

C. **Statement of Purpose**. To achieve the policies described in the City Comprehensive Plan, State and Federal policies and statutes, the City intends to determine, control and guide future development within and surrounding those land areas which are contiguous to designated bodies of public water and areas of "natural environmental significance" as herein defined and regulated. Specifically, this Chapter purports to:

1) Regulate the placement of sanitary and storm water disposal facilities on lots;

2) Regulate the area of a lot and the length of water frontage suitable for a building site;

3) Regulate alteration of the shorelands and wetlands of public waters; Control natural environment areas of ecological value to maintain existing aquatic, vegetation and wildlife conditions to the maximum extent possible;

4) Regulate the use and subdivision of land within the corporate limits as it relates to public waters, wetlands, shorelands and storm water;

5) Provide variances from the minimum standards and criteria.

Subd. 2 General Provisions

A. **Jurisdiction**. The provisions of this section shall apply to the shoreland, wetland, and storm water management overlay districts and the city in general as each section specifies.

B. **Disclaimer**. This Chapter does not imply that areas outside of the Shoreland, Wetland and Storm Water Management Overland District or land uses permitted within that District will be free from flooding or flood damages. This Chapter does not create liability on the part of the City or its officers or employees for any flood damage that may result from reliance on this Chapter or any administrative decisions made under it.

C. **Interpretation**. In their interpretation and application, the provisions of this Chapter shall be held to be minimum requirements and shall be liberally construed in favor of the governing body and shall not be deemed a limitation or repeal of any other powers granted by State statutes.

D. **Severability**. If any section, clause, provision or portion of this Chapter is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this Chapter shall not be affected thereby.

E. **Abrogation and Greater Restrictions**. It is not intended by this Chapter to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Chapter imposes greater restrictions, the provisions of this Chapter shall prevail.

Subd. 3 Administration

A. **Compliance.** The use of any shoreland of public waters; the size and shape of lots; the use, size and shape of structures on lots; the installation and maintenance of water supply and waster removal systems, the grading and filling of any wetland or shoreland area; the cutting of vegetation; and the subdivision of land shall be in full compliance with the terms of this Section and other applicable regulations. In cases where standards conflicts with the standards of the base zoning districts, the more restrictive standard will prevail.

B. **General requirements of permits and other authorizations.**

1. A permit is required for the construction of buildings or building additions (and including such related activities as construction of decks and signs), working in road right-of-ways, and those grading and filling activities not exempted by Subd. 9 of this section. Application for a permit shall be made to the Building Official. Other permits may be necessary from the Minnehaha Creek Watershed District.

D. **Variances**

1. Variances in the water management overlay district may only be granted in accordance with Minnesota Statutes, Chapter 462, as applicable. A variance may not circumvent the general purposes and intent of this section. No variance may be granted that would allow any use that is prohibited in the zoning district in which the subject property is located. Conditions may be imposed in the granting of a variance provided the condition is directly related to and proportional to the impact created by the variance.
2. When a variance is approved in a MDNR designated shoreland district by the city council after the Department of Natural Resources has formally recommended denial in the hearing record, the notification of the approved variance required in Subd. 3 (E) below shall also include the Planning Commission's summary of the public record/testimony and the findings of facts and conclusions which supported the issuance of the variance.

E. Notification to the Department of Natural Resources.

1. Copies of all notices of any public hearings to consider section amendments affecting shoreland management, subdivision approvals, planned unit developments variances, section amendments, or conditional uses affecting a MDNR designated shoreland district must be sent to the MDNR, Division of Waters Regional Hydrologist and postmarked at least ten days before the hearings. Notices of hearings to consider proposed subdivisions/plats must include copies of the subdivision/plat.
2. A copy of approved amendments affecting shoreland management, planned unit developments, subdivisions/plats, and final decisions granting variances or conditional uses in a MDNR designated shoreland district must be sent to the MDNR, Division of Waters Regional Hydrologist and postmarked within ten days of final action.

Subd. 4 Illicit Discharge Detection and Elimination

A. Purpose / Intent

The purpose of this ordinance is to provide for the health, safety, and general welfare of the City of Long Lake through the regulation of non-stormwater discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) process.

The objectives of this ordinance are:

(a) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user.

(b) To prohibit illicit connections and discharges to the municipal separate storm sewer system.

(c) To establish legal authority to carry out all inspections, surveillance, and monitoring procedures necessary to ensure compliance with this ordinance.

B. Definitions

For the purposes of this ordinance, the following shall mean:

Authorized Enforcement Agency: the City of Long Lake

Best Management Practices (BMPs): schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Activities subject to NPDES Construction Permits. These include construction projects resulting in land disturbance of one acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Discharge: Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in this ordinance.

Illicit Connections: An illicit connection is defined as any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

Industrial Activity: Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit: means a permit issued by EPA (or by a State under authority delegated pursuant to 33 USC § 1342 (b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual group, or general area-wide basis.

Non-Storm Water Discharge: Any discharge to the storm drain system that is not composed entirely of storm water.

Person: means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and action as either the owner or as the owner's agent.

Pollutant: Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, pesticides, herbicides, and fertilizers; hazardous substances and wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Premises: Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Storm Drain System: Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Storm Water: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater Management Prevention Plan: A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or receiving waters to the maximum extent practicable.

Wastewater: Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

C. Applicability.

This ordinance shall apply to all water entering the storm drain system generated on any developed or undeveloped lands unless explicitly exempted by an authorized enforcement agency.

D. Responsibility for Administration.

The authorized enforcement agency shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the authorized enforcement agency may be delegated in writing by the Director of the authorized enforcement agency to persons or entities acting in the beneficial interest of or in the employ of the agency.

E. Severability.

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.

F. Ultimate Responsibility.

The standards set forth herein and promulgated pursuant to this ordinance and minimum standards; therefore this ordinance does not intend or imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

G. Public Nuisances.

1. **Policy**. It is the policy of the City of Long Lake to prevent and remedy the degradation of the quality of surface and ground waters as well as public and private land resources in order to protect the health, safety and general welfare of the public. All acts or failures to act by persons which may result in the degradation of such water and land resources is considered to be a public nuisance in accordance with, but not limited to, the Public Nuisance section of the City Code, Minnesota Statutes, Section 609.74, 561.19, and 144.37, and as hereinafter specifically defined.
2. **Specific Public Nuisances**. The following items are public nuisances:
    a. **Erosion and sedimentation**. The deposition of measurable amounts of soil by wind or water action into public road ditches, natural or man-made watercourses, ditches, wetlands, shorelands and water bodies or adjoining private properties is a public nuisance, provided such deposition is related to the failure of a land owner or occupier to apply accepted soil erosion.
    b. **Deposition or disposal**. The deposition or disposal of any substance onto land or into a watercourse or water body which in its present or

decomposed state may release nutrients or chemicals into ground and surface waters or otherwise impair water resources is a public nuisance. Such substances include, but are not limited to, fertilizers, pesticides, plant or animal parts or waste, garbage, refuse, demolition material, sewage sludge, petrochemicals, toxic salts, and other hazardous materials.

c. **Excavation and fill activities**. The excavation of any material from or placement of any fill material into any man-made or natural watercourse, wetland, lake, or other water body without necessary local, state or federal authorizations is a public nuisance.

H. Discharge Prohibitions

a. Prohibition of Illegal Discharges:

No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

(1) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, noncommercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (if dechlorinated – typically less than one PPM chlorine), fire fighting activities, and any other water source not containing pollutants.

(2) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(3) Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

(4) The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

b. Prohibition of Illicit Connections

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of the connection.

(3) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

I. Suspension of MS4 Access

a. **Suspension due to illicit discharges in emergency situations**. The City Council may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present an imminent and substantial danger to the environment, or the health or welfare of persons, or to the MS4 or Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the United States, or to minimize danger to persons.

b. **Suspension due to the detection of illicit discharge**. Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for reconsideration and a hearing. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

J. Industrial or Construction Activity Discharges

a. Any person subject to an industrial or construction activity NPDES storm water discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the City Council prior to the allowing of discharges to the MS4.

K. Monitoring of Discharges

a. **Applicability.**

This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.

b. **Access to Facilities**.

i. The authorized enforcement agency shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.

ii. Facility operators shall allow the authorized enforcement agency ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge storm water, and the performance of any additional duties as defined by state and federal law.

iii. The authorized enforcement agency shall have the right to set up on any permitted facility such devises as are necessary in the opinion of the authorized enforcement agency to conduct monitoring and/or sampling of the facility's storm water discharge.

iv. The authorized enforcement agency has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devises used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

v. Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the authorized enforcement agency and shall not be replaced. The costs of clearing such access shall be borne by the operator.

vi. Unreasonable delays in allowing the authorized enforcement agency access to a permitted facility is a violation of a storm water discharge permit and of this ordinance. A person who is the operator of the facility with a NPDES permit to discharge storm water associated with industrial activity commits an offense if the person denies the authorized enforcement agency reasonable access to the permitted facility for the

purpose of conducting any activity authorized or required by this ordinance.

vii. If the authorized enforcement agency has been refused access to any part of the premises from which stormwater is discharged, and the City is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety and welfare of the community, then the authorized enforcement agency may seek issuance of a search warrant from any court of competent jurisdiction.

L. Requirement to prevent, control, and reduce storm water pollutants by the use of best management practices.

The City will adopt requirements identifying Best Management Practices (BMPs) of any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliant with the provisions of this section. These BMPs shall be part of a storm water pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES permit.

M. Watercourse Protection.

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

N. Notification of Spills.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into

storm water, the storm drain system, or water of the U.S. said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the authorized enforcement agency in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

O. <u>Enforcement.</u>

a. **Notice of Violation**. Whenever the City finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the authorized enforcement agency may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

(1) The performance of monitoring, analysis, and reporting;

(2) The elimination of illicit connections or discharges;

(3) That violating discharges, practices, or operations shall cease and desist;

(4) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property;

(5) Payment of a fine to cover administrative and remediation costs;

(6) The implementation of source control or treatment BMPs. If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

P. <u>Enforcement Measures after Appeal.</u>

If the violation had not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within 15 days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful

for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

Q. Cost of Abatement of the Violation.

Within 30 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within 15 days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this article shall become liable to the City by reason of such violation.

R. Injunctive Relief.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this ordinance. If a person has violated and continues to violate the provisions of this ordinance, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

S. Compensatory Action.

In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

T. Violations deemed a Public Nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

U. Criminal Prosecution.

Any person that has violated or continues to violate this ordinance shall be liable to criminal prosecution to the fullest extent of the law, and shall be subject to a criminal penalty of $1,000.00 dollars per violation per day and/or imprisonment for a period of time not to exceed 90 days. The authorized enforcement agency may recover all attorney's fees, court costs, and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

Subd. 5 Water Management Overlay Districts

A. **Creation**. The Water Management Overlay District is hereby created and is divided into the following subdistricts as shown on the Official Zoning Map or an attachment thereto: the Shoreland District, the Wetland Protection District, and the Storm Water District.

B. **Shoreland District**. Land located within one thousand feet (1,000') from the ordinary high water level of the lakes classified in Subd. 6 and land extending from three hundred feet (300') from watercourses or the landward extent of the floodplain, whichever is farther.

C. **Wetland Protection District**. All upland within fifty feet (50') of the wetland boundary of wetlands identified in the Water Resource Management Plan that drain to the waterbody.

D. **Official Zoning Map**. The amended Official Zoning Map, with Water Management Overlay Districts, is hereby adopted by reference and declared to be a part of this Chapter.

E. **Maintenance of Records**. Said Official Zoning Map shall be on file in the office of the Zoning Administrator. The Zoning Administrator shall maintain the necessary records to maintain and display the Official Zoning Map as amended.

F. **Boundaries**. The boundaries of the overlay districts as shown on the Official Zoning Map are considered to be approximate and must be established on the ground at the time of any application for a permit, variance, planned unit development or subdivision of land.

G. **Allowable Land Uses**. The existing zoning on the site shall specify the allowable land uses but all such uses must additionally comply with any more restrictive standards and criteria of this Chapter.

H. **Ordinary High Water Level**. The OHWL for Long Lake is 944.3 feet.

Subd. 6 Area Classifications

A. **Shoreland Classifications**. The following public waters of the City have been classified either consistent with the criteria found in Minnesota Regulations, part 6120.3300, or classified by the City when no classification was available from the Minnesota Department of Natural Resources. The "shoreland area" for the water bodies listed in the table below shall be as defined in this Chapter and shown on the Official Zoning Map.

Shoreland Classification Table

Name	MnDNR ID#	Classification
Long Lake	27-160P	Recreational Development

Lake Long Lake Creek	From Section 35, T118N-R23W (Basin 27-160P) to Section 34, T118-R23W (City boundary)	Tributary Stream

B. **Wetland protection areas**. Wetlands with a Wetland Overlay District are identified in the Water Resources Management Plan as shown in the National Wetlands Inventory.

Subd. 7 Water Management Overlay District Lot Standards

A. **Shoreland Overlay District Lot Standards**. The following development standards are in addition to any standards that apply specifically to the underlying zoning district. In a shoreland district, where there is conflict between the underlying and overlying district standards, the most restrictive shall apply within the first tier of riparian development.

Shoreland Overlay District Lot Minimum Standards:

	Structure Setback from OHWL (ft.)
Long Lake	75
Long Lake Creek	75
DNR Wetlands	50

None of the lot area below the ordinary high water level may be included in calculating the minimum lot dimensions required by the zoning district. Only land above the ordinary high water level of public waters may be used to meet lot area standards. Lot width shall be measured at the ordinary high water level.

B. **Wetland Overlay District Lot Standards**.

a. The minimum lot area, width and depth requirements of the underlying land use zoning district within the City Code. Wetland areas may not be included in lot areas to meet the minimum lot area dimension. The minimum structure setback in a wetland overlay district is 50 feet from the wetland boundary.

b. Newly platted lots shall establish a ‘buffer strip’ from the wetland boundary to the building site. The buffer strip shall be not less than 25 feet wide and must be left in its natural vegetative condition for the purpose of filtering nutrients and providing wildlife habitat. Such buffer strip shall be defined on the ground by permanent monuments set on each property line and defined legally in a conservation easement to the City of Long Lake which sets forth specific restrictions against filling and vegetative removal.

C. **Minimum Building Elevation**. The minimum building elevation for habitable structures and garages shall meet the following elevation criteria, unless accurate

information demonstrating that the lot will drain effectively and the buildings to be constructed on the lot will be protected from flood damage, is provided and approved by the City Engineer:

1. One and one-half (1 and 1/2) feet above the back of curb of the accessed street;
2. Four (4) feet above the water table or one (1) foot above the one hundred (100) year flood elevation as determined by the City Engineer.
3. Within a Water Management Overlay District:

   a.) two feet (2') above the one hundred (100) year flood elevation; or

   b.) three feet (3') above the highest known water level, or three feet (3') above the ordinary high water level, whichever is higher; or

   c.) three feet (3') above the wetland boundary; or

   d.) two feet (2') above the emergency overflow elevation
4. Water-oriented accessory structures may have the lowest floor placed lower than the elevation determined in 1. or 2. above provided there shall be no net loss of floodplain storage if:

   a.) the structure is constructed of flood-resistant materials,

   b.) electrical and mechanical equipment is placed above the elevation and,

   c.) if long duration flooding is anticipated, the structure is built to withstand ice action and wind-driven waves and debris.

Subd. 8 Additional Shoreland Development Requirements

A. **Shoreland setback exception**. When more than one setback applies to a site, structures and facilities shall be located to meet the most restrictive setbacks. All other structure setback requirements shall be as stated in the underlying zoning district for each parcel.

B. **Bluff Impact Zone Restriction**. Structures and accessory facilities, except stairways and landings, shall not be placed within bluff impact zones.

C. **Commercial and Industrial Structures.** Commercial or industrial land uses without water-oriented uses shall be located on lots or parcels without public waters frontage.

D. **Planned Unit Development Approvals**. Planned unit developments must meet the requirements of Section 5 of the city Zoning Code, Minnesota Rules Chapter 6120.3800, and must be approved by the Commissioner of Natural Resources. No preliminary approvals or sketch plan approvals can be obtained without first securing a report from the Commissioner that defines the degree of compliance with Chapter 6120.3800.

E. **Private Access Lot Requirements**. Lots intended as controlled accesses to public waters or as recreation areas for use by owners of nonriparian lots within subdivisions shall be allowed only as part of a conditional use permit or planned

unit development and shall meet or exceed the following standards:

1. They shall be suitable in terms of physical access and potential slope erosion and vegetation damage for the intended uses of controlled access lots;
2. They shall have a specific lot size not less than twice the minimum lot width of the underlying zoning district.
3. They shall be jointly owned by all purchasers of lots in the subdivision or by all purchasers of nonriparian lots in the subdivision who are provided riparian access rights on the access lot and;
4. Covenants or other equally effective legal instruments shall be developed that specify which lot owners have authority to use the access lot and what activities are allowed. They may include other outdoor recreational activities that do not significantly conflict with general public use of the public water or enjoyment of normal property rights by adjacent property owners. Examples of the insignificant conflict activities include swimming, sunbathing, or picnicking. The covenants will not allow the parking of vehicles or watercraft to be continuously moored, docked or stored over water, and shall require centralization of all common facilities and activities in the most suitable locations on the lot to minimize topographic and vegetation alterations.

F. **Permitted water-oriented accessory structures**. Each lot may have one water-oriented nonhabitable accessory structure not meeting the normal structure setback in Subd. 7 (A) of this Chapter if this water-oriented accessory structure complies with the following provisions:

1. **Water oriented accessory structure dimensional requirements**:

-Maximum floor area: 250 square feet
- Maximum width as viewed from water: 12 feet
-Maximum height: 10 feet
- Setback from ordinary high water level: 10 feet*
*Also permitted for docks, and off-season storage, gazebos and docks.

c. **Allowable Construction Materials**. The structure or facility shall be constructed of material architecturally similar in design, texture, and color to the principal structure on the lot; the design shall be review by the Zoning Administrator prior to issuance of building permits.

d. **Accessory Structure Screening**. The structure shall be screened a minimum of fifty percent (50%) by opaque vegetation or topography on the three (3) walls seen from the lake with ecologically suited landscaping landward of the ordinary high water level from the lake.

e. Accessory Structure Restrictions.

1. The roof shall not be used as a deck or used as a storage area.
2. The structure or facility shall not be designed or used for human habitation and shall not contain utility systems.

f. **Stairways, Chair Lifts, and Stair and Deck Landings**: Stairways and chair lifts shall be used for achieving access up and down bluffs and steep slopes to

shore areas. Stairways and lifts shall meet the following design requirements:

1. Stairways and chair lifts shall not exceed four feet (4') in width on residential lots. Wider stairways may be used for commercial properties and public open-space recreational properties.
2. Stair and deck landings for stairways and chair lifts on residential lots shall not exceed forty eight (48) square feet in area. Landings larger than forty eight (48) square feet may be used for commercial properties and public open-space recreational properties;
3. Canopies or roofs shall not be permitted on stairways, chair lifts, or stair or deck landings;
4. Stairways, chair lifts, and stair or deck landings shall be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion;
5. Stairways, chair lifts, and stair or deck landings shall be located in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical, and
6. Facilities such as ramps, chair lifts, or mobility paths for physically handicapped persons shall be permitted for achieving access to shore areas, provided that the dimensional and performance standards of subsections 1 through 5 are complied with in additional to the requirements of Minnesota Rules, chapter 1340.

G. **Steep Slopes, Visibility And Erosion**. The Public Works Director shall evaluate possible soil erosion impacts and development visibility from public waters prior to issuance of a permit for construction of roads, driveways, structures, or other improvements on steep slopes. When determined necessary, conditions shall be attached to the permit to prevent erosion and preserve existing vegetation, screening of structures, vehicles, and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

H. **Height of Structures**. All structures in residential districts shall not exceed thirty-five feet (35') in height.

I. **Placement and Design of Roads, Driveways, and Parking Areas.**

1. Public and private roads and parking areas shall be designed to take advantage of natural vegetation and topography to achieve maximum screening from view from public waters. The Public Works Director shall review all roads and parking areas to ascertain they are designed and constructed to minimize and control erosion to public waters, consistent with the field office technical guides of the Minnesota Pollution Control Agency, or other comparable technical materials and best management guidelines.
2. **Roads, driveways, and parking areas** shall meet structure setbacks outlined in Subd. 7 (A) and shall not be placed within bluff and shore impact zones.

J. **Conditional Uses in Shoreland Areas**. Conditional uses allowable within shoreland areas shall be subject to the review and approval procedures of this Code. The following additional evaluation criteria and conditions apply within shoreland areas:

1. Evaluation Criteria: A thorough evaluation of the water body and the topographic, vegetation, and soil conditions on the site shall be made to ensure the prevention of soil erosion or other possible pollution of public waters, both during and after construction;
2. The visibility of structures and other facilities as viewed from public waters is limited;
3. The types, uses, and numbers of watercraft that the project will generate can be safely accommodated on the site;
4. The impact the proposed use may have on the water quality of the water body is not excessive.

K. **Conditions Attached To Conditional Use Permits**. The City Council, upon consideration of the criteria listed above and the purposes of this Chapter may attach such conditions to the issuance of the conditional use permits as it deems necessary. Such conditions may include, but are not limited to, the following:

1. Increased setbacks from the ordinary high water level;
2. Limitations on the natural vegetation to be removed or the requirement that additional vegetation be planted; and
3. Special provisions for the location, design, and use of structures, watercraft launching and docking areas.

L. **Nonconforming Uses, Lots, and Structures in Shoreland Areas**. All legally established nonconformities as of the date of this Code amendment may continue, but they shall be managed according to applicable State statutes and the City Zoning Code for the subjects of alterations and additions, repair after damage, discontinuance of use and intensification of use. The following standards apply to nonconforming lots and uses in the shoreland management areas:

1. Construction On Nonconforming Lots Of Record. Vacant, undeveloped lots of record in the office of the County Recorder on or before January, 1999 that do not meet the requirements of this Chapter may be allowed as building sites without variances from lot size requirements provided; the use is permitted in the zoning district; all sanitary requirements of the City Code are complied with insofar as practical; and the minimum lot size and length of water frontage shall be not less than seventy percent (70%) of standard lot water frontage requirements; the lot has been in separate ownership from abutting lands since the above referenced date.
2. **Combining of Nonconforming Lots**. If, in a group of two (2) or more contiguous lots under one ownership since January, 1999, any individual lot does not meet the requirements of Subd. 7, the lot shall not be considered as a separate parcel of land for the purposes of development. The lot shall be combined with the one or more contiguous lots so they equal one or more

parcels of land, each meeting the requirements of this Chapter.

3. **Additions/Expansions to Nonconforming Structures**: All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height, and other requirements of this Chapter. Any deviation from these requirements may only be authorized by a variance.

4. **Deck Additions to Nonconforming Structures**. Deck additions may be allowed, without a variance, to a structure which does not meet the required setback from the ordinary high water level, if all of the following criteria and standards are met:

   a. the structure existed prior to January 1999,

   b. a thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure, and

   c. the new deck encroachment toward the ordinary high water level does not exceed fifteen percent (15%) of the existing setback of the structure from the ordinary high water level or does not encroach closer than thirty feet (30'), whichever is more restrictive; and the deck shall be constructed of materials similar to the materials of the principal structure, wood, or earth tone; and the new deck shall not be roofed or screened.

M. **Subdivisions in Shoreland Areas**. Subdivisions in shoreland management areas are subject to the following criteria in addition to the overall subdivision requirements of the City of Long Lake:

1. Land Suitability: Each lot created through subdivision, including planned unit developments authorized by the City of Long Lake shall be suitable in its natural state for the proposed use with minimal alteration as defined by a suitability analysis. Suitability analysis shall consider susceptibility to flooding, existence of wetlands, soil and rock formations with severe limitations for development, severe erosion potential, steep topography, availability of sewer and water, near- shore aquatic conditions unsuitable for water-based recreation, important fish and wildlife habitat, presence of significant historic sites, or any other feature of the natural land likely to be harmful to the health, safety, or welfare of future residents of the proposed subdivision or of the community.

2. **Consistency with Other Controls**: Subdivisions shall conform to all official controls of this community. A subdivision shall not be approved where a later variance from one or more standards in official controls would be needed to use the lots for their intended purpose. Each lot shall meet the minimum lot size and dimensional requirements of Subd. 7.

3. **Information Requirements**: Sufficient information shall be submitted by the applicant for the community to make a determination of land suitability. The information shall include at least the following:

   a. Topographic contours at two foot (2') intervals or less from City public works maps or more accurate sources, showing limiting site

characteristics;

b. The surface water features required in Minnesota Statutes, section 505.02, subdivision 1, to be shown on plats, obtained from United States Geological Survey quadrangle topographic maps or more accurate sources;

c. Adequate soil information to determine suitability for building and public utilities for every lot from the most current existing sources or from field investigations such as soil borings or other methods;

d. Information regarding adequacy of domestic City water supply; extent of anticipated vegetation and topographic alterations; near-shore aquatic conditions, including depths, types of bottom sediments, and aquatic vegetation; and proposed methods for controlling storm water runoff and erosion, both during and after construction activities;

e. Location of 100-year flood plain areas and floodway districts from existing adopted maps or data; and

f. A line or contour representing ordinary high water level, the toe and the top of bluffs, and the minimum building setback distances from the top of the bluff and the lake or stream.

4. Dedications: When an on-site storm water ponding area is required by a project to store surface water runoff, the City may require easements over natural drainage or ponding areas for future maintenance of storm water and significant wetlands.

Subd. 9 Erosion and Sediment Control for Land Disturbance Activities

A. Manner of Work.

All land disturbing or land filling activities or soil storage shall comply with the requirements of Section 19, Subd. 25 of this Ordinance.

1. **General Requirements**. All land disturbing or land filling activities or soil storage shall be undertaken in a manner designed to minimize surface runoff, erosion and sedimentation. Whenever the issuing authority determines that any land disturbing activity on any private property has become a hazard to life and limb, or endangers the property of another, or adversely affects the safety, use, slope, or soil stability of a public way, publicly controlled wetland, or watercourse, then the owner of the property upon which the land disturbing activity is located, or other person or agent in control of said property, upon receipt of notice in writing from the issuing authority, shall within the period specified therein repair or eliminate such conditions.

2. **Erosion control provisions for all permits**. All permits issued by the City of Long Lake involving any excavation, fill or grading, including all building permits shall contain an attached page of special provisions that specifies at a minimum:

   a. That the permittee is responsible for the cleanup and any damages resulting from soil eroded from the building site onto public streets, storm

sewer systems, any adjoining private property, or any public waters, shoreland or wetland;

b. That the permittee shall install and maintain either silt fencing along the lot boundaries where runoff is possible to public streets, storm sewer systems, any adjoining private property, or any public waters, shoreland or wetland; or maintain a temporary mulch on all exposed soil at a rate specified by the City Engineer; and

c. a general diagram of a typical lot development that shows the direction of drainage on the lot, the locations of silt fence, areas that are to receive a temporary mulch, a rock and gravel pad for parking construction vehicles and a schedule for permanent seeding or sodding.

B. **Erosion and sediment control performance standards**. The design, testing, installation, and maintenance of erosion and sediment control operations and facilities shall adhere to the most current requirements of the Minnesota Pollution Control Agency (MPCA) Construction General Permit.

C. **Permit required**. Except as otherwise provided in the Uniform Building Code, as adopted by the City of Long Lake, no person may grade, fill, excavate, store, stockpile or dispose of earth materials or perform any other land disturbing or land filling activity without first obtaining a building permit from the Building Inspector. Annual maintenance permits are available for maintenance projects greater than five hundred (500) square feet. No fill or excavation in a wetland overlay district may occur unless the Minnehaha Creek Watershed District has approved a replacement plan, issued a no-loss determination, or determined that the activity is exempt from the Wetland Conservation Act Rules, Chapter 8420. Questions relating to wetland type, location, area, functions and values must be referred to the technical advisory panel established by Minnesota Statutes Section 103G.2242 as amended.

Subd. 10 Vegetation Removal

A. Except for driveways, sidewalks, patios, areas occupied by structures or areas which have been improved by landscaping, all areas shall be covered by plants or vegetative growth.

B. **Vegetation removal**. Prior to the cutting of oak and elm trees, the City Forester shall be consulted for guidance on timing of cutting and proper disposal to minimize transfer of diseases to healthy trees.

C. **Vegetation Alterations in Shoreland Areas.**

1. **Exemption**: Vegetation alteration necessary for the construction of structures and roads and parking areas regulated by Sections 1016.14 through 1016.16 of this Chapter are exempt from the vegetation alteration standards that follow.

2. **Vegetation Alteration Standards**: Removal or alteration of vegetation is allowed subject to the following standards:

   a. Intensive vegetation clearing within the shore and bluff impact zones and

on steep slopes is not allowed. Intensive vegetation clearing outside of the impact zones is allowable as a conditional use if an erosion control and sedimentation plan is developed and approved by the City Engineer Hennepin County Soil and Water Conservation District.

b. In shore and bluff impact zones and on steep slopes, limited clearing of trees and shrubs and cutting, pruning, and trimming of trees may be allowed to provide a view to the water from the principal dwelling site and to accommodate the placement of lawns and new vegetation, stairways and landings, picnic areas, access paths, beach and watercraft access areas, and permitted water-oriented accessory structures or facilities, provided that the screening of structures, vehicles, or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced; and

c. The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.

Subd. 11 Post-Construction Stormwater Management

A. Statutory Authority and Purpose.

The Post-Construction Stormwater Management performance standards are authorized under Minnesota Statutes enacted in 2009, Chapter 115 Water Pollution Control Act, 115.03 Powers and Duties.

B. Applicability

All stormwater management and erosion and sediment control activities shall comply with all applicable requirements of Category I and II below.

1. **Category I:**

    a. Land disturbing activities on sites that are one acre or greater in size.

2. **Category II:**

    a. **Single Family Homes** – construction or reconstruction;

    b. **New Development** *less than one acre* in size; or that

    c. **Redevelopment** of a site that is *less than one acre* in size.

C. Stormwater Volume Reduction Performance Goals

Any applicant for a permit resulting in site disturbance as described in Subd. 11.B, above, must meet the following stormwater performance goals:

1. Category I:

a. The applicant must provide a detailed plan for and/or narrative describing how the applicant meets the requirements of the Minnehaha Creek Watershed District. In the case of provisions in this ordinance and requirements of watershed district that overlap or conflict, the strictest provisions shall apply to the activities.

2. **Category II**:

a. The applicant must provide a detailed plan and/or narrative describing the Best Management Practices that will be incorporated in the development to reduce runoff volume and improve water quality.

D. Flexible Treatment Options for Sites with Restrictions

Applicant shall fully attempt to comply with the appropriate performance goals described above and as per defined in the Minnehaha Creek Watershed District. Options considered and presented shall examine the merits of relocating project elements to address, varying soil conditions and other constraints across the site. If full compliance is not possible due to any of the factors listed below, the applicant must document the reason. If site constraints or restrictions limit the full treatment goal, the following flexible treatment options shall be used:

Volume reduction techniques considered shall include infiltration, reuse & rainwater harvesting, and canopy interception & evapotranspiration and/or additional techniques included in the MIDS calculator and the Minnesota Stormwater Manual.

Higher priority shall be given to BMPs that include volume reduction. Secondary preference is to employ filtration techniques, followed by rate control BMPs.

Factors to be considered for each alternative will include:

a. Karst geology
b. Shallow bedrock
c. High groundwater
d. Hotspots or contaminated soils
e. Drinking Water Source Management Areas or within 200 feet of drinking water well
f. Zoning, setbacks or other land use requirements
g. Excessive cost
h. Poor soils (infiltration rates that are too low or too high, problematic urban soils)

E. Stormwater Runoff Water Quantity Standards

1. For all development sites (new development, redevelopment and linear development) the site design shall provide on-site treatment during construction and post-construction to ensure no increase in offsite peak

discharge for the 2-year, 24-hour storm event, the 10-year, 24-hour storm event, and the 100-year, 24-hour storm event.

F. Design Standards and Resources

1. All volume control practices and site design specifications shall conform to the current version of the Minnesota Stormwater Manual.

2. All erosion and sediment control requirements shall conform to the current requirements of the NPDES/SDS Construction Stormwater permit.

3. Wherever possible, new development projects shall be designed using the Better Site Design Techniques of the current version of the Minnesota Stormwater Manual.

G. Review Process

The City of Long Lake shall review applications with the assistance of a qualified water quality professional to ensure conformance with the provisions of this ordinance.

H. Operations, Inspection, and Maintenance

1. **Applicant's Responsibility**: The applicant is responsible for operation, inspections, and maintenance during and after construction for all privately owned practices on the site. Operation, inspection, and maintenance shall conform to the Minnesota Stormwater Manual and as per maintenance agreements established with the City of Long Lake and the Minnehaha Creek Watershed District.

2. **Community Inspections**: The City of Long Lake reserves the right to conduct inspections on a regular basis to ensure that both stormwater and erosion and sediment control measures are properly installed and maintained prior to and during construction, and at the completion of the project.

3. **Right-of-Entry**: The issuance of a permit under the ordinance should constitute a right-of-entry for the City of Long Lake or its assigns to enter the construction site during active construction and when construction is complete.

Appendix C - Agreements

COOPERATIVE AGREEMENT AND GRANT OF EASEMENT BETWEEN CITY OF LONG LAKE AND MINNEHAHA CREEK WATERSHED DISTRICT FOR THE LONG LAKE WASTEWATER TREATMENT POND RESTORATION PROJECT

The parties to this agreement are the City of Long Lake (City), a Minnesota statutory city and body corporate and politic, and the Minnehaha Creek Watershed District (MCWD), a watershed district created pursuant to Minnesota Statutes chapters 103B and 103D.

Purpose

The purpose of this agreement is to facilitate the MCWD's construction of the Long Lake Wastewater Treatment Pond Restoration Project, which will consist of pond sediment removal, reestablishment of mixed-type wetlands and meandering of Long Lake Creek through the former wastewater treatment pond to improve habitat and recreational opportunities, as well as the quality of water flowing to Tanager Lake.

Recitals

WHEREAS the City owns in fee simple two parcels of certain real property identified by Hennepin County property identification numbers 3511823330035 and 3511823330036, consisting of 9.17 and 1.69 acres of land, respectively, located in the City of Long Lake, Minnesota, and legally described as STONERIDGE COLONY, OUTLOT A SUBJECT TO HIGHWAY and STONERIDGE COLONY, OUTLOT B EXCEPT PARCEL 287A AS SHOWN ON MN DOT R/W PLAT NO 27-172 (together, the Property).

WHEREAS the MCWD has adopted a watershed management plan in accordance with Minnesota Statutes section 103B.231, and the plan includes wetland and stream restoration along Long Lake Creek among its capital improvement projects.

WHEREAS a feasibility study, assessing options for the rehabilitation of the former Long Lake wastewater treatment pond on the Property, has been prepared for the MCWD with the City's concurrence, and in August 2013 the MCWD Board of Managers reviewed the study and directed staff to pursue cleanup and restoration of the pond, including re-creation of mixed-type wetlands and establishment of a connection to Long Lake Creek (the Pond Project).

WHEREAS following a duly noticed public hearing on October 10, 2013, the MCWD Board of Managers directed staff to develop cooperative agreements for the Pond Project with the Metropolitan Council, which formerly operated the Long Lake Wastewater Treatment Plant that released effluent onto the Property, and the City.

WHEREAS the Metropolitan Council has committed to contributing funding for the Pond Project.

WHEREAS the Long Lake City Council unanimously approved a resolution supporting the implementation of the Pond Project on October 15, 2013.

WHEREAS City and MCWD acknowledge that MCWD's ability to achieve the Pond Project objectives depends on the parties' continued cooperation and partnership.

NOW, THEREFORE, IT IS AGREED by and between City and MCWD that they enter into this cooperative agreement to document their understanding as to the scope of the Pond Project, affirm their commitments to contribute to the Pond Project, grant and assign the property rights necessary, establish procedures for performing these tasks and fulfilling responsibilities, and facilitate communication and cooperation to ensure successful completion of the Pond Project.

THEREFORE, the parties agree to the following, intending to be legally bound:

AGREEMENT

1. City's Rights and Commitments, and Grant of Easement for Access, Construction and Maintenance

A. City has the right to review the 90 percent-complete plans and specifications for the Pond Project, provided in accordance with paragraph 2A of this agreement and, within 30 days of receipt of the plans and specifications from MCWD, provide comments.

B. Within 30 days of the complete execution of this agreement, City will execute a document conveying access, construction and maintenance easements to MCWD conforming in all materials respects to the document attached hereto and incorporated herein as Exhibit A (the Easement). MCWD may have specific performance of City's obligation to convey the Easement.

C. MCWD's construction of and establishment of restored wetlands for the Pond Project will entail removal of pond sediment and underlying liner, realignment and stabilization of the bed and banks of Long Lake Creek; restoration of mixed-type wetland conditions; vegetation management; and other hydrologic and ecosystem improvements. Construction and establishment of wetlands will require reasonable access to the Property across other land of the City adjacent thereto. Such access routes will be designated by the City as needed within a reasonable time following receipt of a written request from the MCWD, its contractor, agents or assigns for such temporary access rights. After completion of construction and establishment of restored wetlands, maintenance of the Pond Project will entail vegetative maintenance in accordance with specifications and a schedule to be developed by MCWD, but that at a minimum comports with the Easement.

D. City, as owner of the Property, will cooperate with MCWD's and its contractor's efforts to obtain permits and approvals needed for the Pond Project and will serve as applicant or co-applicant for permits and approvals, including but not limited to approvals from the Minnesota Pollution Control Agency for cleanup and management of sediment and the pond liner on the Property. City does not hereby assume the cost of any such approvals. City, in its regulatory capacity, will facilitate the proper and efficient processing of any permits and approvals needed for the Pond Project.

E. After completion of construction of and establishment of wetlands for the Pond Project, City will retain ownership of the improved Property and the Pond Project, and City and MCWD will mutually determine and allocate responsibility for post-establishment maintenance of the Pond Project.

2. MCWD'S RIGHTS AND COMMITMENTS

A. MCWD, at its sole expense, may contract with a consulting engineer to prepare and certify final plans and specifications and prepare an engineer's cost estimate for the Pond Project. MCWD will submit the 90 percent-complete plans and specifications to City for review in accordance with paragraph 1A of this agreement. MCWD will ensure that plans and specifications and the Pond Project, when constructed, are compatible with the Easement and this agreement.

B. As between the parties, MCWD will obtain all necessary permits, licenses and approvals, and will ensure that the Pond Project is completed in accordance with applicable law and regulatory standards and criteria.

C. To implement the Pond Project, MCWD will:

i. Record, at its expense, the executed Easement in Hennepin County.

ii. Contract with a consulting engineer for the preparation of construction documents and a wetland establishment plan for the Pond Project and will contract, in accordance with applicable law, for the construction of the Pond Project.

iii. Require that the contractor for the Pond Project name City as an additional insured for general liability and provide a certificate showing same prior to construction.

iv. Procure and manage construction of the Pond Project. MCWD may adjust the plans and specifications for the Pond Project during construction, as long as the revised plans do not require MCWD to exceed the scope of the rights granted under this agreement and the Easement.

v. Notify the City on completion of construction of the Pond Project and will restore all access routes to a safe and functional condition.

vi. Regularly inform the City of progress toward the establishment of restored wetlands for the Pond Project, and will certify establishment of wetlands to the City and, at the City's request, on the City's behalf.

D. Until completion of construction, if MCWD, in its judgment, should decide that the Pond Project is infeasible, MCWD, at its option, may declare the agreement rescinded and annulled. If MCWD so declares, all obligations herein, performed or not, will be voided, except as provided in paragraph 5 herein. MCWD will return the Property materially to its existing condition or to a condition agreed on by City and MCWD, and liability for such further stabilization or remediation as may be required by a governmental entity will be the

responsibility of City.

E. Notwithstanding any other provision of this agreement, in its discretion MCWD may choose to not to construct the Pond Project or one or more component of the Pond Project and may choose to reduce the extent to which wetlands are restored as part of the Pond Project.

3. **COSTS.** MCWD will be responsible for all costs of design and construction of the Pond Project and the costs of the production of publicity, education and outreach materials related to the Pond Project. MCWD will be responsible for the costs and fees associated with complying with regulatory requirements applicable to the Pond Project, except that City will assess no fee to MCWD for City permits required for the Pond Project, if any. MCWD will be responsible for the costs of establishing wetlands for the Pond Project. Responsibility for post-establishment maintenance of wetlands in the Pond Project will be allocated between the parties, but in the absence of agreement on responsibility, MCWD will be responsible for maintenance of the Property after establishment of wetlands in accordance with the Easement. Each of the parties will bear its own administrative costs, as well as the costs of fulfilling its responsibilities and obligations under this agreement, unless specifically assigned otherwise herein.

4. **PUBLICITY AND ENDORSEMENT.** MCWD and City will collaborate on the development of educational and informational signage pertinent to the Pond Project, and MCWD, at its cost, may develop, produce and distribute educational, outreach and publicity materials related to the Pond Project, and may install, maintain, replace or remove signage on the Property related to the Pond Project. For purposes of this paragraph, "publicity" includes notices, informational printed materials, press releases, research reports, signs and other public notices prepared by or on behalf of MCWD.

5. **INDEPENDENT RELATIONSHIP; LIABILITY.** This agreement does not create a joint powers board or organization within the meaning of Minnesota Statutes section 471.59. Each party agrees that it will be responsible only for its own acts and the results thereof to the extent authorized by the law and will not be responsible for the acts or omissions of the other party and the results thereof, except as otherwise provided herein. This agreement creates no right in and waives no immunity, defense or liability limitation with respect to any third party. As between the parties, only contract remedies are available for a breach of this agreement.

City and MCWD enter this agreement solely for the purposes of the Pond Project described and defined herein. The Property is the location of a former wastewater treatment pond operated alternately by City and the Metropolitan Council. MCWD does not have, has not had, and will not be deemed to have acquired by entry into or performance under this agreement, any form of interest or ownership in or to any portion of the Property that could render MCWD a potentially responsible party for any contamination under state or federal law. MCWD does not exercise, has not exercised, and will not by entry into or performance under this agreement be deemed to have exercised, any form of control over the use, operation or management of any portion of the Property prior to the commencement of construction of the Pond Project such as may render MCWD a potentially responsible party for any contamination under state or federal law. Notwithstanding and as provided elsewhere herein, MCWD and City will conduct the necessary due diligence and pursue regulatory approvals and state liability-assurance letters as mutually agreed upon to secure the interests of the parties in avoiding liability.

City will hold harmless, defend and indemnify MCWD, its officials and employees for any and all claims, damages, liabilities, costs, losses, fines, enforcement actions, penalties, remediation or cleanup costs, actions required or ordered to be taken, and/or expenses brought or asserted by any third party, including without limitation, any governmental entity, relating to or arising out of any actual, alleged or suspected environmental conditions or the presence of any substances, whether hazardous, infectious, radioactive, toxic, controlled or otherwise, at, on, under, adjacent to, or near the real property that is part of the Project, or resulting from the Project (the Indemnified Liabilities). Notwithstanding the forgoing, City will not be obligated to defend, indemnify and hold harmless any contractor to the extent that the contractor has agreed to hold harmless, defend and indemnify MCWD and City, except that the contractor will not be liable for conduct of the Pond Project in accordance with the approved plans and specifications. Further, City will not be obligated to defend, indemnify or hold MCWD harmless from any Indemnified Liabilities to the extent of the negligence or intentional wrongful act of MCWD, its officials, employees or agents. City's obligations under this section will survive any termination of the agreement.

6. **TERM AND TERMINATION.** This agreement becomes effective when fully executed and will remain in force for five years from the date of complete execution unless terminated by mutual agreement of the parties or otherwise in accordance with the terms of this agreement. Any responsibility or obligation that has come into being before expiration, specifically including obligations under sections 3 and 5 above, will survive expiration.

7. **COMPLETE AGREEMENT.** This agreement, as it may be amended in writing, constitutes the entire agreement between the parties. Any amendment to this agreement must be in writing and will not be effective until it has been executed and approved by the same individuals who executed and approved the original agreement or their successors in office.

8. **WAIVERS.** The waiver by City or MCWD of any breach or failure to comply with any provision of this agreement by the other party will not be construed as nor will it constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this agreement.

9. **ASSIGNMENT.** Neither party to this agreement may assign or transfer any rights or obligations under this agreement without the prior consent of the other party and a fully executed assignment, executed and approved by the same parties who executed and approved this agreement or their successors in office.

10. **NOTICE; COORDINATION.** The parties designate the following authorized representatives, each to serve as the liaison to the other party for purposes of coordinating inspection, construction oversight and maintenance of the Pond Project as provided in this agreement. Any written communication required under this agreement will be addressed to the other party as follows, except that either party may change its address for notice by so notifying the other party in writing:

To City: City Manager
City of Long Lake
450 Virginia Ave
PO Box 606
Long Lake MN 55356

To MCWD: Administrator
Minnehaha Creek Watershed District
15320 Minnetonka Blvd
Minnetonka, MN 55345

11. **RECITALS INCORPORATED.** The recitals above are incorporated as binding terms of this agreement.

12. **TIME OF THE ESSENCE.** Time is of the essence in the fulfillment of the terms of this agreement.

(Signature page follows.)

IN WITNESS WHEREOF, the parties have executed this agreement, intending to be legally bound.

CITY OF LONG LAKE

By: Tim Hultmann, its mayor

Date: 12/5/2013

By: Jeanette Moeller, its city clerk

Date: 12/5/2013

Approved as to form & execution:

City attorney

MINNEHAHA CREEK WATERSHED DISTRICT

Sherry Davis White
Sherry White

By: ~~James Calkins~~, its president

Date: January 29, 2014

Approved as to form & execution:

District counsel

EXHIBIT A
EASEMENT

EASEMENT

On the Property of City of Long Lake
Hennepin County, Minnesota

Legal description of Burdened Property:

STONERIDGE COLONY, OUTLOT A SUBJECT TO HIGHWAY

STONERIDGE COLONY, OUTLOT B EXCEPT PARCEL 287A AS SHOWN ON MN DOT R/W PLAT NO 27-172

THIS EASEMENT is established by City of Long Lake, a statutory city and political subdivision of the State of Minnesota (City), and conveyed to the Minnehaha Creek Watershed District (MCWD), a special-purpose governmental body established under and with authorities specified at Minnesota Statutes chapters 103B and 103D (MCWD).

Recitals

A. City owns in fee simple certain real property within City boundaries in Hennepin County, Minnesota, legally described above (the Burdened Property).

B. In consideration of the payment of one dollar and other good and valuable consideration, and the mutual covenants and conditions set forth herein, the receipt and sufficiency of which hereby are acknowledged, City conveys to MCWD and MCWD accepts a temporary construction easement and a permanent maintenance easement on the Burdened Property as specified herein.

C. City represents that there are no unrecorded or unregistered constraints on City's legal capacity to convey this easement and each right conveyed to MCWD herein.

Easement

1. The easements here conveyed include: (a) A temporary access and construction easement to remove sediment and underlying pond liner, realign and stabilize the bed and banks of Long

Lake Creek; restore mixed-type wetland conditions; perform other hydrologic and ecosystem improvements including vegetation management; and install educational and informational signage (together, the Project) (the Construction Easement); and (b) a perpetual easement to inspect, maintain, repair, reconstruct and remove the Project or parts thereof (Maintenance Easement).

2. Easement Description. The Construction Easement and Maintenance Easement are coincident with each other and the boundaries of these easements are coincident with the boundary of the Burdened Property (Easement Area).

3. Construction Easement. The Construction Easement is a temporary easement on the Burdened Property to allow for Project construction and wetland restoration activity for the Project. City conveys to MCWD, until construction, demobilization and site stabilization are complete, an easement over the Easement Area for all purposes necessary or convenient for the construction and wetland restoration for the Project, including but not limited to movement, operation and staging of equipment; materials stockpiling; placement and maintenance of erosion control and similar construction-phase site measures; and ingress and egress to and from the Easement Area as well as areas within the construction limits on adjacent land. At the close of active work, MCWD will stabilize exposed soils and ensure all trash, debris and excess materials are removed. City's authorization hereunder is nonexclusive, except that MCWD, on reasonable notice to City, may temporarily restrict or preclude public access to the Property to ensure safety while construction or maintenance activities are under way.

4. Maintenance Easement. City conveys to MCWD an easement in perpetuity to use, inspect, maintain, repair, replace, reconstruct and remove Project elements and undertake and maintain associated hydrologic, vegetative, and structural modifications to maintain and enhance the Project. This easement includes rights to ingress and egress over and across the trails; equipment staging and use; material stockpiling; maintenance and reestablishment of vegetation; and other rights as reasonably necessary or convenient for the work described.

5. City's Limitations Within Easement Area. City will not perform or knowingly allow others to perform acts within the Easement Area in violation of the specific terms of this easement or that would physically disturb the Project, impair its function, or interfere with MCWD's exercise of its rights under this easement.

a. Structures and Disturbances. City will not construct any structures or surfaces on the Easement Area. Underground facilities may be installed below the surface with written MCWD concurrence, not to be unreasonably withheld.

b. Surface Alteration. Except pursuant to activity under paragraph 5.a, City will not alter the surface of the Easement Area, including without limitation filling, excavating or removing soil, sand, gravel, rocks or other material; and will not dump, dispose or otherwise place refuse, waste vegetation or other waste material within the Easement Area.

c. Trees, Shrubs and Other Vegetation. City will not remove, destroy, cut, mow or otherwise alter vegetation within the Easement Area, or apply fertilizers, herbicides or pesticides on or to the Easement Area, except with written MCWD concurrence, not to be unreasonably withheld, and (i) as reasonably required to prevent or control infestations, noxious weeds, disease, fire, personal injury or property damage; (ii) to improve the hydrologic or ecologic function and value of the water and riparian resources within or associated with the Easement Area; or (iii) to maintain safe conditions for public use of trail facilities within the Easement Area.

6. Public Ownership Rights, Regulatory Authorities. The parties recognize that the rights in this easement may be subject to ownership, easement or servitude interests of the State of Minnesota in the bed or banks of Long Lake Creek or adjacent lands. This easement does not replace or diminish the regulatory authority of any public body, including the Minnesota Department of Natural Resources, MCWD and City, as it may apply to the Burdened Property or any activity on it.

7. Reserved Rights. Subject to restrictions of record, City reserves all rights accruing from the ownership of the Burdened Property not otherwise restricted or conveyed to MCWD herein, including without limitation the right to engage in or allow others to engage in all activities or uses of the Burdened Property that are not prohibited or limited by this easement, and the right to sell or transfer all or part of the Burdened Property, subject to this easement. Nothing in this easement creates any right in third parties or affects any immunity, defense or liability limit of a party with respect to a third party. As between the parties, only contract remedies are available for a breach of this easement.

8. Property Transfer. City will inform any party or parties to whom it intends to transfer an interest in the Burdened Property of the existence of this easement. City will notify MCWD within fifteen (15) days of a transfer of all or any part of a property interest in the Burdened Property.

9. Insurance. Each of the parties remains solely responsible to maintain liability and other insurance for its own use of and authority over the Burdened Property.

10. Waiver. A decision by a party not to exercise its rights of enforcement in the event of a breach of a term of this easement is not a waiver of such term, any subsequent breach of the same or any other term, or any of the party's rights under this easement. The delay or failure to discover a breach or to exercise a right of enforcement as to such breach does not impair or waive a party's rights of enforcement, all of which shall be cumulative and not exclusive.

11. Acts Beyond Party's Control. Except as provided in paragraph 6 of this easement, neither party will exercise its right of enforcement against the other for injury or alteration to the Burdened Property resulting from: (a) a cause beyond the reasonable control of that party, including without limitation fire, flood, a precipitation event with a statistical recurrence interval of 100 years or more, storm, and earth movement resulting from natural forces or the act of a third party; or (b) any prudent action taken by the party under emergency conditions to prevent, abate or mitigate significant injury or alteration resulting from such a cause.

12. Use and Assignment. The rights conveyed to MCWD under this easement are extended and limited to authorized MCWD representatives, agents, contractors and subcontractors.

13. Notices. Any notice or other communication that a party must give to another will be in writing and delivered to the following address, or other address as the party designates by written notice to the others:

To MCWD:

Administrator
Minnehaha Creek Watershed District
15320 Minnetonka Boulevard
Minnetonka MN 55345

To City:

City Manager
City of Long Lake
450 Virginia Ave
PO Box 606
Long Lake MN 55356

14. Miscellaneous. The parties may amend this easement only by a duly executed writing. The terms of this easement shall bind and benefit the parties and their respective personal representatives, heirs, successors, assigns and all others who exercise any right by or through them and the Maintenance Easement will run in perpetuity with the Burdened Property.

15. Recitals Incorporated. All recitals herein are a part of this agreement.

IN WITNESS WHEREOF, intending to be legally bound, the parties hereto execute and deliver this easement.

Minnehaha Creek Watershed District

_____ Date: _____
By: Its president

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

The foregoing instrument was acknowledged before me this _____ day of _____, 2014, by _____ as president of the Minnehaha Creek Watershed District.

_____
Notary Public

Approved as to form and execution:

By: _____
MCWD Attorney

City of Long Lake

_____ Date: _____
By: Its mayor

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

The foregoing instrument was acknowledged before me this _____ day of _____, 2013, by _____ as the mayor of City of Long Lake, Minnesota.

_____
Notary Public

_____
By: Its city clerk

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

The foregoing instrument was acknowledged before me this _____ day of _____, 2013, by _____ as city clerk of City of Long Lake, Minnesota.

_____
Notary Public

Prepared by Smith Partners PLLP
400 Second Avenue South, Suite 1200
Minneapolis, MN 55401
612-344-1400

COOPERATIVE AGREEMENT

For Vegetation Maintenance at Nelson Lakeside Park Ponds and Shoreline
City of Long Lake

The parties to this Cooperative Agreement are the Minnehaha Creek Watershed District ("District"), a watershed district created pursuant to Minnesota Statutes Chapter 103D; and the City of Long Lake ("the City"), a municipal corporation of the State of Minnesota.

Recitals and Statement of Purpose

WHEREAS on August 23, 1995, the District and the City entered into a "Cooperative Agreement for the Long Lake Improvement Project ("LLIP ") to improve water quality in Long Lake; and

WHEREAS pursuant to the LLIP Agreement, the parties have constructed water quality/wetland basins adjacent to Long Lake and taken other actions to improve the water quality in that lake and provide other water resource benefits; and

WHEREAS under the LLIP Agreement, the District assumed the responsibility to prepare a plan for maintenance of the improvements and the City assumed responsibilities for implementing the plan; and

WHEREAS the project provided for the planting and maintenance of native buffer vegetation, which vegetation is in need of present and ongoing maintenance; and

WHEREAS the District finds that the improvements, including the native buffer vegetation, provide regional water resource benefits and is willing to maintain that vegetation, and the City concurs in the District's proposal to do so;

NOW THEREFORE the City and the District enter into this Agreement to document the responsibilities to be assumed by each party; establish procedures to carry out these responsibilities; and facilitate communication and cooperation between the parties to ensure that native buffer vegetation associated with the Long Lake clean water project is properly maintained to achieve the water resource goals of those projects.

AGREEMENT

1. This Agreement concerns the areas in Nelson Lakeside Park adjacent to Long Lake as delineated on Exhibit A, attached hereto and incorporated herein.

2. The District, at its cost, will prepare a vegetation management plan for the subject areas. The District and the City will cooperate in the District's preparation of the plan.

3. On City approval of the plan, the District, at its cost, will assume responsibility for vegetation management in the subject areas in accordance with the plan. In its discretion, the District may enter into contracts and make other arrangements within its authority to carry out its responsibilities.

4. The District will obtain permits and approvals from the City as necessary to implement the vegetation management plan, but will not be subject to permit fees. The City will cooperate in processing needed permits and approvals. The City, as landowner, will cooperate as necessary in the District's obtaining of other permits and approvals as may be required to implement the plan.

5. The City will provide access and staging areas that are needed and reasonably convenient for any District management activity relating to the vegetation management plan. Before performing any activity that may disrupt traffic or disturb adjacent lands or public use, the District will coordinate with the City to minimize these disruptions and disturbances in a way that does not substantially increase the cost of the work. The City will require grounds protection from heavy vehicles.

6. The City will be responsible, at its cost, to notify the public of management activity to the extent the City agrees it is useful and appropriate to do so. The MCWD will provide at least two weeks notice to the City prior to the commencement of any scheduled maintenance.

7. The District's responsibilities under this Agreement extend only to the vegetation within the subject areas. The District is not responsible for management of vegetation or landscaping outside of these areas and is not responsible for the maintenance of any structures or trails. The City retains all responsibilities associated with its role as landowner and land manager, including minor pond maintenance. In accordance with the original LLIP Agreement, the District remains responsible for major pond maintenance. The City will avoid any activity in the subject areas inconsistent with the vegetation management plan, and will take appropriate steps to prevent its personnel and contractors from engaging in any such activity.

8. The City agrees to be responsible for any necessary cleaning associated with the structural fish barrier installed as part of the wet detention pond in Nelson Lakeside Park.

9. The City and the District will meet at least annually to review activity under this Agreement. The District annually will provide an activity report to the City describing the work it has performed under the Agreement.

10. Each party acts under this Agreement pursuant to its own authority, and neither party acts as the agent or representative of the other. Each party shall indemnify, defend and hold harmless the other party, its officers, employees, agents and representatives from any and all actions, costs, damages and liabilities of any nature to the degree they are the result of any action or inaction that is the basis for the first party's liability in law or equity. Nothing in this Agreement creates any rights in any third party; waives any defense, immunity or liability limit either party may have with respect to third parties; or otherwise waives any provision of Minnesota Statutes chapter 466, as it may be amended or recodified, or other applicable law.

11. This Agreement is effective when it has been fully executed by both parties. The Agreement may be terminated by agreement of the parties or unilaterally by either party on 90 days' written notice. The Agreement may be amended only by a written document executed by both parties.

12. The failure of either party to insist on the strict performance by the other party of any obligation or to exert a right under this Agreement does not waive the party's right in the future to do so. A waiver on one or more occasion of any obligation or right under the Agreement will not be construed to waive any subsequent obligation or right.

13. All communications under this Agreement shall be directed to the District Administrator on behalf of the District, and the Director of Public Works on behalf of the City, except as either otherwise may provide in writing.

IN WITNESS WHEREOF, the parties hereto have executed this Cooperative Agreement.

MINNEHAHA CREEK WATERSHED DISTRICT,
a political subdivision of the State of Minnesota,

James B. Calkins
President

7-25-13
Date

APPROVED AS TO FORM AND EXECUTION

Attorney

CITY OF LONG LAKE,
a municipal corporation of the State of Minnesota,

Mayor

6/4/13
Date

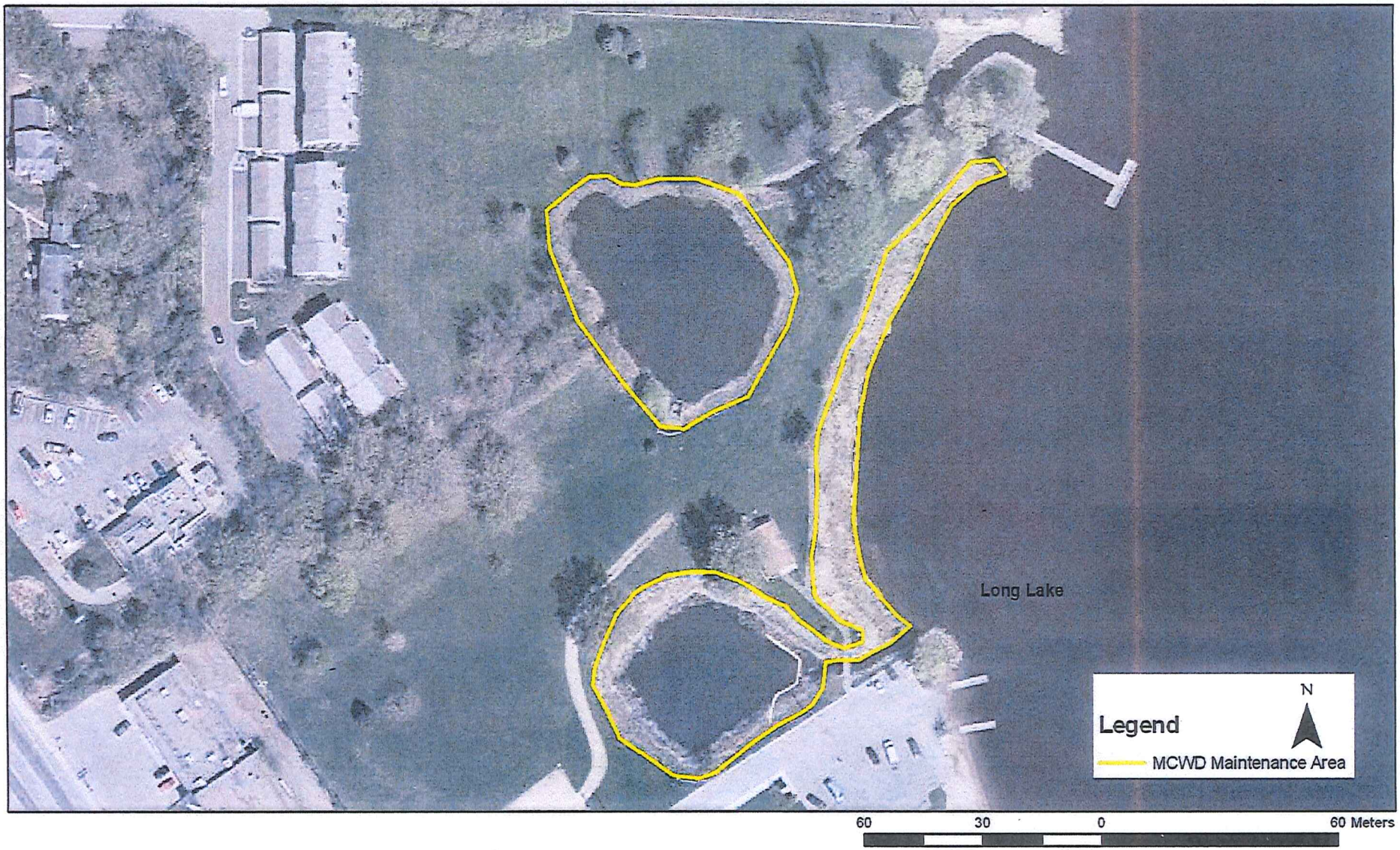
City Administrator

6/6/13
Date

APPROVED AS TO FORM AND EXECUTION

Attorney

Exhibit A: Minnehaha Creek Watershed District Maintenance Areas



City of Long Lake
Making life better. Together.

COPY

City Council
Resolution No. 2013-21

A RESOLUTION AUTHORIZING EXECUTION OF A COOPERATIVE AGREEMENT WITH THE MINNEHAHA CREEK WATERSHED DISTRICT (MCWD) FOR VEGETATION MAINTENANCE AT NELSON LAKESIDE PARK PONDS AND SHORELINE

WHEREAS, the MCWD has authorized construction of improvements at Nelson Lakeside Park in Long lake; and

WHEREAS, the parties have reviewed the Cooperative Agreement document and agree to its fundamental tenets; and

WHEREAS, the Cooperative Agreement establishes role, responsibilities, and cooperative relationships for maintenance of improvements at the site.

NOW THEREFORE BE IT RESOLVED by the City Council of the City of Long Lake, Hennepin County, Minnesota authorizes the Mayor and City Administrator to execute the Cooperative Agreement between the City of Long Lake and MCWD with any minor, non-substantive revisions.

Adopted by the City Council of the City of Long Lake this 4th Day of June, 2013.

BY:

Tim M. Hultmann, Mayor

ATTEST:

Jeanette Moeller, City Clerk

SEH

LAKESIDE PARK SYSTEM AGREEMENT - TO BE UPDATED IN 2011 TO REFLECT CHANGES IN USE OF CREDITS (7 PAGES).

June 2, 2008

RE: Long Lake, Minnesota
Downtown Surface Water Improvements-
Cooperative Agreement with MCWD
SEH No. ALONGL040103

Mr. Steven Stahmer
City Administrator
City of Long Lake
450 Virginia Avenue
Long Lake, MN 55356

Dear Steve:

This letter provides a brief summary of the final draft of the Cooperative Agreement between the Minnehaha Creek Watershed District (MCWD) and the City of Long Lake and its impact on the City and properties within the downtown redevelopment area. A copy of the final draft document is attached to this letter.

Background

The MCWD has existing stormwater management rules (Rule N) regarding water quality treatment requirements for redevelopment according to the amount of additional impervious surface added by the proposed project. MCWD also has language within their current rules allowing for exceptions to the water quality treatment requirements when downstream (or regional) treatment facilities are in place. This exception is listed in paragraph 7(c) of Rule N, which is paraphrased on page 1 of the Cooperative Agreement. The main motive for the Cooperative Agreement between the City and the MCWD is to provide the city with advance confirmation that the proposed stormwater improvement project once complete will qualify for the regulatory treatment set forth in paragraph 7(c) of District Rule N.

Per the current MCWD rules, commercial and industrial redevelopment sites for sites of 8 acres or more must meet water quantity and water quality requirements and the requirements must be met on smaller sites when the impervious area of the site is increased by 50 percent or more or according to the amount of additional impervious surface or site alteration proposed when the site adds less than 50 percent new impervious surface.

What the Cooperative Agreement Does.

1. Because the prior agreements between the City and MCWD will be superseded and no longer in effect, per the draft Cooperative Agreement, the city will assume responsibility for maintenance of all of the stormwater facilities within the park which includes the existing wet detention basins and related facilities, along with the maintenance of the native vegetation planted by the MCWD.

2. A permit applicant within the delineated downtown redevelopment area will not have to provide on-site water quality treatment and may use the Water Quality Compliance Credit towards meeting their water quality treatment requirements. The City is solely responsible for allocating the credits among the properties within the delineated area.

What the Cooperative Agreement Does Not Provide.
Under this agreement, water quality compliance is the only rule satisfied by implementation of the proposed stormwater treatment system and this Cooperative Agreement. Other MCWD requirements including stormwater peak discharge rate control, Best Management Practices (BMPs), and any future volume control requirements will still be required to be met by the individual permit applicants.

Process for Utilizing Cooperative Agreement.
The total water quality treatment capacity credit available per the Cooperative Agreement is the difference in capacity between the existing facilities in the park and the benefits realized with the proposed improvement project. This total credit will be determined on receipt of certified as-builts and other documentation as the MCWD finds necessary.

To utilize the available water quality credit provided by the project, a permit applicant will be responsible for submitting to the MCWD a statement from the City Administrator confirming the amount of water quality credit that the applicant is authorized to use.

Notable Item in Cooperative Agreement.
The City's local water management plan prepared pursuant to Minnesota Statutes must be modified to incorporate the proposed improvements and reference this Cooperative Agreement. Capacity created by the improvements and used for compliance can not also be used by the City to meet its phosphorus load reduction allocation under the MCWD watershed management plan. Per the Agreement, any unused credit will be available for the City to use to meet its phosphorus load reduction requirement. With this item in the Cooperative Agreement, even if the redevelopment lags or does not realize the water quality benefits of the improvements, the City can benefit by utilizing the project towards meeting its phosphorus reduction goals.

If you have any questions or would like to discuss further please feel free to contact me at 651.490.2125.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

Brad Woznak
Project Manager

btw

c: Jay Murzyn – SEH
Dan Boxrud - SEH
s:\ko\l\longl\040103\5-dsgn\53-design info\seh mcwd coop agreement letter060208.doc

COOPERATIVE AGREEMENT
LONG LAKE PARK PONDS

Minnehaha Creek Watershed District and City of Long Lake

This Agreement is entered into by and between the Minnehaha Creek Watershed District, a political subdivision of the State of Minnesota with powers set forth at Minnesota Statutes Chapters 103B and 103D ("District"), and the City of Long Lake, a body corporate and politic and a statutory city in the State of Minnesota ("City") (together, the "parties").

On August 23, 1995, and on December 9, 2004, the District and the City entered into agreements for construction and maintenance of sedimentation basins, wet detention basins and related facilities in Long Lake Park, including the planting and maintenance of native vegetation, to retain and treat stormwater runoff before its discharge into Long Lake (the "Facilities").

To support its economic development plans, the City intends to improve the water quality treatment capacity of the Facilities. Paragraph 7(c) of the District stormwater management rule (Rule N) states:

> The water quality requirement of this rule will be waived on a determination by the [District] Board of Managers that a downstream facility(ies) is in place or has been ordered and the facility(ies) is designed to remove at least 50 percent of the total phosphorus from runoff entering the facility from the [contributing] subwatershed under fully developed conditions.

The City wishes to establish at this time that the improvements, once constructed, will qualify for this exception for development activity in the part of the City described in this Agreement.

1. Stormwater Facility Improvements

The City, at its cost, will improve the Facilities in accordance with the design plans prepared and certified on the City's behalf and incorporated as Exhibit A hereto (the "Improvements"). The City will give the District reasonable notice of pre-construction and construction meetings. The District and its authorized

representatives may attend these meetings, inspect the Facilities at all reasonable times, and review related documentation. The City will notify the District in writing when the Improvements are certified as substantially complete and will provide a copy of certified as-builts to the District sufficient to document the design capacity of the Improvements. The District may accept Improvements that deviate from Exhibit A, however the City recognizes that the compliance benefits under paragraph 3, below, may be reduced accordingly.

2. Maintenance

The City, at its cost, will maintain the Facilities in accordance with the maintenance plan incorporated as Exhibit B hereto.

3. Water Quality Compliance Credit

Exhibit C hereto delineates the geographic area within the City within which the Improvements may be used to meet District water quality treatment requirements under Rule N, paragraph 7(c). Once the Improvements have been certified as substantially complete and the as-builts transmitted to the District under paragraph 1, above, and provided that the Facilities are being maintained in accordance with paragraph 2, above, a permit applicant within the delineated geographic area may use the Improvements for water quality compliance pursuant to Rule N, paragraph 7(c).

4. Administration of Compliance Credits

The total water quality treatment capacity available under this Agreement is the difference in capacity between the existing Facilities as originally constructed and as improved. On receipt of certified as-builts and other documentation from the City as the District finds necessary, the parties together will determine this capacity. An applicant using the Improvements for Rule N water quality compliance will be responsible for submitting a statement from the City Administrator confirming the amount of capacity that the applicant is authorized to use. The City is solely responsible for allocating capacity among properties within the delineated area.

5. Effect on Stormwater Compliance Responsibilities

This Agreement concerns only the use of an off-site facility for water quality compliance under District Rule N. Other requirements of the District Rules,

including but not limited to stormwater peak discharge rate controls, volume controls and Best Management Practices requirements, must be met by applicants. Further, an applicant that cannot meet the water quality requirement solely by use of the Improvements to the extent authorized by the City must incorporate additional measures to achieve full compliance. Nothing herein limits the District's authority to revise its rules from time to time, including Rule N and the water quality requirements therein. However, a rule revision will not affect permitted or completed projects nor will it affect an applicant's ability to use the Improvements to meet water quality requirements per the terms of this Agreement.

6. Local Water Management Plan

The City's local water management plan prepared pursuant to Minnesota Statutes §103B.235 will incorporate the Improvements and reference this Agreement. Capacity created by the Improvements and used for compliance under this Agreement will not be used by the City to meet its phosphorus load reduction allocation under the District's watershed management plan. Any unused credit shall be available to the City to use to meet its phosphorus load reduction requirement or to be applied under this agreement.

7. Independent Relationship

The District's role under this Agreement is solely to provide advance confirmation to the City that the Improvements will qualify for the regulatory treatment set forth in paragraph 7(c) of District Rule N. The District has no authority to select, or role in selecting, the design, means, method or manner of constructing the Improvements or the person or firm who will perform the work. No employee, representative, contractor or consultant of either party to this Agreement acts in any respect as the agent or representative of the other party. Any right of the District to review or approve a design, work in progress or constructed facility under this Agreement is solely for the District's own purpose of determining and carrying out its responsibilities under this Agreement.

8. Remedies; Immunities

Only contractual remedies are available to the City or the District for the failure to fulfill any term of this Agreement. Nothing under this Agreement creates a duty of care on the part of the District or the City for the benefit of any third party. Notwithstanding any other term of this Agreement, the District and the

City waive no immunities in tort. This Agreement creates no right in and waives no immunity, defense or liability limitation with respect to any third party.

9. Effective Date; Termination

The Agreement is effective when fully executed by the parties. The term of the Agreement is five years, with renewal for additional five year terms unless terminated by written agreement of the parties.

10. Notices

Any written communication required under this Agreement will be addressed to the other party as follows, except that either party may change its address for notice by advising the other party in writing.

To District:

Administrator
Minnehaha Creek Watershed District
18202 Minnetonka Boulevard
Deephaven MN 55391

To City:

City Administrator
City of Long Lake
450 Virginia Avenue
P.O. Box 606
Long Lake MN 55356

11. Prior Agreements Superseded

The December 9, 2004 and August 23, 1995 agreements between the District and the City hereby are superseded and no longer of force or effect.

Intending to be legally bound, the parties hereto execute and deliver this Agreement.

CITY OF LONG LAKE

Date:_____

By:_____
Its Mayor

Date:_____

And:_____
Its City Manager

MINNEHAHA CREEK WATERSHED DISTRICT

Date:_____

By:_____
President of Board of Managers

APPROVED AS TO FORM & EXECUTION

_____
Attorney

CITY OF
LONG LAKE

Resolution No. 2002-5-17

A RESOLUTION ADOPTING THE WATER RESOURCES MANAGEMENT PLAN

WHEREAS, the City is required by state statute to create a comprehensive Water Resources Management Plan (WRMP); and

WHEREAS, on December 18, 2002, the City Council reviewed the agency review draft of the WRMP and authorized its distribution for agency review; and

WHEREAS, on February 28, 2002, the Minnehaha Creek Watershed District Board of Managers approved the Long Lake WRMP with contingencies; and

WHEREAS, on May 7, 2002, the City Council approved a Memorandum of Understanding with the MCWD, which was a contingency of the WRMP approval; and

WHEREAS, Minnesota Rules 8410 requires the City Council to adopt the WRMP within 120 days from approval by the MCWD; and

WHEREAS, the City Council finds that the WRMP will be enforceable once it is adopted by the City Council; and

NOW THEREFORE BE IT RESOLVED that the City Council adopts the agency review draft of the WRMP contingent upon making changes required by the MCWD.

Adopted by the City Council of Long Lake this 21st day of May 2002.

By:

Janet Schaefer, Mayor

ATTEST:

Matt Goldstein, City Planner

COOPERATIVE AGREEMENT

Between the Minnehaha Creek Watershed District and the City of Long Lake for Stormwater Facility Maintenance

This Cooperative Agreement is made this 20 day of June, 2002 by and between the Minnehaha Creek Watershed District, a watershed district with purposes and powers as set forth at Minnesota Statutes Chapters 103B and 103D ("MCWD"), and the City of Long Lake, a body corporate and politic and a statutory city in the State of Minnesota ("City").

Recitals and Statement of Purpose

WHEREAS pursuant to authority of Minnesota Statutes §103D.345, the MCWD implements a permitting program under which stormwater management requirements apply to land development activities presently referenced as Rule N; and

WHEREAS the City is subject to those requirements; and

WHEREAS in order to comply with applicable MCWD requirements, a landowner constructing stormwater management facilities is required to execute a declaration assuming responsibility to maintain those facilities indefinitely; and

WHEREAS the City from time to time is subject to this requirement pursuant to the terms of an MCWD permit; and

WHEREAS the parties concur that it is clearer and procedurally more efficient for the MCWD and the City to agree at this time on the standard requirements of stormwater facility maintenance, so that this Agreement may be referenced in MCWD permits for future projects;

WHEREAS the parties concur that the City has the resources and organizational structure necessary to carry out maintenance needs, as they become apparent;

NOW THEREFORE the standard maintenance obligations to be assumed by the City, at its own expense, are as follows:

1. The City shall inspect all stormwater retention and detention ponds at least annually. Pond function will be considered inadequate if sediment accumulation has decreased the wet storage volume by 50%, or dry detention volume by 25%. The City shall restore the basin to its original design elevations and dimensions and will restore vegetation in disturbed areas within one year of the inspection date.

2. The City shall inspect grit chambers, sump catch basins, and sump manholes in the spring, summer and fall, and outlet structures, culverts and other stormwater facilities

annually. Accumulated sediment and debris will be removed so that the facility continues to operate as designed and erosion or structural problems will be corrected.

3. A brief written report, on a form provided by the District, will be prepared and submitted to MCWD annually that describes the maintenance activities performed under this Agreement, including dates, locations of inspection and maintenance activities performed.

4. MCWD permits for specific projects may contain additional conditions regarding stormwater facility maintenance or other project elements as determined by the MCWD to be appropriate pursuant to MCWD Rules.

5. Responsibilities of the City may be assigned to another governmental unit on written consent of the MCWD.

6. This Agreement may be modified only by an amendment signed by the parties.

7. This Agreement shall be effective on the date of execution by the parties and shall remain in force for five years from that date. Any obligations assumed by the City before expiration of the Agreement shall survive expiration.

IN WITNESS WHEREOF, the parties hereto have executed this Cooperative Agreement.

THE CITY OF LONG LAKE

By _____
Michelle E. Morse, City Administrator

MINNEHAHA CREEK WATERSHED DISTRICT

By _____
President, Board of Managers

APPROVED AS TO FORM AND EXECUTION

By _____
Its Attorney

APPROVED AS TO FORM AND EXECUTION

By _____
Its Attorney

RESOLUTION

RESOLUTION NUMBER: 005-02

TITLE: APPROVING THE CITY OF LONG LAKE'S LOCAL WATER RESOURCES MANAGEMENT PLAN

WHEREAS on June 12, 1997, the MCWD adopted amendments to its comprehensive watershed management plan under Minnesota Statutes § 103B.231, which, as amended, details the existing physical environment, land use and development in the watershed and established a plan to manage water resources and regulate water resource use to improve water quality, prevent flooding and otherwise achieve the goals of Minnesota Statutes Chapters 103B and 103D; and

WHEREAS the MCWD's comprehensive watershed management plan, as amended incorporates the Rules adopted by the MCWD to protect water resources, improve water quality, prevent flooding and otherwise achieve the goals of Minnesota Statutes Chapters 103B and 103D; and

WHEREAS the City of Long Lake submitted a local Draft Water Resources Management Plan to the MCWD for review and comment on April 8, 1999; and

WHEREAS the MCWD reviewed the Plan in accordance with Minnesota Statutes § 103B.235, subd.3, as to those portions of the City within MCWD boundaries, prepared comments dated June 23, 1999, August 10, 2001 and January 15, 2002 and met with City representatives; and

WHEREAS the City of Long Lake subsequently prepared revisions and submitted final revisions to MCWD on February 18, 2002 which incorporated MCWD review comments; and

WHEREAS the MCWD determined that the revised Plan is consistent with the adopted MCWD 1997 Water Resources Management Plan; and

WHEREAS the Metropolitan Council received the local Water Resources Management Plan and provided its comments to the MCWD on June 14, 1999 and February 15, 2002; and

WHEREAS the MCWD determined that the Plan meets the requirements for local plan approval set forth in the MCWD's 1997 Water Resources Management Plan, including that the City has demonstrated that draft official controls described in the Plan will protect the MCWD's water resources at least as well as the MCWD's rules; and

WHEREAS the City does not wish to assume regulatory authority but, instead, wished to authorize the MCWD to continue to require permits for the use and development of land, and otherwise exercise its regulatory authority, within the meaning of Minnesota Statutes § 103B.211, subd. 1(a)(3); and

WHEREAS the MCWD's ability to approve the Plan rests on the City's agreement that the MCWD will continue to exercise its present regulatory authority within those parts of the City where the MCWD has jurisdiction.

THEREFORE, BE IT RESOLVED that the MCWD Board of Managers hereby approves the Plan on the occurrence of the following conditions:

1. The Plan shall be amended to state the following under the heading "Implementation Program: Official Controls:"

   a. That the City does not presently have official controls in place that will provide for protection of water resources to the same degree as the MCWD Rules;

   b. That the Plan shall ensure protection of water resources within the City to the same degree as achieved by the CMWD Rules by authorizing the MCWD to continue require permits for the use and development of land, and otherwise exercise its regulatory authority, within the meaning of Minnesota Statutes §103B.211, subd. 1(a)(3)(I).

2. The City of Long Lake has agreed to make changes to the Plan in accordance with the Technical and Administrative Comments in a letter from SEH to MCWD, dated February 28, 2002 and December 31, 2001 (as attached). The City shall not otherwise amend the Plan before adoption.

3. A maintenance plan for existing and recommended Best Management Practices will be prepared by the City in accordance with Technical Comments, Page 1, Bullet 2, SEH letter to MCWD dated February 18, 2002 and the additional detail provided by the City at the February 28, 2002 MCWD Board of Managers meeting and submitted to the MCWD for review, comment and approval.

4. Both local governments will execute a Memorandum of Understanding (MOU) establishing implementation responsibilities between the City and MCWD.

5. Adopted city ordinances shall be in the final substantive form as submitted to MCWD as included in the Long Lake Water Resources Management Plan addressing erosion control and parking lot/street sweeping and shall be adopted within 180 days of plan approval.

6. The City shall review the Wetland Management Plan to state that the City will amend the Plan and submit it to the MCWD for approval within four months or 120 days after the MCWD provides the Wetlands Functions and Values Inventory and Assessment results for the wetlands in the City of Long Lake.

FINALLY BE IT RESOLVED that staff and consultants are directed to develop a Memorandum of Understanding (MOU) with the City of Long Lake to be executed upon mutual agreement and MCWD Board approval within six months of this date.

Resolution Number 005-02 was moved by Manager Fisher, seconded by Manager Calkins.
Motion to adopt the resolution 5 ayes, 0 nays, 0 abstentions. 2 absent (Managers Reid and Schroeder).
Date February 28, 2002.

Attest: Lance H Fisher Date: 02-28-2002
Secretary

Appendix D – Design Standards

Administration Process Used by the City of Long Lake		
Project Type	**Description of Review Process**	**City Permit**
Site Disturbance	City Administrator, Building Official, \City Planner	Building/Erosion and Sedimentation Control Permit
Land Use Application: Site Development Site Redevelopment Subdivision	The project is reviewed by the Planning Commission, and the Design Review Subcommittee (DRS) if necessary. The DRS consists of 3 members of the Planning Commission, and makes recommendations to the Planning Commission, which makes recommendations for City Council action on the project. Conditions which are a part of the City Council's approval are incorporated into the Building Permit. Construction activities are inspected by the City Building Official and City Planner for compliance with the building permit conditions.	Building Building Special Use Conditional Use Variance
Subdivision	City Planner/Building Code Enforcement Officer	Design Standards

CITY OF LONG LAKE
DESIGN STANDARDS

SECTION: 475.041

475.042 Conformity with Comprehensive Plan, Zoning Ordinance, and Design Standards

A proposed (re)subdivision of one existing lot into two or more lots shall conform to the Comprehensive Plan, the official Zoning Ordinance of the City, these Design Standards, and related policies adopted by the City.

475.043 Land Requirements

Subd. 1 Land shall be suited to the purpose for which it is to be (re)subdivided. No plan shall be approved if the site is not suitable for the purpose by reason of potential flooding, topography or adverse soil or rock formation.

Sub. 2 Land subject to hazards to life, health or property shall not be subdivided until all such hazards have been eliminated or unless adequate safeguards against such hazards are provided by the (re)subdivision plan.

Subd. 3 Proposed (re)subdivision shall be coordinated with existing nearby municipalities or neighborhoods, so that the City as a whole may develop efficiently and harmoniously.

475.044 Blocks

Subd. 1 Block length and width or acreage within bounding streets shall be such as to accommodate the size of residential lots required in the area by the Zoning Ordinance and to provide for convenient access, circulation control and safety of street traffic.

Subd. 2 Block Length. In general, intersecting streets shall be provided at such intervals so as to serve cross-traffic adequately and to meet existing streets. Where no existing plats control, the blocks in residential subdivisions, other than those with lake frontage, should not exceed one thousand eight hundred (1,800') feet nor be less than six hundred (600') feet in length, except where topography or other conditions justify a departure from this standard. In blocks longer than nine hundred (900') feet, ten (10) foot-wide pedestrian rights-of-way and/or easement(s) through the block may be required in locations deemed necessary for the public health, convenience and necessity. Suitable surfacing shall be provided in pedestrian ways. New pedestrian paths must be consistent with the Comprehensive Park & Recreation Plan as amended from time to time.

Subd. 3 Block Width. The width of the block shall normally be sufficient to allow two (2) tiers of lots of minimum depth as required by the Zoning Ordinance except adjoining a lake, stream, railroad or arterial or where one tier of lot is necessary because of topographic conditions. Blocks intended for business or industrial use shall be of such width as to be considered most suitable for their respective use, including adequate space for off-street parking, deliveries and loading. Such facilities shall be provided with safe and convenient limited access to the street system.

475.045 Lots

Subd. 1 Area. The minimum lot area, width and depth shall not be less than that established by the City Zoning Ordinance in effect at the time of adoption of the final plat.

Subd. 2 Side Lot Lines. Side lines of lots shall be at right angles to street lines, radial to curved street lines, or radial to lake or stream shores unless topographic conditions necessitate a different arrangement.

Subd. 3 Building Sites. Each lot shall be provided an adequate building site at least one (1) foot above the street grade.

Subd. 4 Butt lots in any subdivision are to be discouraged. Where such lots must be used to fit a particular type of design, they shall be platted at least twenty (20) feet wider than the average width of interior lots in the block.

Subd. 5 Frontage. Every lot must have the minimum frontage on a City approved public street other than an alley, as required in the City Zoning Ordinance.

Subd. 6 Setback Lines. Setback or building lines shall be shown on all lots and shall not be less than the setback required by the City Zoning Ordinance, as may be amended.

Subd. 7 Watercourses. Lots abutting a watercourse, wetland, pond area, drainage, channel or stream shall have additional depth and width, as required under the provisions of the City Zoning Ordinance to assure building sites that are not subject to flooding.

Subd. 8 Lots with lakeshore frontage shall be designed so that the lot lines extended shall maintain the closest approximation to riparian rights.

Subd. 9 Features. In the (re)subdivision of any land, due regard shall be shown for all natural features, such as tree growth, watercourses, historic spots or similar conditions which, if preserved, will add attractiveness and stability to the proposed development.

Subd. 10 Lot Remnants. All remnants of lots below minimum size for the respective zoning district in which they are located must be added to abutting lots or lots immediately adjoining, separated only by a public right-of-way. In those cases where parcels are separated by a public right-of-way, the lot remnant shall be designated an outlot and may be dedicated to the City. Lot remnants may be allowed if a plan for future use is found acceptable by the City Council.

Subd. 11 Political Boundaries. No singular plat shall extend over or onto another political boundary or school district line.

Subd. 12 Frontage on Two Streets. Double-frontage, or lots with frontage on two (2) parallel or non-intersecting streets shall not be permitted except where lots back on arterial streets or highways, or where topographic or other conditions render subdividing otherwise unreasonable. Such double-frontage lots shall have an additional depth of at least ten (10) feet in order to allow space for screen planting along the rear lot line.

Subd. 13 Turn-Around Access. Where proposed residential lots abut a collector street, they should be platted in such a manner as to encourage turn-around access and egress on each lot and discourage direct access onto such streets.

Subd. 14 Access to Arterial Streets. In the case where a proposed plat is adjacent to a limited access highway, other major highway, or other arterial street, there shall be no direct vehicular access from individual lots to such streets and roads. In the platting of small tracts of land fronting on limited access highways where there is no other alternative, a temporary entrance may be granted. As neighboring land becomes subdivided and more preferable access arrangements become possible, such temporary access permits shall become void.

Subd. 15. Outlots. The creation of outlots is to be discouraged. In such cases where outlots are created or exist, their area shall not be utilized in calculating minimums for buildable lot area requirements. Said outlots are also prohibited from qualifying for building permits except for public uses and private recreational uses accessory to allowable uses within the respective zoning district and which are properties under common ownership.

Subd. 16. Flag Lots. The creation of lots with less than 40 feet of frontage on a public right of way is prohibited.

Subd. 17. Platting of lot combinations. Any lots proposed to be combined to function as a single parcel must be replatted. The newly created plat map must be drafted by a licensed engineer or other individual authorized by the State, and must be accompanied by a revised legal description that accurately describes the

boundaries of the new parcel. The plat map must include graphical and notations of all necessary easements that are required by the City, and it must be accompanied by legal descriptions of those easements. The plat map must be drawn in a recordable form, and it must be filed with the Hennepin County of Taxpayer Services or comparable department and with the City Clerk.

Subd. 18. Platting of lot subdivisions. Any lots proposed to be subdivided to function as more than one parcel must be replatted. The newly created plat map must be drafted by a licensed engineer or other individual authorized by the State, and must be accompanied by a revised legal description that accurately describes the boundaries of the new parcel. The plat map must include graphical and notations of all necessary easements that are required by the City, and it must be accompanied by legal descriptions of those easements. The plat map must be drawn in a recordable form, and it must be filed with the Hennepin County of Taxpayer Services or comparable department and with the City Clerk.

475.046 Streets

Subd. 1 Proposed streets shall conform to State and County transportation plans which have been prepared, adopted and/or filed as prescribed by law.

Subd. 2 Streets shall be logically related to the topography, so as to produce usable lots and reasonable grades.

Subd. 3 Access shall be given to all lots and portions of the tract in a subdivision and to adjacent un-subdivided parcels. Reserved strips and land-locked areas shall not be created.

Subd. 4 The arrangement of streets in new subdivisions shall make provision for the appropriate continuation of existing streets in adjoining areas.

Subd. 5 Where adjoining areas are not subdivided, but may be subdivided, the arrangement of streets in a new subdivision shall make provision for the proper projection of streets into adjoining areas by carrying the new streets to the boundaries of the new subdivision at appropriate locations. A temporary turn-around facility may be required at the closed end, in conformance with cul-de-sac requirements.

Subd. 6 Local streets shall be laid out to discourage their use by through traffic. The arrangement of arterial and collector streets shall be considered in their relation to the reasonable circulation of traffic, to topographic conditions, to runoff of storm water, to public convenience and safety, and in their appropriate relation to the proposed uses of the area to be served.

Subd. 7 Provisions for Resubdivision of Large Lots and Parcels. When a tract is subdivided into larger than normal building lots or parcels, such lots or parcels shall be so arranged as to permit the logical location and openings of future streets and appropriate resubdivision, with provision for adequate utility connections for such resubdivision.

Subd. 8 Half or partial streets will not be permitted, except where essential to reasonable subdivision of a tract in conformance with the other requirements and standards of these regulations and where, in addition, satisfactory assurance for dedication of the remaining part of the street can be secured.

Subd. 9 Wherever a tract to be (re)subdivided adjoins an existing half or partial street, the part of the street within such tract shall be dedicated to the City with a plat recorded with Hennepin County.

Subd. 10 Dead-end streets shall be prohibited, except as stubs to permit future street extension into adjoining tracts with temporary cul-de-sacs, or when designed as cul-de-sac streets.

Subd. 11 Private streets and reserve strips, except in the case of planned unit developments, shall be prohibited and no public improvements shall be approved for any private street. All streets shall be dedicated for public use. If any person applies to subdivide or replat any land or parcels adjoining an existing private street, the private street shall be required to be dedicated for public use and scheduled for improvement to public street standards at the time of final plat. In the case of planned unit developments, the private street must be constructed to meet or exceed minimum City standards.

Subd. 12. Up to two single family parcels may be served by a shared driveway. Proper cross access easements and a cooperative maintenance agreement must be drafted in a recordable form and filed with the Hennepin County Office of Taxpayer Services or comparable department and the City Clerk prior to the issuance of a building permit for said driveway.

Subd. 13 Where a subdivision abuts or contains an existing or planned major arterial or a railroad right-of-way, a street approximately parallel to and on each side of such arterial and right-of-way may be required for adequate protection of adjacent properties and separation of through and local traffic. Such service streets shall be located at a distance from the major arterial or railroad right-of-way suitable for appropriate use of the intervening land, as for park purposes in residential districts, or for commercial and industrial purposes in appropriate districts. Such distances also shall be determined with due regard for the requirements of approach grades and future grade separations.

Subd. 14 The street design shall not be such as to cause hardship to owners of adjoining property in platting their own land and providing convenient access to it.

Subd. 15 Cul-de-sac streets, permanently designed as such, shall not exceed six hundred (600) feet in length, including a terminal turn around which shall be provided at the closed end, with a right-of-way radius of not less than sixty (60) feet. The length shall be measured along the centerline from the nearest intersection to the center point of the cul-de-sac.

Subd. 16 Where a temporary cul-de-sac is required, the turnaround right-of-way shall be placed adjacent to a plat boundary line and a right-of-way of the same width as the street shall be carried to said property line in such a way as to permit future extension of the street into the adjoining tract. At such time as such a street

is extended, the acreage covered by the turnaround outside the boundaries of the extended street shall revert in ownership to the property owner fronting on the temporary turnaround.

Subd. 17. Dedication. All newly created streets must be located within adequate dedicated right of way as dictated by the entity who has jurisdiction over that road.

475.047 Reserved

475.048 Street Design

Subd. 1 Minimum right-of-way widths and pavement widths (face to face of curb) for each type of public street or road shall be as follows:

Type of Street	Right-of-way Width	Pavement Width
Industrial Service Street	70 feet	44 feet
Local Street	60 feet	30 feet
Cul-de-sac	60 feet turnaround radius	48 feet turnaround radius

Subd. 2 Where a (re)subdivision abuts or contains an existing street of inadequate width, sufficient additional width shall be provided and dedicated to meet the above standards.

Subd. 3 Additional right-of-way and roadway widths may be required to promote public safety and convenience when special conditions require it.

Subd. 4 Restriction of Access. Access of local streets onto and collector streets shall be discouraged at intervals of less than five hundred (500) feet between access points.

Subd. 5 Street Jog. Street jogs with centerline offsets of less than one hundred fifty (150) feet shall not be allowed.

Subd. 6 Deflection. When connecting street lines deflect from each other at any one point by more than ten (10) degrees, they shall be connected by a curve with a radius of not less than one hundred (100) feet.

Subd. 7 Grades. Centerline gradients shall be at least 0.4 percent and shall not exceed a 6% gradient on local streets.

Subd. 8 Vertical Curves. Different connecting street gradients shall be connected with vertical curves. Minimum length, in feet, of these curves shall be twenty (20) times the algebraic difference in the percent of grade of the two adjacent slopes.

Subd. 9 Angle of Intersection. The angle formed by intersecting streets shall not be less than sixty (60) degrees, with ninety (90) degree intersections preferred.

Subd. 10 Size of Intersection. Intersections of more than four (4) corners shall be prohibited.

Subd. 11 Corner Radii. Roadways of street intersections shall be rounded by a radius of not less than fifteen (15) feet. Corners at entrances to the turn-around portions of cul-de-sacs shall be designed for installation along both sides of all roadways.

Subd. 12. Private Streets. Private streets if approved by the City Council shall be designed in compliance with the standards in this Section.

475.049 Sidewalks

Subd. 1 Widths. In subdivisions or areas where sidewalks are deemed necessary by the City Council as guided by the Comprehensive Park and Recreation plan as amended from time to time, all new sidewalks shall be at least six (6) feet in width.

475.0491 Public Utilities

Subd. 1 Water Supply. Extension of the public water supply system, when available, shall be designed so as to provide the public water service to each lot.

Subd. 2 Sewage disposal. Extension of the public sanitary sewer system, when available, shall be designed so as to provide public sewer service to each lot.

475.0492 Drainage

Subd. 1 A complete and adequate drainage system design shall be required for the subdivision and may include a storm sewer system or system of open ditches, culverts, pipes, catch basins and pond areas, or a combination thereof. Said system shall be consistent with the Water Resources Management Plan as amended from time to time.

475.0493 Easements

Subd. 1 Provided for Utilities. Easements for drainage and utilities of at least ten (10) feet wide shall be provided on all lot lines. In the case of side or rear lot lines, these may be centered on the lot line.

Subd. 2 Provided for Drainage. Easements shall be provided along each side of the center line of any water course or drainage channel, whether or not shown on the Comprehensive Plan or Water Resources Management Plan as amended from time to time, to a sufficient width to provide proper maintenance and protection, to provide for storm water runoff, and to provide for installation and maintenance of public infrastructure.

Subd. 3 Continuous Utility Easement Locations. Utility easements shall connect with easements established in adjoining properties. These easements, when approved, shall not thereafter be changed without the approval of the City Council.

Subd. 4 Dedication. All easements shall be dedicated to the City for the required use and shall be shown on the final plat.

Subd. 5 Lake Access Easements. The platting or granting of private easements across private property or property lines for the purpose of providing private lake shore access is prohibited.

Subd. 6. Cross-Access Easements. Easements providing access between adjacent private parcels shall be encouraged.

Subd. 7. Filing. The legal description of all easements shall be filed with Hennepin County Office of Taxpayer Services or comparable department on a Plat of Dedication or comparable document and dedicated to the City.

475.0494 Street Names

Subd. 1. Names of new streets shall not duplicate existing or platted street names within the City, unless a new street is a continuation of or in alignment with the existing or platted street. In that event, it shall bear the same name of the existing or platted street. Street names shall conform to the City's Street Naming and Property Numbering System as applicable.

475.0495 Erosion and Sediment Control

Subd. 1. All land disturbing or land filling activities or soil storage shall be undertaken in a manner consistent with the Long Lake Water Resources Management Plan.

Subd. 2. Land disturbing or land filling activities shall be required to be permitted by the City of Long Lake and may be required to be permitted by the Minnehaha Creek Watershed District.

Subd 3. Land disturbing activities shall provide for silt fencing, catch basin inlet protection and rock construction entrances consistent with the BMPs required by Minnehaha Creek Watershed District rules and this Plan. Plans noting land disturbance may be required to be reviewed by the City Engineer.

475.0496 Protected Areas

Subd. 1. Where land proposed for subdivision is deemed environmentally sensitive by the City, due to the existence of wetlands, drainage ways, watercourses, floodable areas or steep slopes, the design of said subdivision shall clearly reflect all necessary measures of protection to ensure against adverse environmental impact. The City's Water Resources Management Plan shall be carefully referenced and adhered to when designing a subdivision.

Subd. 2. Based upon the necessity to control and maintain certain sensitive areas, the City shall determine whether said protection will be accomplished through lot enlargement and redesign or dedication of those sensitive areas in the form of outlots or permanent conservation easements.

Subd. 3. In general, measures of protection shall include design solutions which allow for construction and grading involving a minimum of alteration to sensitive areas. Where these areas are to be incorporated into lots within the proposed subdivision, the applicant shall be required to demonstrate that the proposed design will not require construction on slopes over eighteen (18) percent, or result in significant alteration to the natural drainage system such that adverse impacts cannot be contained within the plat boundary.

475.0497 Park Land Dedication Requirements

Subd. 1. As a prerequisite to final plat approval, applicants for the subdivision of land into more than one lot shall dedicate land for parks, playgrounds, public open spaces or trails and/or shall make a cash contribution to the City's Park Fund as provided by this Section.

Subd. 2. Land to be dedicated shall be reasonably suitable for active recreation as determined by the City and shall be at a location convenient to the public to be served. Factors used in evaluating the adequacy of proposed park and recreation areas shall include size, shape, topography, geology, hydrology, tree cover, access and location.

Subd. 3. The applicant shall consult with the Planning Commission, at the time his/her preliminary plat is under consideration, to secure their recommendation as to the location of any property that should be dedicated to the public, such as parks, playgrounds or other public property. The preliminary plat shall show the location and dimensions of all areas to be dedicated in this manner. Such contribution requirement recommendation(s) will be sent to the City Council for their approval.

Subd. 4. When a proposed park, playground, recreational area, or other public ground has been indicated in the City's official map, Comprehensive Plan, or Comprehensive Park and Recreation Plan, all as amended from time tot ime, and is located in whole or in part within a proposed plat, it shall be designated as an outlot on the final plat and shall be dedicated to the City or other appropriate governmental unit. If the applicant elects not to dedicate an area in excess of the land required hereunder for a proposed public site that the City feels is in the public interest to acquire, the City may consider acquiring the additional land through purchase or condemnation.

Subd. 5. Land area conveyed or dedicated to the City shall not be used in calculating density requirements of the City Zoning Ordinance and shall be in addition to and not in lieu of open space requirements for planned unit developments.

Subd. 6. Where private open space for park and recreation purposes is provided in a proposed subdivision, such area may be used for credit, at the discretion of the City Council, against the requirement of dedication for park and recreation purposes, provided the City Council finds it is in the public interest to do so.

Subd. 7. The City, upon consideration of the particular type of development, may require larger parcels of land to be dedicated it the City determines that

present or future residents would require greater land for park and playground purposes. In addition, the City Council may also require lots within the subdivision be held in escrow for future sale or development. The moneys derived from the sale of escrowed lots will be used to develop facilities or to purchase parkland in the future.

Subd. 8. In all new subdivisions, five (5%) percent of the gross area subdivided, or a different percentage as the Council shall determine to be reasonably necessary as a result of the subdivision approval, shall be dedicated for public recreation space or other public use as established by City Council resolution. The dedicated percent of the gross area subdivided shall be in addition to property dedicated for streets alleys, easements or other public ways. No areas may be dedicated for public use until such areas have been approved by the governing body as suitable and necessary for the health, safety, convenience and general welfare of the City.

Subd. 9. When a subdivision is too small for practical dedication of public land, or if no land in the subdivision is suitable for such use, the applicant may be required to pay an equivalent cash fee for all or part of the portion to be dedicated, based on the fair market value of the gross area of land prior to the subdivision on the day of final plat approval. All other residential construction is required to pay a minimum of five percent (5%) of the determined land value.

Subd. 10. The City may elect to receive a combination of cash, land and development of the land for park use. The fair market value of the land the City wants and the value of the development of land shall be calculated. That amount shall be subtracted from the cash contribution required by subsection 9 above.

Subd. 11. "Fair market value" shall be determined as of the time of the final plat approval in accordance with the following:

a) The City and the applicant may agree as to the fair market value based upon a current appraisal.

b) The market value of the property as determined by a recent selling price of the parcel(s) in question.

Subd. 12. Planned unit developments with mixed land uses shall make cash and/or land contributions in accordance with this Section based upon the percentage of land devoted to the various uses.

Subd. 13. Park cash contributions are to be calculated at the time of final plat approval. The Council may require the payment at the time of final plat approval or at a later time under terms agreed upon in a development agreement as authorized in this Section. Delayed payment may include interest at a rate set by the City.

Subd. 14. Park cash contributions shall be deposited in the City's Park and Recreation Capital Outlay Fund and shall only be used for park acquisition or physical park improvements.

Subd. 15. If an applicant is unable to make a commitment to the City as to the type of building that will be constructed on lots in the proposed plat, then the land and cash contribution requirement will be a reasonable amount as determined by the City Council.

Subd. 16. Property being replatted with the same number of lots shall be exempt from all parkland dedication requirements. If the number of lots is increased or if land outside the previously recorded plat is added, then the park land dedication and/or park cash contributions shall be based on the additional lots and on the additional land being added to the plat. If the additional land does not create additional lots, then each one-third (1/3) acre added shall be considered a new lot for purposes of calculating the dedication requirements.

Subd. 17. Wetlands, pond areas and drainage ways accepted by the City may not be considered in the parkland and/or cash contribution to the City.

475.0498 Minimum Building Elevation

See Section 475.0407.

475.0499 Minimum Design Features

Subd. 1. The design features set forth in this Chapter are minimum requirements. The City may impose additional or more stringent requirements concerning lot size, streets and overall design as deemed appropriate considering the property being subdivided based upon site considerations, the Comprehensive Plan, and other City codes, regulations, and policies.

CONSTRUCTION

SECTION: 475.0401

475.0402 Streets
475.0403 Sidewalks
475.0404 Public Utilities
475.0405 Sanitation
475.0406 Reserved
475.0407 Minimum Building Elevation
475.0408 Water Quality Treatment
475.0409 Pond Construction
475.0410 Private Storm Water Facility Maintenance
475.0411 Drainage
475.0412 Street Signs
475.0413 Utilities Location
475.0414 Street Lighting Requirements
475.0415 Inspection

475.0402 Streets

Subd. 1 Street Grading. Streets shall be graded in accordance with a plan approved by the City Engineer. The grading shall include the entire width of the right-of-way and shall provide a boulevard section, in addition to the minimum pavement width.

Subd. 2 Street Pavement. The design of street pavement for all streets covered by this regulation shall be in accordance with the State of Minnesota Department of Transportation Road Design Manual for flexible pavements. The designed thickness of the surfacing elements shall be in accordance with the flexible pavement design standard for road classifications as follows:

Classification	Pavement Design: Axle Load
a) Collector Streets and Commercial or Industrial Service Streets	9 ton minimum
b) Local Streets	7 ton minimum

Subd. 3 Soil Tests. To determine subgrade soil classifications, soil samples shall be collected and analyzed by a reputable testing laboratory. Reports of the soil analysis shall be submitted to the City Engineer with the pavement plans. Soil samples shall be taken along the centerline of the proposed road at intervals not exceeding three hundred (300) feet unless otherwise approved by the City Engineer.

Subd. 4 Curb and Gutter. Concrete curb and gutter in accordance with the following provisions, shall be constructed on both sided of all streets:

a) In single family residential districts, either surmountable curb and gutter of a City approved type and design or Mn/DOT Design No. B shall be used.

b) In all other districts, concrete curb and gutter cross-sections shall be Mn/DOT Design No. B618.

Subd. 5 Boulevards. All boulevards shall have four (4) inches of top soil (black dirt) placed on them and then shall be sodded.

475.0403 Sidewalks

Subd. 1 All required sidewalks shall be concrete, four (4) inches thick, placed on a four (4) inch gravel base.

Subd. 2 Sidewalks shall slope one-quarter (1/4) inch per foot away from the property line and the profile grade shall not exceed eight (8) percent. All grades shall be constructed as approves by the City Engineer.

Subd. 3 Sidewalks shall be placed in the public right-of-way.

475.0404 Public Utilities

Subd. 1 Water Main. A minimum water main of six (6) inch ductile iron pipe or other approved pipe shall be required. Mains over six (6) inches in size may be required, and the additional cost shall be allocated pursuant to established City Council policies.

Subd. 2 Sanitary Sewer. Unless otherwise required, a sanitary sewer of eight (8) inch pipe shall be installed as the minimum size, placed at grades approved by the City Engineer. Mains over eight (8) inches in size may be required, and the additional cost shall be allocated pursuant to established City Council policies. Service pipes shall be at least four (4) inches in diameter.

Subd. 3 House Services. Each house service shall be installed from the main to the property line, where a cap or plug shall be placed until the service is extended to the structure. A one (1) inch Type K copper water service, or approved equal; corporation cook, curb box and stop; and four (4) inch extra heavy cast iron soil pipe, or approved equal, sewer service shall be the minimum requirements, and they may be placed in a common trench.

Subd. 4 Reproducible "as-built" drawings showing all utilities and improvements shall be furnished to the City by the applicant of all required improvements prior to the issuance of a permanent or temporary certificate of occupancy. Such "as-built" drawings shall be certified to be true and accurate by the registered engineer responsible for the installation of the improvements. This certification may be verified by the City Engineer at the expense of the applicant or developer.

Subd. 5 Storm Sewer. The minimum storm sewer pipe size shall be 15 inches and all inlets shall be fitted with trash guards. All castings, catch basin, manhole, and pipe material shall be subject to approval by the City Engineer.

475.0405 Sanitation

Water and sewer lines shall be installed and connected to the public system to serve all lots within the proposed subdivision under the provisions of applicable statutes and ordinances. The City Council shall require the installation of water and sewer mains, at the applicant's expense or under the provisions of applicable statutes and ordinances.

475.0406 Reserved

475.0407 Minimum Building Elevation

Subd 1. Minimum Building Elevation. The minimum building elevation for habitable structures and garages shall be no lower than the following elevation criteria, whichever provides the greater degree of protection as determined by the City Engineer unless proven to the City Engineer's satisfaction that the property will drain effectively and will be protected from flood damage:

a) A minimum of 1.5 feet above the back of curb of the accessed street;

b) Four feet above the water table or 1 foot above the high water table elevation determined by the City Engineer.

Subd.2. Low Floor Elevations within the Water Management Overlay District and Adjacent to Other Ponds and Watercourses. All habitable structures constructed within a Water Management Overlay District as defined within the Water Management section of the Zoning Ordinance shall be built with their lowest floor, including basement, no lower than the following elevation criteria, whichever provides the greater degree of protection as determined by the City Engineer:

a) Two feet (2') above the 100-year flood elevation; or

b) At least three feet (3') above the highest known water level, or three feet (3') above the ordinary high water level, whichever is higher; or

c) At least three feet (3') above the "wetland boundary" as defined in Section 1016.05 of this Chapter; or

d) Two feet (2') above the emergency overflow elevation

Subd. 3. Water-oriented accessory structures may have the lowest floor placed lower than the elevation determined in this item if the structure is constructed of flood-resistant materials, electrical and mechanical equipment is placed above the elevation and, if long duration flooding is anticipated, the structure is built to withstand ice action and wind-driven waves and debris. In addition, there shall be no net loss of floodplain storage.

475.0408 Water Quality and Quantity Controls

Subd. 1. Development that is not tributary to an existing regional treatment pond as identified by the Minnehaha Creek Watershed District (MCWD) is required to employ best management practices to treat storm water discharge as indicated in the Water Resources Management Plan as amended from time to time.

Subd. 2. The runoff rates shall not increase for the 1, 10 and 100-year rainfall events as indicated in the Water Resources Management Plan as amended from time to time.

Subd. 3. The MCWD may require permits to be acquired when land alteration is proposed to alter water quality and drainage patterns.

475.0409 Pond Construction

Subd. 1. Above Normal Water Elevation

The following criteria will be followed for pond construction above the normal water elevation. For pond construction below the normal water elevation, refer to Pond Restoration and Nutrient Trapping Pond Design Standards on the following pages. This area of the pond will more than likely be the pond area flooded during a storm up to a 100-year duration.

a) Maximum 3 Horizontal to 1 Vertical (3H:1V) side slopes.

b) Proper access for maintenance, operations, and inspection.

c) Emergency overflow above the 100-year design storm high water elevation.

Subd. 2. Nutrient Trapping Pond Design

Newly constructed detention basins shall provide additional storage volume below the outlet to allow for reasonable accumulation of sediment. Where sedimentation is determined to be a continuous problem, access to the area to allow for sediment removal is required. The City may require a public utilities easement to be filed with Hennepin County Office of Taxpayer Services or comparable department and the City Clerk for this access.

Subd. 3. General Criteria

The following general criteria should be used when designing the sediment pond:

a) For basins intended to have permanent water levels, a minimum of 4 feet of standing water (dead storage depth) is required.

b) Maximize the separation between inlet points and outlets to prevent short-circuiting of storm flows.

c) A 10:1 slope for the first 15 feet from shore, then 3:1 maximum slope.

d) Proper access for maintenance, operations, and inspection.

Subd. 4. Size

Nationwide Urban Runoff Program (NURP) ponds will be designed with standing water or dead storage for pollutant removal. The total phosphorus removal efficiency for each pond or pond network shall be at least 65%. Storm water treatment can be provided via a single pond which meets the design and treatment criteria or an onsite network of interconnected ponds. If an onsite pond network is used, the overall pollutant removal efficiency for the network must meet the criteria.

Subd. 5. Permanent Pool

The recommended pond design criteria in order of importance are as follows:

a) Permanent pool volume should be greater than or equal to the volume of runoff resulting from a 2.5-inch rainstorm under complete watershed development. This value has been derived from design criteria developed in NURP, with a 25 percent increase in volume to allow for roughly 25 years of sediment accumulation. This sizing rule provides a mean hydraulic residence time of about 15 days.

b) The mean depth of the permanent pool (volume/surface area) shall be greater than or equal to 4 feet. This constraint may be infeasible for small ponds (approx. 3 acre-feet in volume, see below), where mean depths of 3-4 feet may be used.

c) The maximum depth of permanent pool shall be less than or equal to 10 feet.

d) The ratio of maximum length to maximum width (L_c/W_c) should be greater than or equal to 3. This constraint may be infeasible for some site plans or for small ponds. In such situations, baffles may be installed to isolate the inflow area from the remainder of the pond. A desirable alternative (for all pond sizes) is to construct two or more separate ponds in series with a total volume equal to that specified above Item a).

e) The bench width shall be at least 15 feet and the bench slope shall not be steeper than 10:1 (horizontal vertical). The bench slope begins at the normal pool elevation and includes lower elevations until the minimum length criteria is met.

f) The side slopes below the bench shall not be steeper than 3 feet horizontal to 1-foot vertical. Shallower slopes may be appropriate, depending upon soil engineering properties.

g) A forebay to provide the settlement of sand-sized particles shall be provided at the pond inlet(s).

h) Wet detention ponds shall include an outlet that is designed to remove floatables for a 1-year rainfall event.

475.0410 Private Storm Water Facility Maintenance

Subd 1. All private storm water facilities shall be designed to minimum City standards and shall be privately maintained in proper condition consistent with the performance standards for which they were originally designed. All settled materials from ponds, sumps, grit chambers, and other devices, including settled solids, shall be removed and properly disposed of on an annual basis as noted by the Water Resources Management Plan as amended from time to time. One to five (5) year waivers from this requirement may be granted by the City Engineer when the owner presents evidence that the facility has additional capacity to remove settled solids in accordance with the original design capacity. No private storm water facilities may be approved unless a maintenance plan is provided that defines who will conduct the maintenance, the type of maintenance and the maintenance intervals.

475.0411 Drainage

All surface and underground drainage systems shall be installed to adequately remove all natural drainage that accumulates on the developed property. All such systems shall provide complete removal and a permanent solution for the removal of drainage water.

475.0412 Street Signs

All street signs shall be provided and installed by the City, at the expense of the applicant or developer.

475.0413 Utilities Location

All utilities shall be placed underground, including electrical service. All underground work shall be completed prior to street surfacing. All utility lines shall be placed in rear line easements when carried on overhead poles if approved by the City Council.

475.0414 Street Lighting Requirements

The minimum requirement for street lighting facilities shall be one (1) two thousand five hundred (2,500) lumen light, or equal, at each street intersection within or abutting the subdivision. Lighting improvements shall be consistent with the Lighting Master Plan as amended from time to time and approved by the City Council.

475.0415 Inspection

All required improvements shall be inspected by the City Engineer during construction, at the expense of the applicant or developer.

REQUIRED IMPROVEMENTS AND FINANCIAL ARRANGEMENTS

475.016 Improvements Required

Prior to the approval of a plat by the City Council, the applicant shall have agreed, in the manner set forth below, to install the following improvements on the site, in conformity with approved construction plans and in conformity with all applicable standards and ordinances:

Subd. 1 Survey Monuments. All subdivision boundary corners, block and lot corners, road intersection corners and points of tangency and curvature shall be marked with survey monuments meeting the minimum requirements of State law. All United States, State, County and other official bench marks, monuments or triangulation stations in or adjacent to the property shall be preserved in precise position, unless a relocation is approved by the controlling agency. All lot corner markers or iron rods shall be a minimum of one-half inch in diameter, eighteen (18) inches in length, and shall be inscribed with the registration number of the land surveyor making the survey as prescribed in Minnesota Statutes, Chapter 505.

Subd. 2 Grading. The full width of the right-of-way of each street dedicated in the plat shall be graded as outlined in Section 475.048 (Subd. 7) of this Section.

Subd. 3 Pavement. All streets and alleys shall be improved with concrete or bituminous surface, except as may be approved by action of the City Council. Pavement standards are outlined in Section 475.046 (Subd. 7) of this Section. Unpaved, gravel, or dirt driveways or streets are not permitted.

Subd. 4 Curb and Gutter. There shall be concrete curb and gutter installed along both sides of all streets to the standards listed in Section 475.042 (Subd. 4) of this Section.

Subd. 5 Water Mains. In the case where mains from a public water system are available, the applicant shall be required to install water mains in the plat and connect the same to the public water system.

Subd. 6 Public Sanitary Sewer. In all cases where trunk line sanitary sewer facilities are available, the applicant shall be required to install sanitary sewers and connect the same to the trunk line sewers.

Subd. 7 Drainage Facilities. Such facilities and easements shall be installed to adequately provide for the drainage of surface waters, and a storm sewer system may be required. Drainage way easements of land dedication may be required when such easements or land is needed in the public interest for purposes of flood

plain management, proper drainage, prevention of erosion, pedestrian access to water bodies, maintenance, or other public purpose. All surface water drainage plans are subject to review by the Minnehaha Creek Watershed District.

Subd. 8 Miscellaneous Facilities. Tree planting, street name signs, traffic control signs, oversized utility trunk lines, pedestrian ways and other improvements may be required to be furnished and/or installed by the developer or applicant.

475.017 Construction Plans and Inspection

Subd. 1 Construction plans for the required improvements conforming in all respects with the standards and ordinances of the City shall be prepared at the applicants' expense by a professional engineer who is registered in the State of Minnesota. Such plans together with the quantities of construction items shall be submitted to the City Engineer for approval and for estimation of the total costs of the required improvements. Upon approval, such plans shall become a part of the required development agreement and/or building permit. The final plans approved by the Engineer, plus (2) prints, shall be furnished to the City to be filed as a public record.

Subd. 2 All required improvements on the site that are to be installed under the provisions of these regulations shall be inspected during the course of construction by the City Engineer at the applicants' expense, and acceptance by the City shall be subject to the City Engineer's certificate of compliance with the contract.

475.018 Payment for Installation of Improvements

Subd. 1. The required improvements as listed elsewhere are to be furnished and installed at the sole expense of the applicant. If any improvement installed within the subdivision will be of substantial benefit to lands beyond the boundaries of the subdivision, provision may be made for causing a portion of the cost of the improvement, representing the benefit to such lands, to be assessed against the same. In such a situation the applicant will be required only to pay for such portion of the whole cost of said improvement as will represent the benefit to the property within the subdivision.

Subd. 2 Agreement Providing for the Installation of Improvements. Prior to the installation of any required improvements by the applicant and prior to approval of the plat, the applicant shall enter into a development agreement in writing with the City requiring the applicant to furnish and construct said improvements at the sole cost of the applicant and in accordance with the approved plans and specifications. This shall include provision for supervision of details of construction by the City Engineer and shall grant to the City Engineer authority to coordinate the work and improvements to be done under said contract by any subcontractor authorized to proceed thereunder and with any other work being done or contracted by the City. On request of the applicant, the development agreement may provide for completion of part or all of the improvements covered thereby prior to acceptance of the plat. In such event, and if evidence is presented that the described work and improvements have been paid for, the amount of the deposit, bond, letter of credit, or comparable surety may be reduced in a sum equal to the estimated costs of the improvements so completed prior to the acceptance of the plat. The time for

completion of the work and the several parts thereof shall be determined by the City Council, upon recommendation of the Engineer after consultation with the applicant. It shall be reasonable with relation to the work to be done, the seasons of the year, and proper coordination with construction activities in the plat and subdivision.

No applicant shall be permitted to start work on any other subdivision without special approval of the City Council, if the applicant has previously defaulted on work or commitments.

475.019 Financial Guarantee

Subd. 1 The development agreement shall require the applicant to make an escrow deposit, furnish an irrevocable letter of credit, a certified check, or other surety as determined by the City Attorney, City Engineer and City Administrator. The surety shall conform to the requirements of this Section.

Subd. 2 Escrow Deposit, Certified Check. If an escrow deposit of certified check is required, the escrow deposit or certified check shall be made with the City Clerk in a sum equal to one hundred fifty (150%) percent of the total cost, as estimated by a registered engineer, of all the improvements which have not been completed prior to approval of the plat to be furnished and installed by the applicant pursuant to the development agreement. The total costs shall include costs of inspection by the City and other necessary review and inspection by the City's consultants. The City shall be entitled to reimburse itself out of said deposit or check for any cost and expense incurred by the City for completion of the work in case of default of the applicant under said, development agreement, and for any damages sustained on account of any breach thereof. Upon completion of the work and termination of any liability, the balance remaining in said deposit or check shall be refunded to the applicant. The City shall not be responsible for paying interest on these funds.

Subd. 3 Irrevocable Letters of Credit. If the applicant is required to furnish an irrevocable letter of credit, the sum shall be equal to one hundred fifty (150%) percent of the total cost as estimated by the City Engineer of all the site improvements to be furnished and installed by the applicant or developer pursuant to the contract, which have not been completed prior to the approval of the plat. The total costs shall include costs of inspection by the City. The irrevocable letter of credit shall be approved as to form by the City Attorney and filed with the City Administrator. A letter of credit following the same criteria shall be filed with the City Administrator for the landscaping improvements, and it shall have an effective period of two full calendar years after the effective date of the letter of credit.

475.020 Improvements Completed Prior to Approval of the Final Plat

Improvements within a subdivision which have been completed prior to application for approval of the final plat, or execution of the development agreement for installation of the required improvements, shall be accepted as equivalent improvements in compliance with these requirements only if the City Engineer certifies in writing that the existing improvements conform to applicable standards and if evidence of payment for the work that has been completed is presented in such form as the City reasonably requires.

475.021 Trunk Facilities

Where a larger size water main, sanitary sewer, storm drain or similar facility is required to serve a geographic area outside the subdivision, the larger facility required shall be constructed. Additional costs shall be allocated pursuant to established City policies.

475.022 Alternate Installation

The City Council may elect to install any or all of the required improvements pursuant to a cash escrow or other financial arrangements made with the applicant.

ADMINISTRATION AND ENFORCEMENT

SECTION: 475.0460

475.0461 Registered Land Surveys

All registered land surveys shall be filed with Hennepin County Office of Taxpayer Services or comparable department and the City Clerk subject to the same procedure as required for the filing of a preliminary plat for platting purposes. The standards and requirements set forth in these regulations shall apply to all registered land surveys. Unless approved by the City Council, a registered land survey shall not be used to divide a parcel of land into lots for the purpose of transfer of ownership or building development, if any of the tracts do not have the required frontage on a dedicated public street.

475.0462 Metes and Bounds

Conveyance by metes and bounds shall be prohibited.

475.0463 Unapproved Subdivisions

Subd. 1 No conveyance of land to which these regulations are applicable shall be filed or recorded, if the land is described in the conveyance by metes and bounds or by reference to an unapproved registered land survey made after April 21, 1961, or to a plat not approved by the City Council. The foregoing provision does not apply to a conveyance if the land described:

a) Was a separate parcel of record May 1, 1959.

b) Was the subject of a written agreement to convey entered into prior to such time.

c) Was a separate parcel of not less than two and one-half (2 ½) acres in area and one hundred fifty (150) feet in width on January 1, 1996.

d) Was a separate parcel of not less than five (5) acres in area and three hundred (300) feet in width on July 1, 1980.

475.0464 Violations and Penalty

Subd. 1 Sale of Lots from Unrecorded Plats. It shall be a misdemeanor to sell, trade, or otherwise convey any lot or parcel of land as a part of, or in conformity with any plan, plat or replat of any subdivision or area located within the jurisdiction of this Chapter unless said plan, plat or replat shall have first been recorded in the office of the Recorder of Hennepin County.

Subd. 2 Receiving or Recording Unapproved Plats. It shall be unlawful for a private individual to receive or record in any public office any plans, plats of land laid out in building lots and streets, alleys or other portions of the same intended to be dedicated to public or private use, or for the use of purchasers or owners of lots fronting on or adjacent thereto, and located within the jurisdiction of this Chapter, unless the same shall bear thereon, by endorsement or otherwise, the approval of the City Council.

Subd. 3 Misrepresentations. It shall be a misdemeanor for any person owning an addition or subdivision of land within the City to represent that any improvement upon any of the streets, alleys or avenues of said addition or subdivision has been constructed according to the plans and specifications approved by the City Council, or has been supervised or inspected by the City, when such improvements have not been so constructed, supervised, or inspected.

Subd. 4 Penalty. Anyone violating any of the provisions of this Chapter shall be guilty of a misdemeanor. Each month during which compliance is delayed shall constitute a separate offense.

Appendix E – MS4 Documents

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate Storm Sewer System (MS4) Permit MNR040000 reissued with an effective date of August 1, 2013

Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at http://www.pca.state.mn.us/ms4.

Submittal: This *MS4 SWPPP Application for Reauthorization* form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: City of Long Lake *County: Hennepin
(city, county, municipality, government agency or other entity)

*Mailing address: 450 Virginia Avenue, PO Box 606

*City: Long Lake *State: MN *Zip code: 55356

*Phone (including area code): 952-473-6961 *E-mail: jmoeller@longlakemn.gov

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Wurzer *First name: Marv
(department head, MS4 coordinator, consultant, etc.)

*Title: Public Works Director

*Mailing address: 450 Virginia Avenue, PO Box 606

*City: Long Lake *State: MN *Zip code: 55356

*Phone (including area code): (952) 476-2855 *E-mail: mwurzer@longlakemn.gov

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Carlson First name: Jesse
(department head, MS4 coordinator, consultant, etc.)

Title: WSB & Associates

Mailing address: 477 Temperance Street

City: St. Paul State: MN Zip code: 55101

Phone (including area code): (651) 286-8464 E-mail: jcarlson@wsbeng.com

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this *MS4 SWPPP Application for Reauthorization* form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

☒ Yes - *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.*

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: Marv Wurzer
(This document has been electronically signed)

Title: Public Works Director Date (mm/dd/yyyy): 11/20/2013

Mailing address: 450 Virginia Avenue, PO Box 606

City: Long Lake State: MN Zip code: 55356

Phone (including area code): 952-476-2855 E-mail: mwurzer@longlakemn.gov

***Note:** The application will not be processed without certification.*

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Cooperative Agreement for the Long Term Operation and Maintenance of Municipal Facilities with the Minnehaha Creek Watershed District	6
Erosion and Sediment Control Review and Permitting with the Minnehaha Creek Watershed District	4
Post-construction Stormwater Management Review and Permitting with the Minnehaha Creek Watershed District	5

B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships.*

The City promotes educational activities presented by the Minnehaha Creek Watershed District (MCWD). MCWD has an active permitting program for erosion and sediment control and post-construction stormwater management and the City of Long Lake's ordinances reference the MCWD's erosion and sediment control requirements and post-construction stormwater requirements. The goal may be to develop a more formal partnership for implementation of their MS4 program in the following subject areas:

- Education program implementation

- Regulatory assistance

- Project funding for TMDL implementaton project

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☐ Yes ☒ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

   ☐ Ordinance ☐ Contract language
   ☐ Policy/Standards ☐ Permits
   ☐ Rules
   ☐ Other, explain: _____

   b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

   Citation:

   Direct link:

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg.*

2. If **no:**

Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

City Code, Section 17A, Water Management,Subd 4, Public Nuisances: This section of the City code has a policy to prevent and remedy that degradation of the quality of surface or ground waters. Based upon review of this ordinance it does not effectively prohibit non-stormwater discharges into the small MS4 to the extent required by the MS4 permit. The City will revise the existing ordinance to address the requirement of the MPCA MS4 permit. A draft of the new ordinance will be developed within six months of receiving permit coverage and the final ordinance will be adopted within 12 months of the City receiving permit coverage.

Construction site stormwater runoff control

A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

City Code: Chapter 17A, Water Management

City Code: Chapter 18, Platting Variations Minor Subdivison

City Code: Chapter 19, General Building and Performance Requirements

Direct link:

Section 17A: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-36B234C436B1%7D/uploads/%7BD2586CB9-AA79-4A90-9CF9-86819121E965%7D.PDF

Section 18: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-36B234C436B1%7D/uploads/%7BB99014BC-D045-46F2-ADD8-83C0BB3A0438%7D.PDF

Section 19: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-36B234C436B1%7D/uploads/%7BF5AA4DB7-F10B-45D0-A9F2-CA7DEBE14C6F%7D.PDF

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg.*

B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☐Yes ☒ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The City's construction site stormwater runoff control requlatory mechanisms will be updated to be at least as stringent as the MPCA CSW permit. Currently the City's Code Chapter 19, General Building and Performance Requirements states "no subdivision shall be approved that requires land disturbing activities unless erosion and sediment controls are submitted to the City as part of the Stormwater Pollution Prevention Plan (SWPPP) that meets the requirements of Rule B, as may be amended, by the Minnehaha Creek Watershed District (MCWD)". The MCWD's Rule B for erosion and sediment control is at least as stringent of the MPCA construction general permit. The City's subdivision reqirement may not applicable to all activities that distrub 1 acre or greater of soil. Within 12 months of the date permit coverage is extended revisions to the City's ordinances will be completed to to close this gap.

C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

1. Best Management Practices (BMPs) to minimize erosion. ☒ Yes ☐ No

2. BMPs to minimize the discharge of sediment and other pollutants. ☐ Yes ☒ No
3. BMPs for dewatering activities. ☐ Yes ☒ No
4. Site inspections and records of rainfall events ☐ Yes ☒ No
5. BMP maintenance ☐ Yes ☒ No
6. Management of solid and hazardous wastes on each project site. ☐ Yes ☒ No
7. Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means. ☒ Yes ☐ No
8. Criteria for the use of temporary sediment basins. ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. (2): City Code, Sections 17A, 18, and 19 will be amended to include requirements to incorporate BMPs to minimize the discharge of sediment and other pollutants. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

C. (3): City Code, Sections 17A, 18, and 19 will be amended to include requirements to incorporate BMPs for dewatering activities. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

C. (4): City Code, Sections 17A, 18, and 19 will be amended to include requirements for site inspections and the recording of rainfall events. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

C. (5): City Code, Sections 17A, 18, and 19 will be amended to include requirements to incorporate requirements for doing BMP maintenance. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

C. (6): City Code Sectios 17A, 18, and 19 will be amended to include reqirements for the management of solid and hazardous wastes on each project site. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

C. (8): City Codes Sections 17A, 18, and 19 will be amended to include the use of BMP's for temporary sediment basins. The City will revise the City Ordinance using the MPCA model ECS ordinance as a guideline. The amended ordinance will be placed on the City Council's meeting agenda for approval withhin 12 months following the date permit coverage is extended.

Post-construction stormwater management

A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?
☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):
☒ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

City Code: Section 17A, Water Management

City Code: Section 18, Platting Variations and Minor Subdivisons

City Code: Chapter 19, General Building and Performance Requirements

Direct link:

Section 17A: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-36B234C436B1%7D/uploads/%7BD2586CB9-AA79-4A90-9CF9-86819121E965%7D.PDF

Section 18: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-

36B234C436B1%7D/uploads/%7BB99014BC-D045-46F2-ADD8-83C0BB3A0438%7D.PDF

Section 19: http://www.longlakemn.gov/vertical/Sites/%7BB1A99DAC-7328-47A4-8480-36B234C436B1%7D/uploads/%7BF5AA4DB7-F10B-45D0-A9F2-CA7DEBE14C6F%7D.PDF

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_PostCSWreg.*

B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☒ Yes ☐ No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

   a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of Total Suspended Solids (TSS).
      3) Stormwater discharges of Total Phosphorus (TP).

   b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of TSS.
      3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

   a. Limitations

      1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No
         a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
         b) Where vehicle fueling and maintenance occur.
         c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
         d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

      2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas: ☐ Yes ☒ No
         a) With predominately Hydrologic Soil Group D (clay) soils.
         b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
         c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
         d) Where soil infiltration rates are more than 8.3 inches per hour.

      3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process. ☐ Yes ☒ No

4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:

   a. Mitigation project areas are selected in the following order of preference: ☐ Yes ☒ No

      1) Locations that yield benefits to the same receiving water that receives runoff from the

original construction activity.

2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
3) Locations in the next adjacent DNR catchment area up-stream
4) Locations anywhere within the permittee's jurisdiction.

b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP. ☐ Yes ☒ No

c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part. ☐ Yes ☒ No

d. Mitigation projects shall be completed within 24 months after the start of the original construction activity. ☐ Yes ☒ No

e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part. ☐ Yes ☒ No

f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e). ☐ Yes ☒ No

5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:

a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance. ☒ Yes ☐ No

b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party. ☒ Yes ☐ No

c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met. ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

B.2.a.: Amend current post-construction stormwater ordinance, which includes goals for reducing post-development TSS and TP loading on an annual basis, to include volume-control requirements assocated with new development. The City will draft these amendments and be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

B.2.b.: Amend current post-construction stormwater ordinance to include requirements to reduce volume, TSS, and TP associated with redevelopment. The City will draft these amendments and they will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

B.3.a.1.: The City will amend the ordinance to include requirements for prohibiting the use of infiltration techniques as described in the permit (PartIII.D.5.a(3)(a).1).This will occur on the same schedule as B.2.a.

B.3.a.2: The City will amend the ordinance to include restricting the use of infiltration techniques for post-construction stormwater management as described in the Permit (PartIII.D.5.a(3)(a).2). This will occur on the same schedule as in B.2.a.

B.3.a.3: The City will amend the ordinance to include the exceptions for linear projects as described in the Permit (PartIII.D.5.a(3)(b)). This will occur in the schedule as in B.2.b.

B.4.a.: The City will amend the ordinance to include order of preference for selecting mitigation project areas as described in the Permit (PartIII.D.5.a(4)(a)). This will occur on the same schedule as B.2.b.

B.4.b.: The City will amend the ordinance to include requirements for the creation of mitigation projects as described in the Permit (PartIII.D.5.a(4)(b)). This will occur on the same schedule as B.2.b.

B.4.c.: The City will amend the ordinance to include the restrictions from using routine maintenance of structural BMPs to meet the requirements for mitigation projects as described in the Permit (PartIII.D.5.a(4)(c)). This will occur on the same schedule as B.2.b.

B.4.d.: The City will amend the ordinance to include the requirement to complete mitigation projects within 24 months

after the start of the original construction activity as described in the Permit (PartIII.D.5.a(4)(d)). This will occur on the same schedule as B.2.b.
B.4.e.: The City will amend the ordinance to to include the requirement to determine and document who will be responsible for the long-term maintenance on mitigation projects as described in the Permit (PartIII.D.5.a(4)(e)). This will occur on the same schedule as B.2.b.
B.4.f.: The City will amend the ordinance to mandate that money received from an owner/operator of construction activity, in lieu of meeting the conditions for post-construction stormwater management, shall be used for a public stormwater project as described in the Permit (PartIII.D.5.a(4)(f)). This will occur on the same schedule as B.2.b.
B.5.c.: The City will amend the ordinance to include conditions to address BMP modification in the future as described in the Permit (PartIII.D.5.a(5)(c)). This will occur on the same schedule as B.2.b.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☐ Yes ☒ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs.*
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

   The City will develop draft ERPs within 6 months of reciveing permit coverage. The draft ERPs will include requirements for site inspections, criteria for elevating enforcement, and enforcement tools.The ERPs will be developed for MCMs 3, 4, and 5. Enforcement mechanisms considered may include:

   - Notice of volations

   - Stop work orders

   - Securities in the form of a performance bond, letter of credit, or cash deposit

   - Misdemeanor

   - Partnerships with the watershed for enforcement of their maintenance aggreement for post-construction stormwater BMPs with private developments.

   The draft ERPs will be incorporated in the City Code or policy document within 12 months of receiving permit coverage.

B. Describe your ERPs:

City Code: Section 30, Violation, Enforcement, Effect and Validity

The City Code includes the following enforcement mechanisms:

- Written Orders

- Revocation of Permit

- Cease and Desist Use of Premises

- Misdemeanors

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

The GIS storm sewer system map is updated as the City inspects their system and completes public improvement projects.The City uses their consultant to update their GIS Information.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☐ Yes ☒ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No
4. All receiving waters. ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

B.2.: The City will amend the storm sewer system map to include the identification of outfalls. This will occur within 12 months following the date permit coverage is extended.

B.4.: The City will amend the storm sewer system map to include the identification of all receiving waters. This will occur within 12 months following the date permit coverage is extended.

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☐ Yes ☒ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☐ Yes ☒ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☐ Yes ☒ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C.2: The City has a storm sewer system map that identifies waterbodies within the City. This map will be updated to classify between lakes, wetlands, and ponds. This map will be updated within 12 months following the date permit coverage is extended.

D.2:. The City will update the storm sewer map to include a geogrpahic coordinate for each stormwater feature inventoried as described in the Permit (Part III.C.2.b). This map will be updated within 12 months following the date permit coverage is extended.

D.3.: The City will update the storm sewer map to identify the feature type for each stormwater feature inventoried as described in the Permit (Part III.C.2.b). This map will be updated within 12 months following the date permit coverage is extended.

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: http://www.pca.state.mn.us/ms4 , according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*. ☐ Yes ☒ No

If you answered **no,** the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

   The City of Long Lake is comprised of a large percentage of single family residential, industrial, and commercial development. The other land uses include multi-family residential, and parks. The priority of the eduction program has been mainly centered on issues associated with single family residential. The City sends educational information using the following:

   - Quarterly Newsletter

   - Website

   - Brochures

2. List the categories of BMPs that address your public education and outreach program, including the distribution of

educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Distribute Educational Materials	*The City will publish a series of articles in the Long Lake newsletter that is mailed to City residents and made available at City offices. The City will also continue to produce and maintain a website that will communicate water resource activities and projects at http://www.ci.Long Lake.mn.us.* *The City will obtain and/or develop a series of informational handouts that will be made available at City facilities. These handouts (flyers) will also be distributed at times in direct mailings to reach businesses and residents regarding general storm water issues. For example, the City currently has flyers related to rainwater gardens that can be distributed through direct mailing as street reconstruction projects are planned. Additionally articles will be published for selected MCMs in the Long Lake newsletter.* *This BMP will be implemented into the new permit term and incorporated into the BMP with the title "Education Activity Implementation Plan".*
Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	*The program will make known the importance of storm water issues and how people and city staff can make an impact on a larger scale. This information will also let residents know what the City is doing on a regular basis to actively improve water quality throughout the City. This includes posting article(s) on the City website and publishing article(s) in the Long Lake Bulletin relating to Minimum Control Measure #5. In addition an annual training event on municipal operations will be conducted and the information will be made available to staff.* *This BMP will be implemented into the new permit term and incorporated into the BMP under MCM 6 titled "Training".*
Coordination of Education Program	*The City will work with Hennepin County, the WMO to distribute general information on non-point source pollution, water resource impacts and needs for and benefits of reduction. The City also currently has efforts ongoing with these agencies to promote and install a range of storm water practices in suitable areas. The most efficient method of coordinating these programs is by maintaining links to related programs on the various websites including the Hennepin County web pages. Web links and access to material from both the MPCA and WMO will also be provided.* *This BMP will be implemented into the new permit term.*
Environmental Utility Fund	*The City has an Environmental Enterprise Fund (e.g., storm water utility) that is used to help fund storm water related projects and maintenance activities. While not a required BMP under the NPDES MS4 permit, the City will maintain this. An annual review of the rate structure will be accomplished in accordance with the annual financial audit process. Changes to rates will be made as needed to support the program needs.* *This BMP will be implemented into the new permit term.*

BMP categories to be implemented	**Measurable goals and timeframes**
Education Activity Implementation Plan	*Complete outline of education activity implementation program and implementation schedule for the upcoming permit year. This will include a process for prioritizing education into three areas at a minimum and may be based on:*

	• *Single family residential* • *Future TMDLs* • *Industrial land uses* *This will be completed annually by June 30th. The information will be distributed using the following techniques:* *- Quarterly Newsletter* *- Long Lake City List Serve* *- Website* *- Brochures/handouts*
Education Kiosks	*Incorporate educational kiosks into City parks or recreational facilities where water quality improvement projects are completed.*
Program Evaluation	*During yearly SWPPP review, consider which materials are most effective for our program and audiences, Use this information to determine printing numbers for future education materials.* *Consider information from citizen feedback related to all aspects of our SWPPP to determine education needs on a yearly basis.*

3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Marv Wurzer, Public Works Director

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

   An opportunity to hear comments on the SWPPP is provided each year during an annual meeting held in combination with a City Council Meeting.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Comply with Public Notice Requirements	*The City will provide at least 30 days' notice to residents through the local newspaper relating to the date, time and details of the annual public meeting. The meeting will be held in approximately May of each year to present progress to date on the City's SWPPP for the past year and required activities for the following year. The City will follow applicable public notice requirements and solicit public opinion about the adequacy of the SWPPP. The City will consider both written and oral public comments. The format and timing of the meeting will be specified to ensure full and fair consideration of all views.* *This BMP will be implemented into the new permit term.*
Solicit Public Input and opinion on the Adequacy of the SWPPP	*The City will hold an annual public meeting at a Council meeting in approximately May of each year to present progress to date on the City's SWPPP for the past year and required activities for the following year. The City will follow applicable public notice requirements and solicit public opinion about the adequacy of the SWPPP. The City will consider both written and oral public comments. Long Lake will also broadcast the annual informational meeting on community cable programming. A draft annual report will be available at the public meeting.*

	This BMP will be revised to require one opportunity annually for the public to provide input on the adequacy of the SWPPP vs. only providing for this opportunity to occurring during a Council meeting.
Consider Public Input	*The City will hold an annual public meeting at a Council meeting in approximately May of each year to present progress to date on the City's SWPPP for the past year and required activities for the following year. The City will follow applicable public notice requirements and solicit public opinion about the adequacy of the SWPPP. The City will consider both written and oral public comments. Long Lake will also broadcast the annual informational meeting on community cable programming. Adjustments to the SWPPP will be analyzed and any comments will be documented and summarized. Any significant changes identified by the input to the annual report and SWPP revisions will be incorporated.* *This BMP will be revised to require one opportunity annually for the public to provide input on the adequacy of the SWPPP vs. only providing for this opportunity to occurring during a Council meeting. Revisions to this BMP will describe the process for receiving and documenting comments received on the SWPPP.*

BMP categories to be implemented	**Measurable goals and timeframes**
Coordination of Outreach Activities	*The City will sponsor and/or provide notice regarding events that are occurring within the City or surrounding area that provide educational information regarding such topics as raingarden installation/maintenance, buckthorn removal, shoreline stabilization, and proper deicing procedures/practices.*
Online Availability of Stormwater Pollution Prevention Program Document	*Provide an electronic document of Stormwater Pollution Prevention Program document online to allow easier access to these documents..*

3. Do you have a process for receiving and documenting citizen input? ☐ Yes ☒ No

   If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   B.3. The City will develop written procedures for receiving, documenting and storing citizen input as described in the permit (Part III.C.2.b). Procedures will be in place within 12 months following the date permit coverage is extended.

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Marv Wurzer, Public Works Director

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

   The City has an ordinance that prohibits the degradation of the quality of surface or ground waters as well as pubic and private land resources. The City can enforce this language in the event of a an illicit discharge; however revisions to meet the new MS4 requirements will be necessary. City Staff and public works employees are trained to look for any signs of an illicit discharge while on the job.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?

   a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.)Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☒ Yes ☐ No

   b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☒ Yes ☐ No

   c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation. ☐ Yes ☒ No

d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☐ Yes ☒ No

e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☐ Yes ☒ No

f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☐ Yes ☒ No

g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☐ Yes ☒ No

h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C.2.c.: The City will incorporate procedures into the IDDE program for training of all field staff to be knowledgeable about identifying illicit discharges and to understand what do in the event that an illicit discharge is discovered described in the permit (Part III.D.3.c). Procedures will be in place within 12 months following the date permit coverage is extended.

C.2.d.& e., The City will incorporate procedures into the IDDE program for identifying priority areas and for a timely response to known, suspected, and reported illicit discharges as and the development of ERPs described in the permit (Part III.D.3.c.& d.). Procedures will be in place within 12 months following the date permit coverage is extended.

C.2.f.: The City will incorporate procedures for investigating, locating, and eliminating sources of illicit discharges as described in the permit (Part III.D.3.c.f). Procedures will be in place within 12 months following the date permit coverage is extended.

C.2.g.: The City will incorporate procedures for responding to spills, including emergency response procedures from entering the small MS4 as described in the permit (Part III.D.3.c.g). Procedures will be in place within 12 months following the date permit coverage is extended.

C.2.h.: The City will incorporate procedures for implementing the use of ERPS to eliminate illicit discharges as described in the permit (Part III.D.3.c.h). Procedures will be in place within 12 months following the date permit coverage is extended.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Storm Sewer System Map	*The City has prepared a draft map that shows the location of portions of the City storm sewer system, treatment facility components and receiving water bodies. The map currently helps facilitate management of the overall illicit discharge detection and elimination program and the BMP maintenance program. The map is currently drafted and is updated annually. An electronic (GIS/CAD-based) storm system infrastructure map of the MS4 will be completed in subsequent permit years to help coordinate management activities to remove illicit connections and track storm system inspections and maintenance. The map will identify: 1) ponds, streams, lakes and wetlands that are part of the City's storm system; 2) structural pollution control devices (grit chambers, separators, etc.); 3) all pipes and conveyances as a goal, but at a minimum, those pipes that are 24 inches in diameter and over; and 4) Out falls to receiving waters and other MS4s, structures that discharge directly to groundwater, overland discharge points and all other points that are outlets, but not diffuse flow areas. The existing data relating items 1-4 will be compiled. A draft GIS/CAD based map will be created and the MS4 map completed. The new BMPs and storm system created by the new and redevelopment projects will be incorporated upon the completion of the map.*

	This BMP will be implemented into the permit term and be updated to reflect the revised mapping requirements identified in the new permit.
Regulatory Control Program	*The City will adopt a regulatory mechanism to prohibit non-storm water discharges into the storm sewer system* *State law covers the use of commercial fertilizer and lawn fertilizer applications. The ordinances and codes will provide authority to inspect systems and facilities, prevent illicit connections and discharges, and allow for punitive measures.* *The city will review ordinances to determine if they are adequately meeting the illicit discharge requirements. They will also initiate formal updates to address illicit discharges in City code. Updates to the illicit discharge ordinance will be completed and the ordinance passed (due June 30, 2008). Updates will be completed as needed through a formal ordinance review and modification process.* *The City has language in City Code Section 17A regarding the degradation of the quality of surface or ground waters as well as pubic and private land resources.This ordinance will be reviewed as a part of this update process to determine what updates will be necessary.*
Illicit Discharge Detection and Elimination Plan	*The City has explored opportunities to expand existing inspection programs to address illicit connections and illegal dumping detection and elimination. The City has coordinated current activities with the complaint response program and related inspection and monitoring activities. This will be one of the methods by which the City monitors for illicit discharges into and from their system.* *A range of potentially polluting activities occurs throughout the City (e.g., construction projects, hazardous materials handling, used oil and pesticide disposal, etc.) that can be identified and better addressed through this program. The storm system outfalls in the City inspecting these outfalls will be one step in tracking down illicit discharges or other potential water quality hazards that may impact the MS4 system.* *The City will respond to complaints or information relating to potential illicit discharges and illegal dumping. An inspection program of the City storm system and development projects will be implemented. The City will also evaluate the annual monitoring data (if available) that may be available from the local watershed districts.* *This BMP will be revised to include the prioritization of areas likely to have illicit discharges. Once revised this BMP will be implemented into the new permit term.*
Public and Employee Illicit Discharge Information Program	*Representatives from city staff participate in the Public Works Forum. The group meets to discuss storm water related issues, one of which is the need for training for city personnel and issues relating to illicit discharges. Staff from Public Works and Engineering Departments will attend the PWF training sessions.* *Internal spill prevention and control training is held annually and includes personnel from street maintenance, sewers, and vehicle maintenance were required to attend. Illicit discharge and response is also covered in the internal training session.* *The City will distribute information on illicit discharges and conduct annual staff training.* *This BMP will be implemented into the new permit term.*
Identification of Non Stormwater Discharges & Flows	*The City has reviewed specific non-storm water discharges or flows (i.e., illicit discharges) and has determined that none are known to be significant contributors of pollutants to our system*

	at this time. The City will review non-storm water discharge list annually to evaluate significance of each potential source. *This list will be reevaluated and continued into the new permit term.*

BMP categories to be implemented	**Measurable goals and timeframes**
IDDE Program Updates	*Update written procedures for illicit discharge inspections, investigations, and response actions. Develop a process to document information as described in the Permit (Part III.3.h) within 12 months following the date permit coverage is extended.* *This BMP will be incorporated with the IDDE Plan.*
Illicit Discharge Inspections	*Illicit discharge inspections will be completed during the inspections of 20% of their MS4 outfalls, annual inspections of locations identified as high-priority outfalls, and staff will be trained to identify illicit discharges as they complete their daily job duties.*
Illicit Discharge Investigation	*As needed hire a contractor to televise a section of our sewer system, collect grab samples or perform other effective testing procedures to find illicit connection in the system.*

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☐ Yes ☒ No

   If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

   C.4., The City will develop written procedures for receiving, documenting and storing citizen input as descriped in the permit (Part III.D.3.h). Procedueres will be in place within 12 months following the date permit coverage is extended.

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Marv Wurzer, Public Works Director

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

   The City requires review of construction site erosion and sediment control (ESC) plans before projects begin, and work with contractors to ensure appropriate and correct use of erosion and sediment control BMPs on sites. The building inspections department is primarily responsible for checking compliance with construction site ESC plans.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):
   a. Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No
   b. Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No
   c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☐ Yes ☒ No
   d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
      1) Does your program include procedures for identifying priority sites for inspection? ☐ Yes ☒ No
      2) Does your program identify a frequency at which you will conduct construction site inspections? ☐ Yes ☒ No
      3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☐ Yes ☒ No
      4) Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☐ Yes ☒ No
   e. Does your program document and retain construction project name, location, total acreage to be ☒ Yes ☐ No

disturbed, and owner/operator information?

f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No

g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

D.2.c.: The City will develop written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public as described in the Permit (Part III.D.4.c). Procedures will be in place within 12 months following the date permit coverage is extended.

D.2.d.: The City will develop written procedures for conducting site ESC inspections as described in the Permit (Part III.D.4.d). Procedures will be in place within 12 months following the date permit coverage is extended.

D.2.g.: The City will develop written procedures for retaining documents of site ESC inspections as described in the Permit (Part III.D.4.d). Procedures will be in place within 12 months following the date permit coverage is extended.

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Ordinance or other Regulatory Mechanism	*The City will create an ordinance to address ESC requirements, enforcement, escrows etc.* *The City will create an erosion and sediment control ordinance sections to maintain adequate controls and complete updates, as needed, through formal ordinance review and modification process.* *This BMP will be implemented into the new permit term and the existing ordinances will be revised to reflect the requirements of the new MPCA Construction General Permit.*
Construction Site Implementation of Erosion and Sediment Control BMPs	*The City will establish a program and process for ESC permits and inspections along with a methodology of enforcement.* *The City will establish an ESC program which includes conducting plan reviews of proposed erosion control practices and conducting inspections of construction sites.* *This BMP will be implemented into the new permit term.*
Waste Controls for Construction Site Operators	*The City has a current policy that addresses construction site waste controls. The policy is related to building code enforcement but also gives the City the authority to address issues relating to potential water quality hazards of construction site waste management. The City will address this issue in its ESC or Storm Water Ordinance (as a section in the Ordinance).* *The City will create an ESC ordinance with a section for Waste controls. This will include recording the number of non-compliant sites (based on inspections) and recording the number of sites where City clean-up is needed.* *This BMP will be implemented into the new permit term with provisions for waste control incorporated into ordinance revisions.*
Procedure for Site Plan Review	*The City will develop and document a procedure for Site Plan Review for all land disturbing activities for compliance with the erosion and sediment control ordinance prior to issuing a building permit. This will include reviewing the development plans for sites which include land disturbing activities. The number of sites/projects reviewed annually will be recorded. The number and type of storm water management BMPs proposed will be tracked.*

	This BMP will be implemented into the new permit term.
Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	*The City will use their existing system of responding to calls to the public works department on storm water related concerns. The program phone number and process will be noticed in the City Newsletter and on the webpage. Residents of the City will be able to use the call line to report illicit discharges, report construction site erosion or sedimentation concerns and provide comments on the City's SWPPP.* *The City will maintain a dedicated storm water call number on their website and will record the number of calls and the nature of the complaint/call. Additionally the number of staff inspections resulting from the call line will be recorded along with the follow-up actions.* *This BMP will be implemented into the new permit term. The City has a tab on the home page of their website identified as "Lake & Water Quality Information". A contact number for issuing complaints will be provided on this section of their website.*
Establishment of Procedures for Site Inspections and Enforcement	*The City currently inspects all construction sites to review compliance with code and permit requirements. Developers/applicants apply to the City for a building permit and City staff complete final project reviews and site inspections during construction. The City will develop a procedure for site inspections for ESC violations. The number of sites inspected annually, the number of non-compliant sites, and the number of sites where City clean-up is needed will all be recorded.* *This BMP will be implemented into the new permit term and the two BMPs identified below will be incorporated into this BMP within 12 months following the data permit coverage is extended.*

BMP categories to be implemented	**Measurable goals and timeframes**
Prioritize Inspections	*The City will develop a process to determine the frequency for inspecting high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres, etc.).*
Documentation Procedures	*Develop written procedures to track and archive all plan review and inspection documents within 12 months following the date permit coverage is extended.*

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Marv Wurzer, Public Works Director

E. MCM 5: Post-construction stormwater management

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

   The City has a post-construction sotrmwater management ordinace that requires the utilization of BMPs for stormwater runoff from new and redevelopment projects, as well as to ensure the maintenance and operation of the stormwater BMPs.

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☒ Yes ☐ No

3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):

   a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☐ Yes ☒ No

b. All supporting documentation associated with mitigation projects that you authorize? ☐ Yes ☒ No

c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☐ Yes ☒ No

d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

E.3., The City will develop written procedures for documention of post-construciton stomwater management as described in the Permit (Part III.D.5.c.). Procedures will be in place within 12 months following the date permit coverage is extended.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Development and Implementation of Structural and/or Non-structural BMPs	*The City currently has several ordinances and standards that must be followed to address post construction runoff controls at sites where land disturbing activities are occurring. The City' current controls include: a "NURP standards" that specifies required design standards for storm water treatment ponds. The City will identify all structural and non-structural BMPs on the system map and create an inspection process. The City will record the number and type of structural and non-structural BMPs installed annually on the MS4's SW map. A database of all identified BMPs will be created along with an inspection process for the BMPs.* *This BMP will be implemented into the new permit term along with revising it to include the requirement to maintain runoff volumes, TSS, and TP for new development and reduce the runoff volume, TSS, and TP for redevelopment.*
Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	*The City will create a "Storm Water Ordinance" that will address post construction runoff, proper BMPs and BMP maintenance by June 30, 2008.* *The City has existing ordinances in-place that applies to applications for subdivision that require post-construction stormwater management. These ordinances will be revised to comply with the requirement for post-construction stormwater management for development and redevelopment. These revisions will occur within 12 months of permit coverage being extended.*
Long-term Operation and Maintenance of BMPs	*Long Lake will continue to implement the current program to require maintenance of new storm water ponds and other water quality BMPs within the City that are not owned or operated by the City. The City has a template maintenance agreement that can be used to establish specific maintenance requirements and schedules for a variety of BMPs. The City will look for opportunities to improve maintenance of private systems that were installed prior to establishment of the maintenance agreement program* *The City will require maintenance agreements on new private BMPs during the development approval process. The number of new private systems where maintenance agreements have been completed will be recorded and tracked. A private BMP maintenance agreement tracking system will be maintained.*

	This BMP will be implemented into the new permit term.

BMP categories to be implemented	Measurable goals and timeframes
Develop Written Procedures for Site Plan Review	*Develop site plan review procedures that must be completed prior to the start of construction activity within 12 months of extension of permit coverage.*
Document Pertinent Project Information	*Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.*

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Marv Wurzer, Public Works Director

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

   The City currently inspects its structural pollution control devices on an annual basis and inspects all of its outfalls, sediment basins and ponds every 5 years. The City inspects stockpiles, storage and material handling areas at the maintenance yard for potential discharges and maintenance of BMPs essentially on a daily basis, but will formally inspect this site quarterly and document the results of the inspection. The City sweeps the streets in the spring and once in the fall after leaf drop, if weather is permitting.

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No

3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   F.2.: The City will inventory, evaluate pollutants, and develop a map of facilities within the City of Long. Only facilities that have pollutants of concern will be identified and upon initial investigation it appears the only facility where this would occur would be the public works facility. This will be completed within 12 months of the date permit coverage is extened.

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Municipal Operations and Maintenance Program	*Representatives from city staff participate in the Public Works Forum (PWF).The group meets monthly to discuss storm water related issues, one of which is the need for training for city personnel. Spill Prevention and Control training is held annually, generally in about in February of each year. Public works personnel from street maintenance, sewers, and vehicle maintenance are required to attend. The park maintenance crew also attends.* *The goal of the internal staff training event is to prevent or reduce the discharge of pollutants in to the City storm water system and City water bodies. Training will address activities and best management practices to be followed during park and open space maintenance, fleet and building maintenance, new construction and storm system maintenance.* *A staff training event will be conducted at least annually to discuss the topics relating to water resources programs. The number of staff attending the annual training event and the topics covered will be recorded. Meetings will be conducted as*

	needed on storm water related operational priorities and activities. *This BMP will be implemented into the new permit term.*
Street Sweeping	*The City will continue the current street sweeping program for vehicle safety, pedestrian safety, and water quality and environmental reasons. Street sweeping will be done as weather permits (late March to early April) through the first snowfall. The City also prioritizes sweeping to target key areas of the City.* *The City will sweep at least once in the spring of each year (additional fall sweeping as weather permits). Sweep priority/targeted areas will be identified as needed throughout the year (summer and/or winter). The number of miles and the amount (volume or weight) of material collected will be estimated annually.* *This BMP will be implemented into the new permit term.*
Annual Inspection of All Structural Pollution Control Devices	*The City currently operates a program of cleaning structural BMPs including catch basins, storm water ponds and system outfalls. City staff inspects system components to look for sediment and debris buildup and proper functioning of the system and illicit discharges. The City is developing a more detailed database for the storm system that will be used to better track inspection activities and initiate maintenance work orders. The City will continue this program and look for opportunities to improve the tracking of inspection results and program efficiency. The inspection program will be coordinated with the BMP and Outfall mapping updates.* *The City will inspect 100% of the pollution control devices such as trap manholes, grit chambers, sumps, floatable skimmers, separators and other small settling or filtering devices each year. Any follow-up actions needed will be recorded, tracked, and assigned a priority level and a timeline for addressing the problem. The inspection date, weather conditions and results for each component inspected will be recorded along with the dates of any major maintenance activities.* *This BMP will be implemented into the new permit term.*
Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis	*The City currently operates a program of cleaning structural BMPs including catch basins, storm water ponds and system outfalls. City staff inspects system components to look for sediment and debris buildup and proper functioning of the system and illicit discharges. The City is developing a more detailed database for the storm system that will be used to better track inspection activities and initiate maintenance work orders. The City will continue this program and look for opportunities to improve the tracking of inspection results and program efficiency. The inspection program will be coordinated with the BMP and Outfall mapping updates.* *The City will inspect at least 20% of system outfalls, sediment basins and ponds each year. Any follow-up actions needed will be recorded, tracked, and assigned a priority level and a timeline for addressing the problem. The inspection date, weather conditions and results for each component inspected will be recorded along with the dates of any major maintenance activities.* *This will be implemented into the new permit term.*
Inspection of All Exposed Stockpile, Storage and Material Handling Areas	*The City currently operates material stockpiles and handling areas at several locations within the City. The City inspects these areas at least annually and conducts maintenance as needed as part of the overall storm system maintenance*

	program. The City will continue this program and look for opportunities to improve the tracking of inspection results and program efficiency. The inspection program will be coordinated with the BMP and outfall mapping updates. *The City will inspect the material stockpile and handling areas each year. Any follow-up actions needed will be recorded, tracked, and assigned a priority level and a timeline for addressing the problem. The inspection date, weather conditions and results for each component inspected will be recorded along with the dates of any major maintenance activities.* *This BMP will be revised to require quarterly inspections of exposed stockpile, storage, and material handling areas and be implemented into the new permit term. The revisions to this BMP will be completed within 12 months of receiving permit coverage.*
Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures	*The City will continue to update the inventory of structural runoff controls and continue current BMP maintenance and pond cleanout programs and record data in the developing GIS/CAD database system to integrate the location of these controls with schedules for regular inspection and maintenance. The program will result in timely maintenance of the City's storm system components.* *The City has created forms that are used for creating follow-up work orders for major and minor maintenance activities.* *The City will inspect and maintain system components according to priority system established by the City. The number of system components maintained, the general condition of the system, and the major maintenance completed on the system will be tracked on an ongoing basis.*
Record Reporting and Retention of All Inspections and Responses to the Inspections	*The City currently records system inspections in a database developed in-house. The City's goal is to implement a more comprehensive (GIS-based) database management system for the storm sewer system that is linked with the system map. This BMP is intended to start with the GIS data and create a database that can be expanded to include information on a range of BMPs (rainwater gardens, storm-ceptors, ponds, sump manholes, infiltration areas, etc.) located in and operated by the City. The database will help the City in tracking the condition of system components, scheduling and tracking inspections under related BMPs in the City's MS4 permit, and in completion of the annual reporting requirements. Ultimately, the database will allow more efficient use of City resources to comply with NPDES program requirements and therein protecting and improving water resources in the City.* *The City will continue to track the inspection program data in the current system. A GIS-based database system to accommodate all City storm system infrastructures will be developed. The database will be maintained and updated with system inspection records.* *This BMP will be evaluated for continuance. The development of a GIS based system for tracking operation and maintenance in the City of Long Lake may be impractical given the few numbers of BMPs that are currently functioning within the City.*
Evaluation of Inspection Frequency	*The City currently operates a program of cleaning structural BMPs including catch basins, storm water ponds and system outfalls. City staff inspects system components to look for sediment and debris buildup and proper functioning of the system and illicit discharges. The inspection program will be coordinated with the BMP and Outfall mapping updates.* *As the City develops a more functional system database to better track system maintenance activities and findings, the*

	system will assist in evaluating the frequency of maintenance for components of the City's system. As the system is populated with data, the City will be better able to evaluate the need for more or less frequent maintenance of BMPs, storm system and material storage and handling areas. *The City will reevaluate the inspection schedule and frequencies following annual reporting results. If prior year conditions warranted more or less frequent cleaning or maintenance a change in frequency will be made.* *This BMP will be implemented into the new permit term.*

BMP categories to be implemented	**Measurable goals and timeframes**
Spill Prevention & Control Plans for Municipal Facilities	*Ensure that plans describing spill prevention and control procedures are consistent among all departments. Conduct annual spill prevention and response training sessions to all municipal employees. Distribute education materials to each municipal facility by the end of year 2.*
Facility Inventory	*Update facilities inventory to identify potential pollutants at each site. Create a map of all identified facilities and BMPs implemented to prevent detrimental impacts to water quality.*
Pond Assessment Procedures & Schedule	*In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds used for treatment of stormwater. Implement schedule in years 2-5.*

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☒ Yes ☐ No

   a. If **no**, continue to 6.

   b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm. Is a map including the following items available for your MS4:

      1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☒ Yes ☐ No

      2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☐ Yes ☒ No

   c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☐ Yes ☒ No

6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No

7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas? ☒ Yes ☐ No

8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:

   a. Addresses the importance of protecting water quality? ☐ Yes ☒ No

   b. Covers the requirements of the permit relevant to the duties of the employee? ☐ Yes ☒ No

   c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☐ Yes ☒ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

F.5.c. As part of the regulatory mechanism updates for (II.B.3.a.1) the City will provide a BMP to protect drinking water

sources that the MS4 discharges may affect as described in the Permit (Part III.D.6.c). The amended ordinance will be placed on the City Council's meeting agenda for approval within 12 months following the date permit coverage is extended.

F.6. The City will develop a procedure for assessing ponds to determine TSS and TP effectiveness as described in the Permit (Part III.D.6.d). This study will develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of stormwater. A schedule will be implemented in years 2 thru 5.

F.7., The City will develop written procedures for inspection of structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas as described in the Permit (Part III.D.6.f.). Procedures will be in place within 12 months following the date permit coverage is extended.

F.8., The City will develop and implement a stormwater management training program commensurate with each employees job duties as described in the Permit (Part III.D.6.g.). Procedures will be in place within 12 months following the date permit coverage is extended.

F.9., The City will develop written procedures to document inspections, mainenance, and training as described in the Permit (Part III.D.6.h.). Procedures will be in place within 12 months following the date permit coverage is extended.

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

    Marv Wurzer, Public Works Director

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☐ Yes ☒ No

1. If **no**, continue to section VII.
2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention**:** *MS4NameHere_TMDL.*

   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

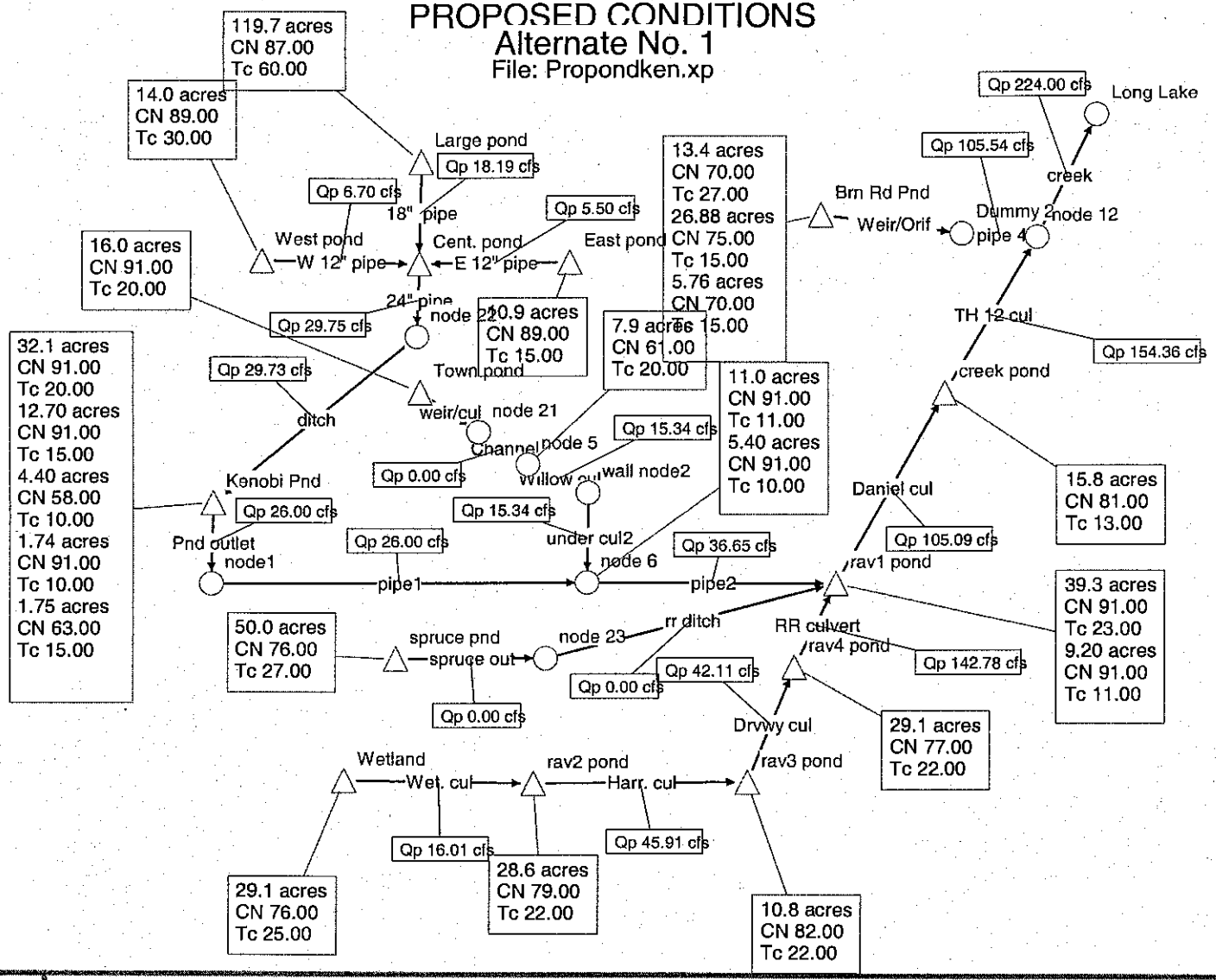
A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.
   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VIII. Add any Additional Comments to Describe Your Program

Appendix F – Hydrologic Modeling and Water Quality Treatment Summary Data

PROPOSED CONDITIONS
Alternate No. 1
File: Propondken.xp



Summary of Drainage Area Hydrologic Data:

For Areas Covered by MnDOT Model

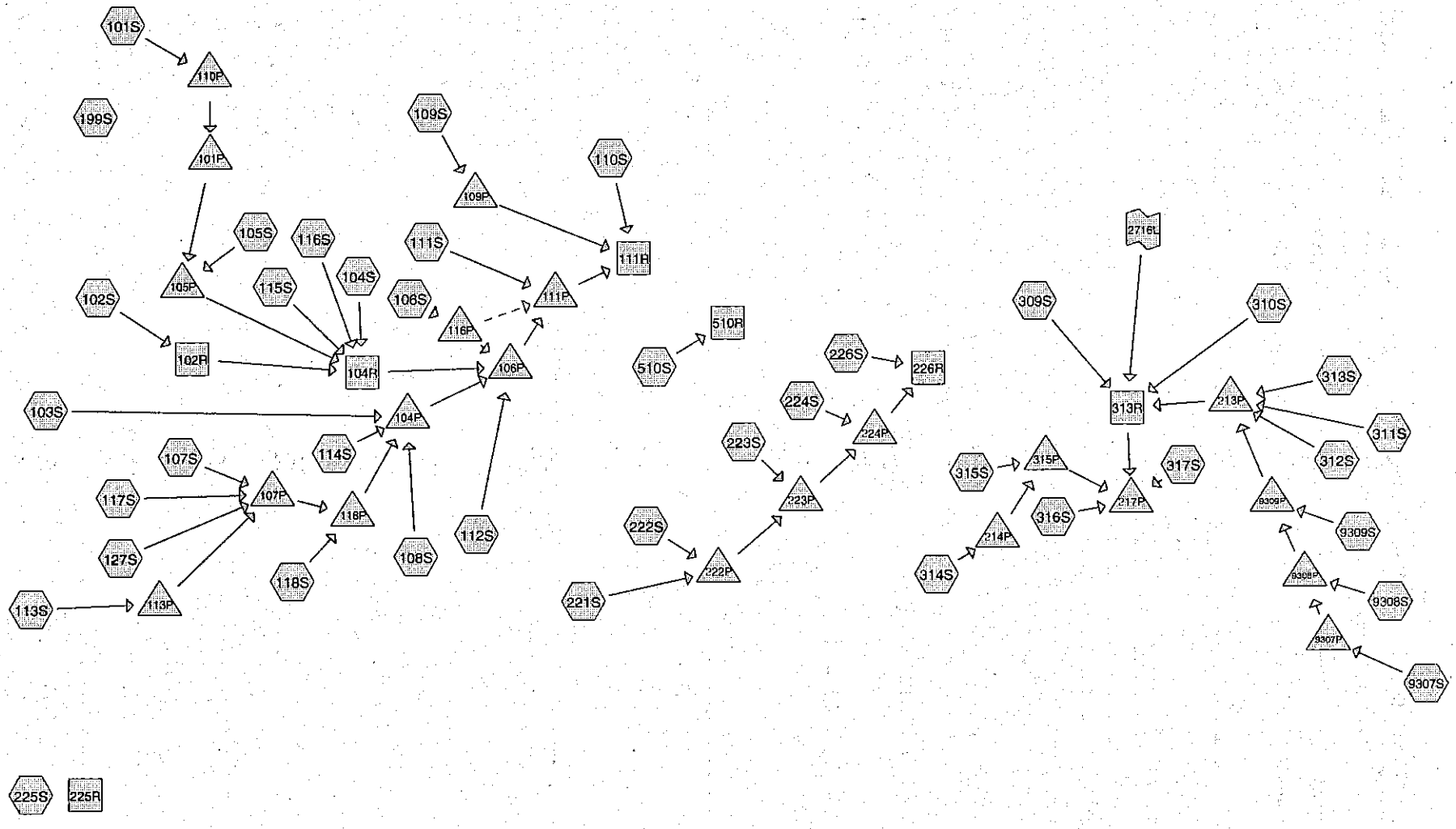
Subcatchment ID	Area (acres)	Curve Number	Time of Concentration (Min.)
MD 102 A	5.12	91	15
MD 102 B	8.9	91	20
MD 102 C	3.68	91	15
MD 102 D	10.22	91	20
MD 102 E	3.65	91	15
MD 102 F	10.35	91	20
MD 102 G	2.46	91	20
MD 103 A	2.4	58	10
MD 103 B	1.7	88	10
MD 104 A	5.09	91	7
MD 104 B	8.98	91	11
MD 105 A	-	91	15
MD 105 B	15.98	91	20
MD 106	37.89	91	23
MD 108 A	10.84	82	22
MD 108 B	29.02	77	22
MD 111 A	14.24	81	20
MD 111 B	0.29	81	7
MD 111 C	0.68	81	7
MD 111 D	0.15	91	7
MD 112 A	2.08	80	25
MD 112 B	1.15	80	25
MD 112 C	-	80	15
MD 112 D	0.34	80	15
MD 112 E	0.83	80	15
MD 112 F	1.21	80	15
MD 113	48.58	76	27
MD 115	9.4	61	20
MD 116	9.98	91	11
MD 118	26.11	82	22
MD 127	26.71	76	25
MD 221	14.26	80	20
MD 222	11.16	80	20
MD 223	7.89	87	20
MD 224 A	-	80	20
MD 224 B	0.83	80	20
MD 224 C	0.77	80	20
MD 224 D	1.06	80	20

Summary of Drainage Area Hydrologic Data:

For Areas Covered by MnDOT Model

Subcatchment ID	Area (acres)	Curve Number	Time of Concentration (Min.)
MD 309	8.19	90	15
MD 312	21.22	80	20
MD 313	17.14	85	20
MD 316 A	10.94	80	10
MD 316 B	2.72	80	10
MD 317 A	3.5	85	20
MD 317 B	13.09	85	20
MD 317 C	36.56	69	60
MD 510 A	5.93	80	35
MD 510 B	1.16	80	25
MD 510 C	0.74	80	10

Note: Subcatchment area ID corresponds to areas shown in Figures 9 and 10.



Drainage Diagram for 98 model 4 of 7 areas

Prepared by Short Elliott Hendrickson Inc. 9/24/01

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points
Runoff by SCS TR-20 method, UH=SCS, TYPE II 24-HR Rainfall=6.00"
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 101S: N of Wayzata Blvd W of Willow - Orono
Tc=17.0 min CN=88 Area=125.600 ac Runoff= 656.42 cfs 42.576 af

Subcatchment 102S: West of Industrial Pk - (mostly Orono)
Tc=28.0 min CN=91 Area=60.250 ac Runoff= 255.49 cfs 21.564 af

Subcatchment 103S: From Mn/DOT-So of RR, E of Old Crystal Rd
Tc=27.0 min CN=76 Area=47.400 ac Runoff= 145.88 cfs 12.139 af

Subcatchment 104S: North of RR Between Willow & Virginia
Tc=11.0 min CN=91 Area=19.160 ac Runoff= 123.87 cfs 6.830 af

Subcatchment 105S: Industrial Boulevard (MCWD 005 +/-)
Tc=20.0 min CN=94 Area=18.090 ac Runoff= 95.88 cfs 6.749 af

Subcatchment 106S: E of Willow Between Daniels and Wayzata
Tc=23.0 min CN=91 Area=37.600 ac Runoff= 179.81 cfs 13.444 af

Subcatchment 107S: Harrington Dr cul-de-sac
Tc=28.0 min CN=79 Area=3.500 ac Runoff= 11.49 cfs 0.972 af

Subcatchment 108S: South of RR, West of Brown Rd
Tc=22.0 min CN=77 Area=38.840 ac Runoff= 140.01 cfs 10.233 af

Subcatchment 109S: Orono - West of Brown / No of Wayzata Blvd
Tc=18.0 min CN=91 Area=60.000 ac Runoff= 319.69 cfs 21.428 af

Subcatchment 110S:
Tc=0.0 min CN=0 Area=0 sf Runoff= 0.00 cfs 0.000 af

Subcatchment 111S: NW of Brown, So of Wayzata Blvd
Tc=18.0 min CN=81 Area=11.710 ac Runoff= 50.99 cfs 3.418 af

Subcatchment 112S: West of Brown/So of RR/East of Charles
Tc=15.0 min CN=77 Area=10.000 ac Runoff= 43.42 cfs 2.637 af

Subcatchment 113S: From Mn/DOT W of Willow, So of RR
Tc=25.0 min CN=75 Area=36.100 ac Runoff= 113.76 cfs 8.988 af

Subcatchment 114S: Direct Drainage So RR Ditch; West of Brown
Tc=15.0 min CN=91 Area=6.670 ac Runoff= 39.07 cfs 2.380 af

Subcatchment 115S: SE (DS) of Town Pond to RR - ROW
Tc=20.0 min CN=91 Area=6.580 ac Runoff= 33.55 cfs 2.351 af

Subcatchment 116S: E Willow Rd/N of RR/W of Tamarack
Tc=20.0 min CN=91 Area=11.710 ac Runoff= 59.70 cfs 4.184 af

Subcatchment 117S: Orono Drainage-just w of 107/Harrington Dr
Tc=28.0 min CN=79 Area=8.000 ac Runoff= 26.26 cfs 2.221 af

Subcatchment 118S: West of Harrington
Tc=15.0 min CN=79 Area=9.190 ac Runoff= 42.11 cfs 2.554 af

Subcatchment 127S: N of Glendale Betw Willow & Harrington
Tc=20.0 min CN=79 Area=12.500 ac Runoff= 49.75 cfs 3.472 af

Subcatchment 199S: Existing Land Use in Orono-N of Wayzata
Tc=45.0 min CN=80 Area=125.600 ac Runoff= 310.90 cfs 35.697 af

Subcatchment 221S: N of Watertown Between Brown & Upper Lea
Tc=20.0 min CN=80 Area=14.900 ac Runoff= 60.84 cfs 4.245 af

Subcatchment 222S: E of Lakeview Between Dexter & Upper Lea
Tc=20.0 min CN=80 Area=11.360 ac Runoff= 46.39 cfs 3.236 af

Subcatchment 223S: Between May and Dexter
Tc=20.0 min CN=87 Area=9.340 ac Runoff= 44.51 cfs 3.108 af

Subcatchment 224S: NE of May & S of RR
Tc=20.0 min CN=80 Area=10.990 ac Runoff= 44.88 cfs 3.131 af

Subcatchment 225S: Between May & Dexter S of RR
Tc=20.0 min CN=80 Area=4.370 ac Runoff= 17.84 cfs 1.245 af

Subcatchment 226S: Hwy 12/RR East of Wayzata Blvd
Tc=15.0 min CN=80 Area=6.990 ac Runoff= 32.85 cfs 1.992 af

Subcatchment 309S: Condo's Between RR & Hwy 12
Tc=20.0 min CN=80 Area=8.700 ac Runoff= 35.52 cfs 2.478 af

Subcatchment 310S: North of Hwy 12 Tributary to Long Lk Crk
Tc=20.0 min CN=61 Area=4.670 ac Runoff= 9.72 cfs 0.702 af

Subcatchment 311S: Glenmoor Lane
Tc=15.0 min CN=85 Area=4.750 ac Runoff= 25.02 cfs 1.517 af

Subcatchment 312S: Glenmoor and Heather - drain to RR
Tc=15.0 min CN=78 Area=6.060 ac Runoff= 27.04 cfs 1.641 af

Subcatchment 313S: Area West of Glenmoor Between Hwy 12 & RR
Tc=20.0 min CN=80 Area=16.340 ac Runoff= 66.72 cfs 4.655 af

Subcatchment 314S: Direct Drainage
Tc=25.0 min CN=68 Area=16.300 ac Runoff= 40.36 cfs 3.237 af

Subcatchment 315S:
Tc=20.0 min CN=70 Area=1.900 ac Runoff= 5.75 cfs 0.405 af

Subcatchment 316S: West of Orono Orchard Road
Tc=15.0 min CN=82 Area=10.660 ac Runoff= 52.58 cfs 3.186 af

Subcatchment 317S: Fleming Add'n / Sewage Lagoon etc.
Tc=15.0 min CN=81 Area=35.410 ac Runoff= 170.57 cfs 10.337 af

Subcatchment 510S: Between Brown & Lakeview and N of Dexter
Tc=25.0 min CN=82 Area=12.970 ac Runoff= 49.47 cfs 3.877 af

Subcatchment 9307S:
Tc=0.0 min CN=0 Area=0 sf Runoff= 0.00 cfs 0.000 af

Subcatchment 9308S:
Tc=0.0 min CN=0 Area=0 sf Runoff= 0.00 cfs 0.000 af

Subcatchment 9309S:
Tc=0.0 min CN=0 Area=0 sf Runoff= 0.00 cfs 0.000 af

Reach 102R: Ditch to Willow Drive Inflow= 255.49 cfs 21.564 af
Length= 1,200.0' Max Vel= 5.1 fps Capacity= 315.25 cfs Outflow= 242.67 cfs 21.403 af

Reach 104R: Drainage Ditch on North Side of RR Inflow= 343.45 cfs 47.894 af
Length= 1,700.0' Max Vel= 5.8 fps Capacity= 418.03 cfs Outflow= 338.16 cfs 47.262 af

Reach 111R: Inflow= 501.45 cfs 119.087 af
Outflow= 501.45 cfs 119.087 af

Reach 225R:

Reach 226R: Inflow= 41.27 cfs 10.816 af
Outflow= 41.27 cfs 10.816 af

Reach 313R: Inflow= 73.20 cfs 26.553 af
Outflow= 73.20 cfs 26.553 af

Reach 510R: Inflow= 49.47 cfs 3.877 af
Outflow= 49.47 cfs 3.877 af

Pond 101P: Orono Ponds North of T.H.12 (MCWD DP-01) Peak Storage= 0.336 af Inflow= 24.00 cfs 18.228 af
Primary= 24.00 cfs 17.892 af Secondary= 0.00 cfs 0.000 af Outflow= 24.00 cfs 17.892 af

Pond 104P: South of RR Crossing (Mn/DOT Ravine 4) Peak Storage= 5.101 af Inflow= 345.58 cfs 41.715 af
Primary= 190.53 cfs 41.603 af Secondary= 0.00 cfs 0.000 af Outflow= 190.53 cfs 41.603 af

Pond 105P: "Town Pond" (MCWD DP-2 Estimate) Peak Storage= 15.912 af Inflow= 118.46 cfs 24.641 af
Primary= 20.00 cfs 13.126 af Secondary= 19.84 cfs 5.718 af Outflow= 39.84 cfs 18.844 af

Pond 106P: Between RR and Daniels (Mn/DOT Ravine 1) Peak Storage= 21.130 af Inflow= 607.25 cfs 98.209 af
Primary= 250.80 cfs 98.128 af Secondary= 0.00 cfs 0.000 af Outflow= 250.80 cfs 98.128 af

Pond 107P: Ravine W of Harrington (Mn/DOT Ravine 2) Peak Storage= 2.120 af Inflow= 95.54 cfs 14.567 af
Primary= 40.00 cfs 14.463 af Secondary= 0.00 cfs 0.000 af Outflow= 40.00 cfs 14.463 af

Pond 109P: From MCWD (DP-4) Peak Storage= 6.116 af Inflow= 319.69 cfs 21.428 af
Primary= 209.47 cfs 19.580 af Outflow= 209.47 cfs 19.580 af

Pond 110P: Virtual Pond-Represents Future Orono Ponds Peak Storage= 28.131 af Inflow= 656.42 cfs 42.576 af
Primary= 24.00 cfs 18.228 af Outflow= 24.00 cfs 18.228 af

Pond 111P: Betw Hwy 12 & Daniels (Mn/DOT Creek Pond) Peak Storage= 0.452 af Inflow= 371.98 cfs 108.254 af
Primary= 294.34 cfs 99.507 af Secondary= 76.58 cfs 8.722 af Outflow= 370.91 cfs 108.229 af

Pond 113P: From MCWD, DP-3, W of Willow So of RR Peak Storage= 4.564 af Inflow= 113.76 cfs 8.988 af
Primary= 18.04 cfs 7.902 af Outflow= 18.04 cfs 7.902 af

Pond 116P: Dummy Pond to Model Split Flow in Roadway Peak Storage= 0.083 af Inflow= 179.81 cfs 13.444 af
Primary= 89.95 cfs 6.707 af Secondary= 89.95 cfs 6.707 af Outflow= 179.90 cfs 13.415 af

Pond 118P: Betw Haringtn & Inglewod (Mn/DOT Ravine 3) Peak Storage= 1.767 af Inflow= 73.00 cfs 17.017 af
Primary= 39.33 cfs 16.963 af Secondary= 0.00 cfs 0.000 af Outflow= 39.33 cfs 16.963 af

Pond 222P: Pond Between Upper Lea & Dexter Dr Peak Storage= 3.026 af Inflow= 107.23 cfs 7.481 af
Primary= 20.02 cfs 5.569 af Secondary= 30.13 cfs 1.309 af Outflow= 50.15 cfs 6.879 af

Pond 223P: Pond Between May and Dexter Peak Storage= 1.351 af Inflow= 59.12 cfs 8.677 af
Primary= 13.63 cfs 6.518 af Secondary= 27.65 cfs 1.867 af Outflow= 41.28 cfs 8.386 af

Pond 224P: Northeast of May & Watertown / So of RR Peak Storage= 2.305 af Inflow= 57.87 cfs 9.649 af
Primary= 16.04 cfs 8.824 af Outflow= 16.04 cfs 8.824 af

Pond 313P: Wetland Between Hwy 12 & RR W of Glenwood Peak Storage= 7.796 af Inflow= 115.32 cfs 7.813 af
Primary= 0.00 cfs 0.000 af Outflow= 0.00 cfs 0.000 af

Pond 314P: Area Behind Orchard Cir (Frnch Drn Outlet) Peak Storage= 1.923 af Inflow= 40.36 cfs 3.237 af
Primary= 3.11 cfs 1.861 af Outflow= 3.11 cfs 1.861 af

Pond 315P: Wet Pond Between Bollum & Orono Orchard Rd Peak Storage= 0.730 af Inflow= 7.13 cfs 2.266 af
Primary= 1.90 cfs 1.071 af Secondary= 1.36 cfs 0.482 af Outflow= 3.26 cfs 1.553 af

Pond 317P: Inflow= 292.51 cfs 41.147 af
Primary= 292.51 cfs 41.147 af

Pond 9307P: Inflow= 0.00 cfs 0.000 af
Primary= 0.00 cfs 0.000 af

Pond 9308P: Inflow= 0.00 cfs 0.000 af
Primary= 0.00 cfs 0.000 af

Pond 9309P: Inflow= 0.00 cfs 0.000 af
Primary= 0.00 cfs 0.000 af

Link 2716L: Long Lake/Assum Initial WS = 945.5 (10-yr) Manual Inflow= 28.00 cfs 23.372 af
Primary= 28.00 cfs 23.372 af

Runoff Area = 824.210 ac Volume = 252.828 af Average Depth = 3.68"

POND 111P

FROM - MCWD PLAN APPENDIX C

Long Lake

The City of Long Lake has land in the Long Lake Creek subwatershed. In addition to the general requirements for Local Management Plans, the following items must be addressed in the city's Local Plan.

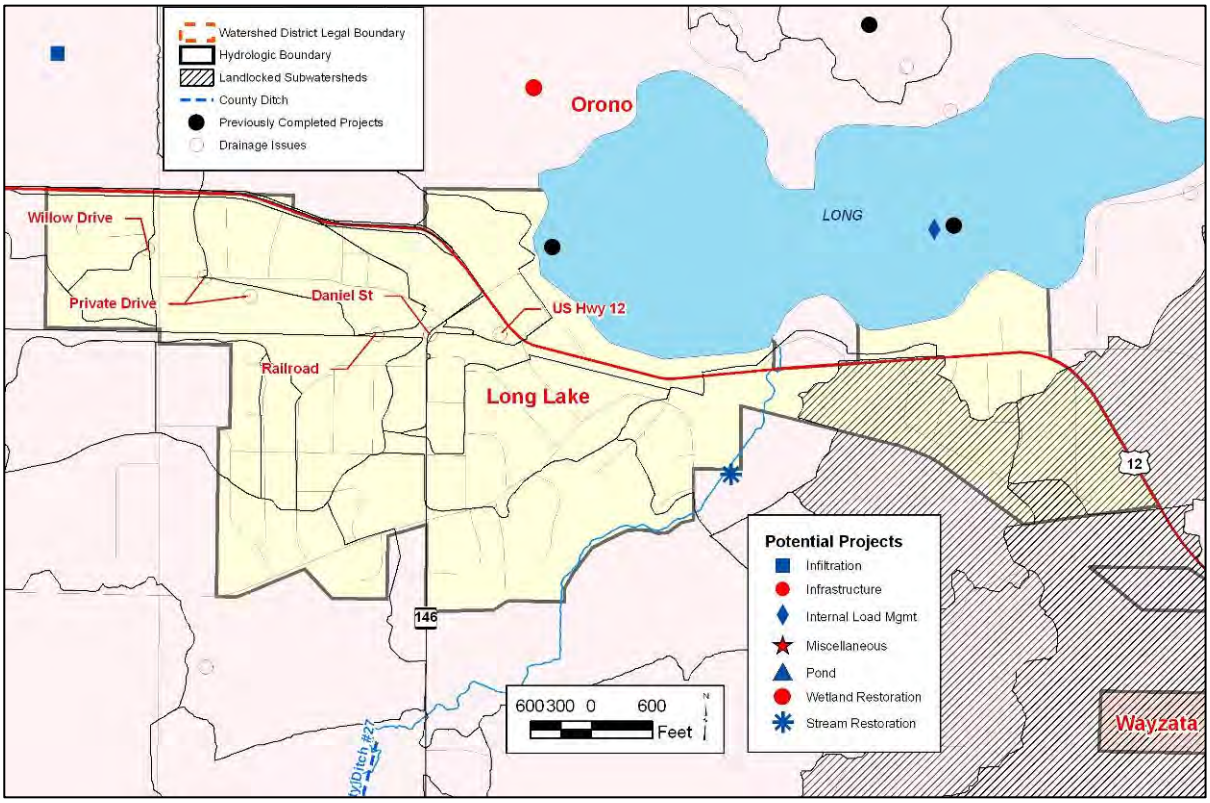


Figure 1. Subwatershed drainage areas; reported or modeled drainage issues; and capital projects.

Phosphorus Load Reduction

The Local Plan must include strategies and specific steps for the achievement of the following load reductions assigned to the City of Long Lake. These strategies may include operational, land use, and capital improvements implemented since 2000, and those planned for the future. The Plan must also include a provision for annually reporting progress towards this goal.

Table 1. Required Annual Phosphorus Load Reductions, City of Long Lake (in pounds).

Subwatershed	Receiving Water	Annual Reduction
Long Lake Creek	Upstream of Long Lake	23
Long Lake Creek	Long Lake to Tanager Lake	7
	Total	**30**

Landlocked Basins

The HHPLS identified landlocked subwatershed units in the eastern part of the city located south of Highway 12. The Local Plan must identify these and any significant non-outletting areas, discuss and incorporate strategies to minimize new volumes, and address any flooding issues.

Flooding or Modeled High Water Locations

The HHPLS identified no specific locations in Long Lake where there are known or modeled flooding issues (see Figure 1). The Local Plan must identify any known flooding areas; evaluate the associated risks to public health, safety, and property; assess whether the risk of occasional flooding is acceptable; and set forth a plan to address the flooding issues.

Flow Velocity and Erosion

The HHPLS identified six locations where the model indicates existing and future high pipe peak flow velocities may require erosion control measures or energy dissipaters at inlets and outlets (see Figure 1 and Table 2). The Local Plan must assess the need for erosion control at this location and any other locations where excessive velocities may be contributing to localized erosion.

Table 2. Known or modeled peak pipe flow velocities issues, City of Long Lake (source: HHPLS).

Description	Modeled Event	Description	Modeled Event
LLC-28 Willow Drive	1.5-year	LLC-34 Railroad	100-year
LLC-30 Private Drive	1.5-year	LLC-35 Daniel Street	1.5-year
LLC-33 Private Drive	100-year	LLC-36 US Highway 12	1.5-year

Land Conservation

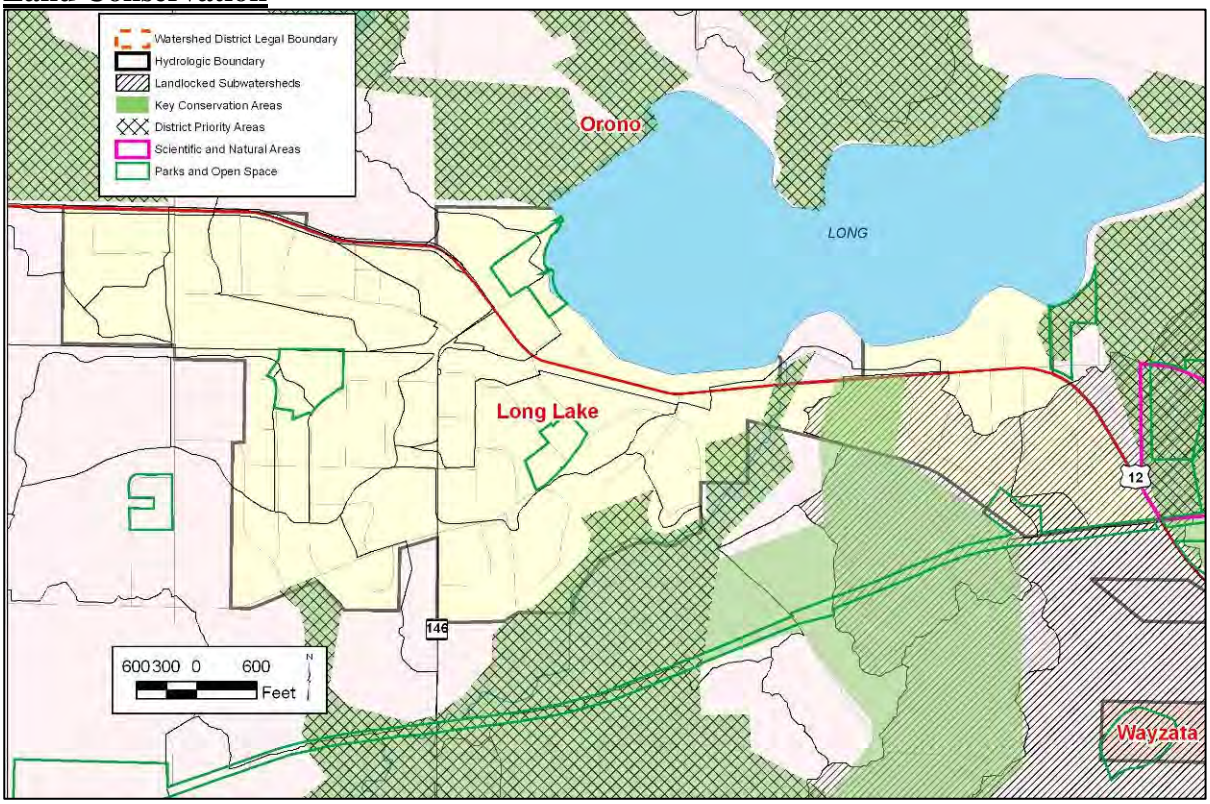


Figure 2. Key Conservation Areas in Long Lake and adajcent areas.

Within Long Lake the Key Conservation Areas are generally located along Long Lake Creek, and include adjacent wetland and upland riparian areas. The Local Plan must identify these areas and the strategies the city will use to protect and conserve the hydrologic and ecologic values of these areas and other natural areas in the city.

Operations and Maintenance: Previous Projects

Long Lake is responsible for several tasks surrounding the Long Lake Park Pond. These tasks include; mowing and general upkeep, debris and trash removal, storm sewer maintenance, fish barrier maintenance, minor erosion control, and gate and barrier maintenance.

Potential Capital Projects

The only District capital project identified in the City of Long Lake is an internal load management project for Long Lake. A potential stream restoration project on Long Lake Creek may be partly located in the city.

Other Issues

Cities must prepare and submit annually to the District, in a format approved by the MPCA and District, a report detailing actions taken in the previous year to implement the requirements of the WRMP.

The District will periodically evaluate conditions in Long Lake Creek and will work cooperatively with the City to spot repair erosion that is contributing to downstream sediment conveyance.

Areas in Long Lake drain to Long Lake, which does not currently meet state nutrient standards and which may be in the future designated an Impaired Water. At such time as that may occur, a Total Maximum Daily Load (TMDL) study would be prepared. The capital improvements program, operating programs, and watershed nutrient reduction goals in this Plan may need to be revised to achieve the load reductions that would be identified in the TMDL. Once that TMDL is finalized and approved by the MPCA and EPA, the City would have 18 months to revise its NPDES permit to include TMDL implementation activities.

TREATMENT ESTIMATES FOR LOAD REDUCTION GOAL

BMP ESTIMATES BY SUBWATERSHED TO MEET MCWD REQUIREMENTS OF PHOSPHORUS REDUCTION

							Street Sweeping				Bioretention Area Needs	
							Broom		Vacuum			
Subwatershed	Total Acres	Low Residential (acres)	Heavy Residential (acres)	Commercial / Industrial/ Transporation (acres)	Phosphorus Loading (lbs/yr)	Length of Streets (miles)	Once/yr Phosphorus Removal Rate (lbs/yr)	Twice/yr Phosphorus Removal Rate (lbs/yr)	Once/yr Phosphorus Removal Rate (lbs/yr)	Twice/yr Phosphorus Removal Rate (lbs/yr)	BMP Drainage Area Size (acres)	Total Phosphorus Removal Rate (lbs/yr)
LLC 42	41	41			23.53	0.82	0.26	0.51	0.82	1.65		
LLC 43	36.65	24.67	4.48	7.5	24.58	1.07	0.33	0.66	1.07	2.13		
LLC45	3.6	3.6			2.07	0.14	0.04	0.08	0.14	0.27		
LLC 47	69.1	63.2		5.9	41.91	1.07	0.33	0.66	1.07	2.14	14.0	5.7
LLC 48	29.3	29.3			16.82	0.97	0.30	0.60	0.97	1.94		
LL to Tanager Lk	**179.65**	**161.77**	**4.48**	**13.40**	**108.91**	**4.06**	**1.26**	**2.52**	**4.06**	**8.13**	**14.0**	**5.7**
LLC 41						1.82	0.57	1.13	1.82	3.65		
LLC 40						0.61	0.19	0.38	0.61	1.21		
LLC 39						1.35	0.42	0.84	1.35	2.69		
LLC 38						0.52	0.16	0.32	0.52	1.04		
LLC 37						0.06	0.02	0.04	0.06	0.12		
LLC 36						0.84	0.26	0.52	0.84	1.69		
LLC 35						0.96	0.30	0.59	0.96	1.91		
LLC 34						0.75	0.23	0.46	0.75	1.49		
LLC 33						0.43	0.13	0.27	0.43	0.86		
LLC 32						0.42	0.13	0.26	0.42	0.85		
LLC 30						0.35	0.11	0.22	0.35	0.71		
LLC 28						0.00	0.00	0.00	0.00	0.00		
LLC 27						0.22	0.07	0.14	0.22	0.44		
Tributary to LL						**8.33**	**2.58**	**5.17**	**8.33**	**16.66**		
Total						**12.40**	**3.84**	**7.69**	**12.40**	**24.79**		
Fraction Impervious		32	42	57								

Hydraulic Capacity of Treatment System

Flow from the downtown redevelopment area is routed to the treatment system using a combined diversion weir/culvert structure in Long Lake Ravine. The treatment and diversion system was modeled using HydroCAD® to estimate the hydraulic capacity of the system. An iterative approach was used to find the 24-hr SCS type II rainfall depth that did not exceed the system capacity and bypass any runoff. The maximum rainfall depth at which no runoff will bypass the system is 1.59 inches of rainfall which produces 0.75 inches of runoff under the area's fully developed conditions. Refer to the attached HydroCAD® report for further details.

Load Reduction Estimate Methodology

To estimate the annual load reduction expected from the treatment system the volume of runoff on an annual basis that flows through the system first needed to be determined. First a long-term rainfall record was obtained from the MSP airport and total rainfall depth of each event was translated to a depth of runoff using the SCS method. Events less than or equal to 0.22 inches of rainfall do not produce any runoff due to initial abstraction. The resulting depths of runoff from each event were ranked and summed. The total runoff depth for the period of record is 266.8 inches.

Runoff depths less than or equal to 0.75 inches will be routed through the system and treated. The total runoff depth for the period of record that is less than or equal to 0.75 inches of runoff equals 146.0 inches. Additionally, a portion of the runoff volume from runoff events beyond the 0.75 inch treatment capacity will be routed through the system and the remainder is assumed to bypass the system. There are 80 events producing more than 0.75 inches of runoff for the period of record resulting in an additional 60 inches of runoff routed through the system. Therefore the total runoff depth routed through the system for the period of record is 206.0 inches.

The ratio of runoff depth that is routed through the system to the total runoff depth is 0.77. Since a long-term period of record was used for the analysis it can be assumed that in an average rainfall year the same ratio of runoff treated to total runoff will apply. It is estimated that the treatment system will have a TP removal efficiency of 0.65, similar to bioretention practices (Minnesota Stormwater Manual, MPCA). The product of the runoff volume treated and the removal efficiency works out to be 0.50. Therefore it is expected that a TP load reduction of 50% will be achieved, meeting the MCWD BMP performance criteria.

The Simple Method for phosphorus export can then be used to estimate the average annual load and load reduction in terms of pounds of total phosphorus (TP) per year. Assuming under fully developed conditions the percentage of impervious area is 85%, the runoff coefficient, R_v, is estimated to be 0.815 using the following equation:

$$R_v = 0.05 + 0.009(I).$$

The phosphorus load, L, is then calculated with

$$L = \frac{(P)(P_j)(R_v)}{12} \times C \times A \times 2.72$$

where:

L = load in pounds per year
P = Rainfall depth per year (inches)
P_j = Fraction of rainfall events that produce runoff
R_v=Runoff coefficient
C = Flow-weighted mean concentration of pollutant in runoff (mg/l)
A = Area of the development site (acres)
2.72 and 12 are unit conversion factors

Using *P = 28.3 inches*, *P_j = 0.90*, and *C = 0.30 mg/l*, the TP load from a 13.5 acre area under fully developed conditions is estimated to be 19.1 lbs TP per year. The annual load reduction from the treatment system is therefore estimated to be 9.5 lbs TP per year.

Appendix G – Wellhead Protection Plan

DOCUMENT WITHOUT APPENDICES OR FIGURES

Part I Wellhead Protection Plan

Wellhead Protection Area and Drinking Water Supply Management Area Delineations and Vulnerability Assessments

City of Long Lake, Minnesota
Public Water Supplier 1270018

SEH No. A-LONGL9905.00

August 2003
Revised October 2003

Wellhead Protection Area and Drinking Water Supply Management Area Delineations and Vulnerability Assessments
Part I Wellhead Protection Plan
City of Long Lake, Minnesota
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August 2003
Revised October 2003

Craig L. Kurtz, PG
Hydrogeologist

Note: This report was printed on recycled paper.

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Part I Wellhead Protection Plan

Wellhead Protection Area and Drinking Water Supply Management Area Delineations and Vulnerability Assessments

Prepared for City of Long Lake
Public Water Supplier 1270018

1.0 Public Water Supply Profile

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2.0 Introduction

Short Elliott Hendrickson Inc.® (SEH) was retained by the City of Long Lake, Minnesota to assist in the development of the Wellhead Protection Plan for the City's public water supply (Public Water Supplier Identification Number 1270018). Long Lake is located within the seven-county, Twin Cities Metropolitan Area, in Hennepin County. The City's location and two municipal wells are depicted in Figure 1.

This report is Part I of the Wellhead Protection Plan and its contents have been completed in accordance with the Minnesota Department of Health (MDH) Wellhead Protection Rules (MN Rules Chapter 4720). The Rules are based on the legal mandates from the 1986 and 1996 federal Safe Drinking Water Act and the 1989 Minnesota Groundwater Protection Act.

2.1 Purpose and Scope

The goal of Minnesota's Wellhead and Source Water Protection Program is to prevent human-derived contaminants from entering the source waters used for public water supplies. The City of Long Lake has initiated its Wellhead Protection Plan because the realignment and reconstruction of State Highway 12 required the abandonment, sealing, and replacement of the City's Municipal Well 1. It has been replaced with a new Municipal Well 3. Although the new wellhouse has been labeled "Well No. 1", the new well will be referred to hereinafter as "Municipal Well 3". The City has at least until March 18, 2006 to complete Parts I and II of its wellhead and source water protection planning.

This report, the first phase of the Long Lake Wellhead Protection Plan, addresses the delineations of the capture zones and the vulnerability assessments for the two existing and active public water supply wells. Specifically, this report summarizes the approach and results of delineating the Wellhead Protection Areas (WHPAs) and Drinking Water Supply Management Areas (DWSMAs) for Municipal Wells 2 and 3. In addition, it includes vulnerability assessments for the two wells and their corresponding DWSMAs.

2.2 Background

The City has at least until March 18, 2006 to complete both parts of its Wellhead Protection Plan. The official Scoping I Meeting between city staff, SEH staff, and MDH staff was held on March 18, 2003. The MDH Initial Scoping Decision Letter was dated March 31, 2003. The City mailed a Notice of Plan Development Letter to the neighboring communities, local units of government, and the MDH on April 7, 2003. A pre-delineation meeting between SEH staff and MDH staff was conducted on June 26, 2003.

2.3 Required Data Elements

In accordance with Minnesota Rules Chapter 4720.5400 and the March 31, 2002 Scoping Document, the following subsections discuss the required data elements for Part I of the Plan.

2.3.1 Physical Environment Data Elements

2.3.1.1 Precipitation

Precipitation is assumed not to directly influence the shape or extent of the WHPAs since the bedrock aquifer supplying the municipal wells is under confined hydrologic conditions. Therefore, precipitation has not been evaluated or studied as part of the WHPA or DWSMA delineations nor vulnerability assessments.

2.3.1.2 Geology

The local and regional geologic conditions are assumed to influence the delineation of the WHPAs and DWSMAs of the Long Lake municipal wells. By characterizing the geologic and hydrogeologic conditions, the geometry, location, and magnitude of recharge and discharge areas and groundwater flow direction of the bedrock aquifer supplying the municipal wells can be determined. Therefore, through the use of well records and local and regional geologic studies and publications, the geologic and hydrogeologic conditions have been evaluated and reviewed for the WHPA delineations and vulnerability assessments. The City does not have additional geologic information from records and/or borehole geophysical records from wells, borings, or exploration test holes, or additional information from surface geophysical studies.

2.3.1.3 Soils

Since the bedrock aquifer supplying the Long Lake municipal wells exhibits confined hydrologic conditions, soils are assumed not to directly influence the WHPAs. Therefore, soils have not been studied or reviewed as part of the WHPA delineations or vulnerability assessments.

2.3.1.4 Water Resources

Other than a general review of major and minor watershed units within and adjacent to the City, surface water resources have not been evaluated or studied in this Plan since the bedrock aquifer used for public water supplies exhibits confined hydrologic conditions.

2.3.2 Land Use Data Elements

2.3.2.1 Land Uses

Figures have been included in this Plan that show parcel and political boundaries as well as public land surveys including township, range, and sections. This information was primarily used to delineate the

DWSMAs. Specific land uses and zoning within and adjacent to the DWSMAs will be evaluated and presented in Part II of the Plan.

2.3.2.2 Public and Private Utilities

Transportation routes and corridors have been incorporated into some of the figures of this Plan. Figures depicting pipelines and public drainage systems have not been included in this Plan since the bedrock aquifer supplying the municipal wells exhibits confined hydrologic conditions. However, figures depicting the City's storm sewers, sanitary sewers, and public water supply system may be included in Part II of the Plan.

Detailed information regarding the construction, maintenance, and use of the Long Lake municipal wells has been presented and evaluated in this Plan, and has been used in delineating the WHPAs and performing the vulnerability assessments.

High-capacity wells in the Long Lake area, in addition to the Long Lake municipal wells, likely influence the local groundwater flow field of the source water bedrock aquifer. These wells could impact the delineations of the WHPAs, and have therefore, been reviewed and evaluated in this Plan.

2.3.3 Water Quantity Data Elements

2.3.3.1 Surface Water Quantity

Since the source water bedrock aquifer supplying the municipal wells exhibits confined hydrologic conditions, local lakes, creeks, streams, ditches, wetlands, and other relatively shallow surface water bodies are assumed not to directly influence the WHPAs. The withdrawal of groundwater from the source water bedrock aquifer in Long Lake for public water supplies does not appear to impact or influence local surface water bodies. For model calibration purposes, deeper lakes and regional rivers were incorporated into the groundwater flow model used to delineate the WHPAs, because they are regional groundwater flow boundaries. The City is unaware of any local water-use conflicts regarding the pumping from its two municipal wells.

2.3.3.2 Groundwater Quantity

The City of Long Lake exclusively utilizes the Prairie du Chien-Jordan bedrock aquifer for public water supplies. Municipal Well 2 is only open to the Jordan Sandstone, whereas Municipal Well 3 is open to both bedrock formations.

Other bedrock aquifers in the Long Lake area include the Franconia-Ironton-Galesville and the Mount Simon-Hinckley. Both of these aquifers are stratigraphically below the Prairie du Chien-Jordan source water aquifer. A water table aquifer and possibly a buried drift aquifer may be present above the Prairie du Chien-Jordan bedrock aquifer.

The presence of these additional aquifers will not directly influence the delineation of the WHPAs nor the vulnerability assessments, since the Prairie du Chien-Jordan Aquifer exhibits confined hydrologic conditions.

The Minnesota Geological Survey (MGS) County Well Index (CWI) and the Minnesota Department of Natural Resources (MDNR) State Water Use Database System (SWUDS) were utilized to identify and quantify high-capacity wells and local groundwater uses that could influence and affect the groundwater flow field and related WHPA delineations. Databases of groundwater elevations at local wells were obtained from the Minnesota Pollution Control Agency (MPCA) and were used in calibrating the groundwater flow model. In addition, pumping records from the City were used to determine the average and highest annual pumping volumes and rates of municipal wells.

2.3.4 Water Quality Data Elements

2.3.4.1 Surface Water Quality

Since the source water aquifer used for the City's public water supply exhibits confined hydrologic conditions, the quality of local and regional surface water bodies is assumed to not directly influence or affect the WHPA or DWSMA delineations nor the vulnerability assessments.

2.3.4.2 Groundwater Quality

The quality of the groundwater from the Prairie du Chien-Jordan Aquifer is generally good. Although the Prairie du Chien formation is possibly more sensitive to human activity at the land surface due to its fractured nature, and because it is the uppermost bedrock, the Jordan Sandstone has good quality water with low concentrations of dissolved solids compared to other local aquifers.

Samples from the Long Lake municipal wells and public water supply system are routinely collected and analyzed by the MDH as required under the Minnesota Public Water Supply Program and the federal Safe Drinking Water Act. The samples are tested for microorganisms, inorganic compounds, organic chemicals, pesticides and herbicides, and radioactive contaminants. The Long Lake 2002 Drinking Water Consumer Confidence Report for the public water supply system is provided in Appendix A.

According to the 2002 Drinking Water Consumer Confidence Report, no contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. These trace contaminants include: alpha emitters, arsenic, barium, combined radium, fluoride, radon, lead, copper, sodium, and sulfate.

3.0 Physiographic Conditions

The following resources were used to review, assess and define the geologic, hydrogeologic, and hydrologic conditions in the Long Lake area:

- *Geologic Atlas of Hennepin County, Minnesota*, 1989; County Atlas Series C-4; Minnesota Geological Survey-University of Minnesota.
- *Hydrogeologic Framework and Properties of Regional Aquifers in the Hollandale Embayment, Southeastern, Minnesota*, 1986; Hydrologic Investigations Atlas HA-677; U.S. Geological Survey.
- *Geologic Factors Affecting the Sensitivity of the Prairie du Chien-Jordan Aquifer*, 1991; Minnesota Geological Survey.
- *Effects of Present and Projected Groundwater Withdrawals on the Twin Cities Aquifer System, Minnesota*, 1990; U.S. Geological Survey, MN Department of Natural Resources, and the Metropolitan Council.
- *Overview of the Twin Cities Metropolitan Groundwater Model*, July 2000; Minnesota Pollution Control Agency.
- *Hydrogeology of the Paleozoic Bedrock in Southeastern Minnesota*, 2003; Minnesota Geological Survey – University of Minnesota.

3.1 Regional and Local Geology

The sedimentary bedrock of east-central and southeastern Minnesota was formed by several periods of Early Paleozoic marine deposition. Layers of sediments were deposited by the transgression and regression of an inland sea during the Late Cambrian to Middle Ordovician. The general dip of the sedimentary bedrock is toward Minneapolis, which is near the center of the Twin Cities.

Generally, the depth to bedrock in the Long Lake area ranges from 200 to 300 feet. However, there are areas surrounding Long Lake in which the depth to bedrock is 150 to 200 feet. The top of bedrock elevation ranges from 700 to 800 feet above mean sea level (MSL). According to the well records of the Long Lake municipal wells bedrock was encountered at depths ranging from 157 (Municipal Well 2) to 192 feet (Municipal Well 3). Figure 2 is a generalized geologic cross-section through the Long Lake area. Figure 3 depicts the uppermost bedrock conditions in the Long Lake area.

The uppermost bedrock in the Long Lake area is typically the Prairie du Chien Group overlain in areas by the St. Peter Sandstone. The uppermost bedrock at Municipal Well 2 is the St. Peter Sandstone, and at Municipal Well 3 is the Prairie du Chien Group. The upper half to

two-thirds of the St. Peter Sandstone consists of fine- to medium-grained, friable quartz sandstone. The lower part of the formation contains multi-colored beds of mudstone, siltstone, and shale with interbedded very coarse sandstone. The typical thickness of the St. Peter Sandstone in Hennepin County is approximately 160 feet.

The Prairie du Chien Group is a dolostone that is sandy with minor amounts of shale in the upper third to half, and less sandy in the lower part. The formation is thin-bedded and contains thin beds of sandstone in the upper part, but is more massive- and thick-bedded in the lower part. Regionally, it is typically about 120 feet thick.

Below the Prairie du Chien Group is the Jordan Sandstone, a quartzose sandstone approximately 95 feet thick. The upper and middle portions of this formation are comprised of medium- and coarse-grained sandstone. The lower portion is massively bedded. The St. Lawrence Formation, a 45 feet thick dolomitic siltstone and shale, underlies the Jordan Sandstone.

The unconsolidated Quaternary deposits overlying bedrock in Long Lake mainly consist of glacier-derived deposits. These deposits consist mostly of loamy till of the Des Moines Lobe and Grantsburg Sublobe Deposits. The till is comprised of unsorted sediment ranging from clay to boulders, but includes small areas of thick, fine, loamy colluvium. In the western portion of the City, an area of lacustrine clay and silt is present. These deposits consist of laminated clay to silt, generally less than 10 feet thick, overlying the loamy till. Thin beds of fine, silty sand to gravelly sand occur at the deposit boundaries and at or near the base in places. Lacustrine sand and silt, consisting of silt to medium sand with interbeds and lenses of silty clay to gravely sand, is present around Long Lake.

Bedrock valleys are present less than one-mile west and one-mile east of the City. Within these valleys, the St. Peter Sandstone and Prairie du Chien Group have been eroded away. Consequently, the Jordan Sandstone subcrops beneath the unconsolidated glacial deposits and is the uppermost bedrock formation.

3.2 Regional and Local Hydrogeology

In the Long Lake area, the water table aquifer and a buried glacial aquifer are present within the unconsolidated glacial deposits overlying bedrock. The water table aquifer is unconfined and is present within the shallow glacial deposits that readily transmit water (i.e. sands and gravels). The buried glacial aquifer exists in subsurface sand and gravel deposits overlain by clay-rich sediments and glacial tills. The very fine-grained deposits are of enough thickness to hydraulically separate the buried glacial aquifer from the shallow, overlying, unconfined water table aquifer. Therefore, the buried glacial

aquifer is typically confined and under artesian conditions, but may be hydraulically connected to the St. Peter Sandstone where present.

Typically, groundwater flow in the water table aquifer is highly influenced, controlled by, and connected to local surface water bodies. Regionally, groundwater flow in the water table and buried glacial aquifer in the Long Lake area is southward toward the major groundwater boundaries of deeper lakes and the Minnesota River according to the Hennepin County Geologic Atlas. Both aquifers are at least partially or mostly separated hydraulically from the deeper bedrock aquifers by fine-grained, clay-rich glacial deposits and/or shalely deposits at the base of the St. Peter Sandstone where it is present.

The uppermost bedrock aquifer in the Long Lake area is the Prairie du Chien-Jordan Aquifer. This aquifer is the source water aquifer for the City and is used for public water supplies. In the region of Long Lake, this aquifer typically has a yield of 1,000 to 2,000 gallons per minute and flows southeasterly according to the Hennepin County Geologic Atlas. The Prairie du Chien-Jordan Aquifer is not present in the northwestern portion of Hennepin County where the Prairie du Chien Group and the Jordan Sandstone are absent due to erosion.

Groundwater in the Prairie du Chien Group is concentrated within and controlled by the fractures, joints, and solution cavities in the formation. In contrast, groundwater in the Jordan Sandstone is dominantly controlled by intergranular flow through the highly permeable, fairly uniform, quartzose sandstone. No extensive confining unit exists between the Prairie du Chien Group and the Jordan Sandstone, and they are therefore, regionally defined as one, hydraulically connected aquifer. However, recent studies indicate that the lower portion of the Prairie du Chien Group, called the Oneota Dolomite, is a semi-confining unit that hydraulically separates the Prairie du Chien Group from the Jordan Sandstone in some areas of Minnesota.

Groundwater flow in the Prairie du Chien-Jordan Aquifer is southeastward toward the Minnesota and Mississippi Rivers, regional discharges for the aquifer. The aquifer is mainly recharged by precipitation infiltration from overlying deposits and formations in the central portion of Hennepin County, where the Prairie du Chien Group and Jordan Sandstone formations subcrop beneath the glacial deposits.

Based on data from the aquifer pumping test conducted by the City in 2003, the Prairie du Chien-Jordan Aquifer is estimated to have a transmissivity of 13,100 ft^2/day (1,217 m^2/day). In addition, data from the test indicated that the aquifer is confined.

Chemical analyses (i.e. tritium or carbon-14 dating) of the groundwater in the source water aquifer have not been recently conducted. Historical tritium testing at Municipal Well 2 in 1990 indicated that tritium levels were less than 0.8 TU. This supports the assumption that the aquifer is hydraulically confined and not under the influence of surface waters.

4.0 WHPA and DWSMA Delineations

4.1 Data Elements Assessment

4.1.1 Municipal Wells and Public Water Supply

The City of Long Lake currently has two municipal wells. A third municipal well (Municipal Well 1) is being sealed this year as part of the realignment and reconstruction of State Highway 12. The locations of the two active wells are depicted in Figure 1. The specifications and characteristics of each well are summarized in Table 1. Copies of the MDH Well Records for each well are included in Appendix B. Both wells utilize the Prairie du Chien-Jordan Aquifer.

A summary of the annual groundwater production and use from 1998 through 2002 is provided in Table 2. This data was obtained from the City's records.

The 2002 population of Long Lake was 1,842. The City is nearly completely developed and the population is not expected to significantly increase in the next five or ten years. The 2020 population is predicted to be 1,915. Demand for public water supplies is not expected to significantly increase. Currently, the firm capacity of the City's public water supply system is 720,000 gallons per day. With the recent construction of the new municipal well, the City believes it will be able to meet its demand for public water supplies over the next 10 years or the life of this Plan. However, the City plans to increase the capacity of Municipal Well 2 from 500 gallons per minute (gpm) to 1,000 gpm within a couple of years so that in conjunction with the exiting Long Lake and Orono water tower, there will be adequate fire flow. The increased capacity of Municipal Well 2 will double the City's firm capacity, but will not increase the annual public water supply demand.

4.1.2 Wellhead Protection Area Criteria

The following subsections discuss in detail the Wellhead Protection Area (WHPA) criteria used to delineate the WHPAs for each of the municipal wells, as specified in Minnesota Rules Chapter 4720.5510.

4.1.2.1 Time of Travel

The WHPAs (capture zones of the wells) for the municipal wells have been delineated to a maximum ten-year travel time. The one- and five-

year travel time WHPAs have also been delineated and are shown in the figures.

4.1.2.2 Hydrologic Flow Boundaries

As previously discussed in Section 3.2, the Prairie du Chien-Jordan Aquifer appears to be confined from other overlying aquifers by clay-rich glacial deposits and the basal St. Peter Sandstone where present. The St. Lawrence Formation hydrologically separates the aquifer from deeper bedrock aquifers.

Local groundwater recharge to the Prairie du Chien-Jordan Aquifer originates from downward vertical leakage through the St. Peter Sandstone and/or overlying glacial deposits where the Prairie du Chien Group subcrops. Regional recharge to the aquifer also occurs where the bedrock formations in question outcrop along and intersect major river valleys. The regional rivers, assumed to be hydrologically connected with the Prairie du Chien-Jordan Aquifer include the Minnesota River to the south and the Mississippi River to the east.

Groundwater flow in the Prairie du Chien-Jordan Aquifer is influenced by local and regional pumping from private and public high-capacity wells. Other than Long Lake's municipal wells, no wells with significant pumping rates were identified within the city's limits. However, a few high-capacity wells were identified in neighboring communities. The pumping of these wells appears to slightly affect the local groundwater flow field. Therefore, these high-capacity wells have been incorporated into the groundwater flow model and are summarized in Table 3.

A buried bedrock valley was identified east of the City. The influence of this hydrogeologic feature was tested during the groundwater flow modeling. (Please refer to Section 4.4). In addition, the Prairie du Chien Group and Jordan Sandstone have been eroded away west and north of the City. Although this condition affects the hydaulics of the aquifer near the boundary, it was determined that the ten-year WHPAs for the two Long Lake municipal wells do not extend close enough to the boundary to affect their shape or extent.

4.1.2.3 Daily Volumes

The historical (1998-2002) and projected (2007) pumping volumes for each of the municipal wells are summarized in Table 2. The historical data was obtained from the City. The projected volumes are based on the information from the September 2000 *Report on Feasibility - Replacement of Sanitary Sewer and Water Facilities in Proposed Trunk Highway 12 Corridor*. The highest volumes for each well in Table 2 have been highlighted. These volumes were converted to pumping rates to be used in the groundwater flow model. Volumes for

the new municipal well (Municipal Well 3) were conservatively estimated based on historical use of Municipal Well 1.

4.1.2.4 Groundwater Flow Field

According to the 1989 Hennepin County Geologic Atlas, the central portion of the county is a groundwater high and recharge area for the Prairie du Chien-Jordan Aquifer. In the vicinity of Long Lake, groundwater flow in the aquifer is moving southeastward toward the Minnesota and Mississippi Rivers. Near high-capacity wells, the flow field is locally altered toward each well when they are pumping.

4.1.2.5 Aquifer Transmissivity

An aquifer pumping test was conducted by the City in accordance with the Wellhead Protection Rules (MN Rules Chapter 4720.5510-4720.5540). MDH staff approved the Aquifer Test Plan submitted on April 14, 2003. The test was conducted using the former Municipal Well 1 and the new, replacement municipal well - Municipal Well 3 (Minnesota Unique Well Numbers 208849 and 667910 respectively). The report summarizing the test was submitted to MDH staff on May 21, 2003 and is included in Appendix C.

Based on the results of the test, the representative transmissivity and storativity for the Prairie du Chien-Jordan Aquifer in the vicinity of Long Lake was determined to be 13,100 ft^2/day (1,217 m^2/day) and 0.0015 respectively. This aquifer transmissivity was utilized in the groundwater flow model developed to delineate the WHPAs for the Long Lake municipal wells.

4.1.3 Quantity and Quality of Groundwater Supplying the Municipal Wells

The public water supply for Long Lake is regularly sampled and analyzed for contamination as regulated under the federal Safe Drinking Water Act. As discussed in Section 2.3.4.2, contaminants were not detected above regulatory standards in 2002.

The Prairie du Chien-Jordan Aquifer is a viable source for public water supplies in the Long Lake area. There have been no reported cases of significant well interference issues or groundwater use conflicts related to the Long Lake municipal wells.

The Franconia-Ironton-Galesville bedrock aquifer and buried glacial drift aquifer(s) are also present in the region and could be secondary sources of public water supplies. However, the capacities of these aquifers are presumably lower, the cost to develop wells in these aquifers may be higher, and the water quality is potentially not as favorable as the Prairie du Chien-Jordan Aquifer. Under the current regulatory, political and hydrogeologic conditions, the Mount Simon-Hinckley Aquifer, the deepest viable bedrock aquifer, is not a potential

source of groundwater. Surface waters within Long Lake are also not a feasible source of public water supplies due to prohibitive costs associated with treating the water.

With the recent construction of the new municipal well (Municipal Well 3), the City does not anticipate the need to construct additional wells in the next 10 years or the life of this Plan. The development of Long Lake is nearly complete and the demand for public water supplies is not expected to significantly increase.

4.1.4 Land and Groundwater Uses

Since the source water aquifer supplying groundwater to the Long Lake municipal wells exhibits confined hydrologic conditions, land uses are assumed not to directly influence the delineation of the WHPAs or DWSMAs. However, land uses will be reviewed and evaluated in Part II of the Long Lake Wellhead Protection Plan.

As previously discussed and summarized in Table 3, several high-capacity wells were identified in communities neighboring Long Lake. These wells were identified and incorporated into the groundwater flow model developed and used to delineate the WHPAs and DWSMAs.

4.2 Conceptual Groundwater Flow Model

The hydrogeologic conceptual model of the Prairie du Chien-Jordan Aquifer in the Long Lake area consists of a single-layer system. It is assumed that the Prairie du Chien Group and the Jordan Sandstone are hydraulically connected and can be considered one aquifer. Both formations are assumed to be laterally continuous and have consistent thickness within the Long Lake area.

The main mechanism of recharge to the aquifer is assumed to be leakage from the overlying St. Peter Sandstone and/or glacial deposits into the Prairie du Chien Group. The base of the aquifer is the St. Lawrence Formation, and leakage out of the Jordan Sandstone into the St. Lawrence Formation is considered here as insignificant. Groundwater flow in the aquifer is presumed to flow in a southeasterly direction.

As previously discussed, the transmissivity of the aquifer in the Long Lake area is assumed to be 13,100 ft^2/day (1,217 m^2/day) based on the aquifer pumping test conducted in April 2003.

4.3 Groundwater Flow Modeling

A computer-generated, steady-state, groundwater flow model was developed to delineate the WHPAs for Municipal Wells 2 and 3. The following sections describe in detail the method, construction,

development, refinement, calibration, and results of the Long Lake groundwater flow model.

4.3.1 Method

The Multi-Layer Analytic Element Method (MLAEM®) groundwater modeling software (Version 5.1.08 DEV) was utilized for delineating the WHPAs. In addition, the electronic datasets from the MPCA's Version 1.00 July 2000 *Northwest Province, Layers 1, 2, and 3 Model of the Metropolitan Area Groundwater Model* (Metro Model) was used as the framework for the Long Lake Prairie du Chien-Jordan groundwater flow model.

The Metro Model was used for the large-scale model polygon mesh and simulation of regional groundwater flow fields and macro-model hydrogeologic properties. The simulated groundwater flow fields in the Long Lake area, and local hydrogeologic parameters, were refined and calibrated based on unique and specific hydrogeologic data obtained from the MDH, the MGS, the MPCA, the Hennepin County Conservation District groundwater flow model, the City, and information and data gathered by SEH during the course of this project.

4.3.2 Development, Refinement, and Calibration

For a complete and detailed description, explanation, and discussion of the Metro Model, please refer to the July 2000 MPCA report titled: *Overview of the Twin Cities Metropolitan Groundwater Model*, by John K. Seaberg; and the July 2000 MPCA report titled *Northwest Province, Layers 1, 2, and 3 Model*, by John K. Seaberg and Douglas D. Hansen.

The model was developed using a UTM, Zone 15, NAD 83 metric coordinate system. Layer 3 of the Metro Model, simulating the Prairie du Chien-Jordan Aquifer, was extracted and converted into a single layer model, specific for Long Lake. The features of the model are depicted in Figure 4, and the global hydrogeologic properties used in the model are presented in Table 4.

The thickness and base elevation of the Prairie du Chien-Jordan layer from the Metro Model were compared to the well records of the municipal wells. In the area of Long Lake the thickness of the layer was increased to 70 meters and the base elevation was raised from 120 meters above mean sea level (MSL) to 173 meters above MSL. However, to account for the dominant fracture flow of groundwater through the Prairie du Chien Group, the porosity of the layer was lowered to 0.05 and the thickness of the layer was reduced to 46.6 meters (the thickness of the Prairie du Chien Group). These changes to the local hydrogeologic properties were made only for polygon "WH-4" of the Metro Model, which encompasses Long Lake.

The global transmissivity of the Prairie du Chien-Jordan layer in the Metro Model is 7,750 ft^2/day (720 m^2/day). An area of different transmissivity (Polygon WH-4) was added to the model. The transmissivity in this area was based on the results of the April 2003 aquifer pumping test. Throughout the Long Lake area and within Polygon WH-4, an aquifer transmissivity of 13,100 ft^2/day (1,217 m^2/day) was used.

Fixed head boundaries were used in the model to replicate regional rivers – the Minnesota and Mississippi. Local high-capacity wells open to all or part of the Prairie du Chien-Jordan Aquifer were incorporated into the model. These wells included Minnesota Unique Well Numbers 205170, 208853, 497387, 509097, 589643, and 610452. Information regarding the high-capacity wells is provided in Table 3.

Long Lake's two municipal wells were added to the model. The discharges used for the wells reflect the highest historical or projected volumes identified in Table 2.

To determine whether a buried bedrock valley east of Long Lake hydraulically affected the local groundwater flow field and the WHPAs, a new polygon was incorporated into the model. The polygon's shape was based on the valley's extent, i.e. where either the Prairie du Chien Group or the Jordan Sandstone are the uppermost bedrock formation. The aquifer transmissivity in this valley was modified one order of magnitude higher and lower than the global transmissivity to determine whether the valley significantly altered the shapes and extents of the WHPAs.

The model was calibrated using a groundwater head dataset for the Prairie du Chien-Jordan Aquifer complied by MPCA staff for the Metro Model. This data was obtained from the MGS County Well Index database and the MNDNR SWUDS database. The process and calibration results for the Metro Model are described in detail in the MPCA reports. The results of the calibration for the Long Lake groundwater flow model are discussed in the following section.

4.3.3 Results

The electronic files of the MLAEM dataset for the Long Lake groundwater flow model are included on a computer disk in Appendix D.

To test the accuracy of the model, the groundwater flow model was solved with none of the wells discharging, to compare the calculated head elevations with the MPCA Metro Model calibration dataset for the layer. The mean absolute difference in groundwater heads between the model and the calibration dataset in the layer was 3.2608 meters. This value is the same as the mean absolute difference in the Metro

Model, suggesting that the changes made to the Long Lake groundwater flow model were not significant. A figure depicting the differences in head from the calibration dataset and the model is provided in Appendix E. Most of the groundwater head data points in or near Long Lake are within ±3.0 meters.

The model indicates that groundwater flow in the Prairie du Chien-Jordan Aquifer in the Long Lake area is southeastward as shown in Figure 4. This result corresponds and correlates with the MPCA Metro Model, the 1989 Hennepin County Geologic Atlas, and other regional hydrogeologic maps. Specifically, the groundwater flow field and conditions in the vicinity of Long Lake show little change in head or direction when compared to the groundwater elevation contour map in the June 2000 MPCA report (Figure 22).

4.4 Uncertainty

Due to geologic complexity, the Long Lake groundwater flow model and resulting WHPAs (capture zones) of the municipal wells are only estimates. Assumptions had to be made in developing and finalizing the model. Therefore, there exists unavoidable uncertainty in the final delineations of the WHPAs.

The Metro Model uses a porosity of 0.09 for the Prairie du Chien-Jordan Aquifer. The porosity of the Jordan Sandstone is likely 0.2 to 0.25 and the competent matrix of the Prairie du Chien Group is likely higher than 0.09. However, it is likely that, due to the fracturing present in the Prairie du Chien Group, preferential groundwater flow in this formation is via the fractures. To account for a dominant fracture-flow system, a porosity of 0.05 in the Long Lake area was used in the modeling. In addition, the thickness of the layer was reduced from 70 meters to 46.6 meters to reflect only the thickness of the Prairie du Chien Group. The use of the lower porosity and the thinner layer results in a larger capture zone (WHPA) for each municipal well. This conservative approach allows for the uncertainty regarding the movement of groundwater via fracture-flow in the Prairie du Chien Group.

A high-capacity well was identified northwest of and adjacent to Long Lake. When pumping, this well (MN Unique Well Number 509097) alters the shape and extent of the 10-year WHPA for Long Lake Municipal Well 3. Therefore, the model was run and solved under two scenarios: one with Well 509097 pumping, and one with Well 509097 not pumping. The two capture zones for Long Lake Municipal Well 3 were combined to create a composite 10-year WHPA. No other high-capacity wells in the vicinity of the City appeared to significantly affect or influence the WHPAs for the Long Lake municipal well.

After testing the influence of the buried bedrock valley east of the City by altering the transmissivity of the aquifer in the valley polygon, it was determined that the valley was far enough from the municipal wells to not significantly affect the shapes or extents of the WHPAs. The bedrock valley polygon was therefore not used in the final version of the groundwater flow model.

Generally, the local groundwater direction of the Prairie du Chien-Jordan Aquifer in the Long Lake area appears to be accurately represented in the model according to available information, namely the Hennepin County Geologic Atlas and the MPCA Metro Model reports. For this Wellhead Protection Plan, it was assumed that the groundwater flow direction would not significantly change enough (seasonally or under varying pumping conditions) to warrant using a variable groundwater flow field. However, new and local hydrologic and hydrogeologic information in the future may indicate different flow conditions, which may be due to transient conditions (i.e. seasonal changes or pumping schedules of high-capacity wells) or aquifer heterogeneities.

Based on the hydrgeologic data and information obtained and used by SEH for this project, it appears that the groundwater flow model and resulting WHPAs are reasonable. As in all complex groundwater systems, local and regional variability will occur and uncertainty will be present. The Long Lake groundwater flow model, simulating the Prairie du Chien-Jordan Aquifer, meets the intent of the Minnesota Wellhead Protection, Source Water Protection Rules, and appears adequate for Wellhead Protection purposes.

4.5 Final WHPA and DWSMA Delineations

The 10-year capture zones for the two municipal wells were created from the base elevation of the layer in the Long Lake groundwater flow model (173 meters above MSL). Two separate capture zones were delineated.

The capture zones from the groundwater flow model were converted to ArcView® shapefiles and finalized using ArcView GIS software. The one-, five- and ten-year capture zones were delineated. The WHPAs for the municipal wells are shown in Figure 5.

Using the 10-year WHPAs, the corresponding DWSMAs were delineated using the most recent parcel boundary map for the City and neighboring communities. The two DWSMAs are depicted in Figure 6. The ArcView files of the WHPAs and DWSMAs are provided electronically on a computer disk in Appendix F. The WHPAs and DWSMAs of both municipal wells extend beyond the Long Lake city limits into the City of Orono.

5.0 Well and DWSMA Vulnerabilities

This section evaluates the vulnerability of the Long Lake municipal wells and DWSMA to potential contaminant sources. The vulnerability assessments for the wells and DWSMAs were conducted in accordance with rules for preparing and implementing wellhead protection measures (MN Rules, Chapter 4720.5210). Specifically, the wells and DWSMAs have been assessed for their likelihood of pollution from land surface sources.

The vulnerability of the municipal wells is based on information regarding the geologic conditions at the wellhead, the wells' construction, and chemical and isotropic composition of the groundwater. The vulnerability of the DWSMAs is based on the lateral and vertical extent and composition of geologic materials overlying the source water aquifer, and the chemical and isotropic composition of the groundwater.

5.1 Municipal Well Vulnerability

The MDH has developed a process and database of community and non-community, non-transient, public water supply wells in Minnesota. The database stores information pertinent to well vulnerability, and rates the vulnerability of individual wells. A score is determined for each well based on factors such as well construction, geology at the well site, and chemical data. Higher scores correlate to greater perceived vulnerability to pollution. A score of 45 or higher is generally used to identify vulnerable wells from non-vulnerable wells. A well is also automatically classified as vulnerable if contamination has been detected (volatile organic compounds detected or nitrate-nitrogen levels greater than 10 mg/L), or if tritium has been detected in concentrations greater than 1.0 tritium unit (TU), indicating the presence of young (post-1953) water. The MDH Well Vulnerability Scoring Sheets for the Long Lake municipal wells are included in Appendix G.

As previously discussed, the Prairie du Chien-Jordan Aquifer in the Long Lake area appears to be confined by either the basal portion of the St. Peter Sandstone or clay-rich glacial deposits. These deposits overlying the Prairie du Chien-Jordan Aquifer retard and minimize downward, vertical infiltration of precipitation and groundwater. This presumed condition is also based on the results of the April 2003 aquifer pumping test and the lack of tritium detected in 1990 at Municipal Well 2.

Currently, both Long Lake municipal wells are classified as non-vulnerable. Generally, the information provided on the MDH Vulnerability Scoring Sheets appears accurate and the City does not have additional or updated information to challenge the scoring. The

vulnerability scoring for Municipal Well 1 has been updated to reflect the construction of the new replacement well – Municipal Well 3 (MN Unique Well Number 667910). A copy of the updated scoring sheet is provided in Appendix G. Both wells scored below 45.

5.2 DWSMA Vulnerability

The DWSMAs delineated for the Long Lake municipal wells were overlaid on various maps and ArcView® coverages to assess their vulnerability to pollutant sources at the land surface. The hydrogeologic sensitivity of the Prairie du Chien-Jordan Aquifer to contamination, based on the 1989 Hennepin County Geologic Atlas is classified as "Low" throughout both DWSMAs.

Due to the evidence that the Prairie du Chien - Jordan Aquifer is confined, the documented lack of tritium, and the presence of the St. Peter Sandstone and/or clay-rich glacial deposits throughout the DWSMAs, the DWSMAs have been classified as having low vulnerability to potential contaminant sources at the land surface.

6.0 Conclusions

A MLAEM® groundwater flow model was developed for the Long Lake area to delineate the WHPAs of the two municipal wells. The model simulated the Prairie du Chien-Jordan bedrock aquifer. The 10-year WHPAs were utilized to delineate the two DWSMAs.

Based on the vulnerability assessments, both municipal wells have been classified as non-vulnerable to potential contaminant sources at the land surface. In addition, the two DWSMAs have been identified as having low vulnerability to pollutant sources due to adequate, low-permeability, geologic deposits overlying the source water aquifer.

7.0 Recommendations

Since both municipal wells and their corresponding DWSMAs have been assessed as having non- or low vulnerability, Part II of Long Lake's Wellhead and Source Water Protection Plan should primarily focus on other wells located within the DWSMAs. Wells that are improperly constructed or maintained can be conduits for contamination to reach the source water aquifer. Therefore, a comprehensive and detailed well inventory should be conducted for the DWSMAs. In addition, a review of land uses within the DWSMAs should be performed.

Additional hydrogeologic work conducted in the next 10 years will provide supplemental data and information that can be used to more accurately refine and revise the groundwater flow model for future updates to the Long Lake Wellhead Protection Plan. Over the next decade the City will consider the following:

- Coordinate with MDH staff to have groundwater samples collected from both municipal wells to be analyzed for tritium. This updated data can be used to confirm that the source water aquifer at both wells is non-vulnerable to contaminant sources at the land surface.
- Routinely record the static and pumping groundwater levels in both municipal wells. This data can be used in the future to better define the local groundwater flow field of the aquifer, and determine whether the supply of groundwater in the aquifer is diminishing over time.
- Work with county and/or state government agencies in future and ongoing efforts to compile regional geologic and hydrogeologic information through investigations and studies.

8.0 Standard of Care

The interpretations presented in this report are based on local data collected during this study and previous studies, such as current and historical pumping tests and regional data collected from governmental agencies. Data collected and analyzed by other parties and used in this report may not be precise or accurate. This report does not account for any variations that may occur between points of exploration; geologic and hydrogeologic conditions likely differ across the study area. Also, it must be noted that seasonal and cyclical fluctuations in the hydrogeologic characteristics/properties of the aquifer will occur.

The scope of this report and the corresponding groundwater flow model is limited to the delineation of capture zones for the City of Long Lake municipal wells. Use of the groundwater flow model by others or for other purposes is not advised. Use or modification of the model for purposes other than the delineation of capture zones must be done with caution and a full understanding of the inherent assumptions and limitations of the data.

This report represents our understanding of the significant aspects of the local geologic and hydrogeologic conditions; the conclusions are based on our hydrogeologic and engineering judgment, and represent our professional opinions. These opinions were arrived at in accordance with the currently accepted standard of care for geologic and engineering practices at this time and location. No warranty is implied or intended.

References

Baseline Water Quality of Minnesota's Principal Aquifers: Region 6, Twin Cities Metro Area, March 1999; Minnesota Pollution Control Agency

Effects of Present and Projected Groundwater Withdrawals on the Twin Cities Aquifer System, Minnesota, 1990; U.S.G.S., MN Department of Natural Resources, and the Metropolitan Council.

Geologic Atlas of Hennepin County, 1989; County Atlas Series C-4; Minnesota Geological Survey-University of Minnesota.

Geologic Factors Affecting the Sensitivity of the Prairie du Chien-Jordan Aquifer: Open File Report 91.5, 1991; Minnesota Geological Survey.

Hydrogeologic Framework and Properties of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota, 1986; Hydrologic Investigations Atlas HA-677; U.S.G.S.

Hydrogeologic Map of Minnesota Bedrock Hydrogeology – A Discussion to Accompany State Map Series Map S-2, 1979; University of Minnesota - Minnesota Geological Survey.

Hydrogeologic Setting and the Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota, 1970-1980, 1984; Water-Supply Paper 2219, U.S.G.S.

Hydrogeology of the Paleozoic Bedrock in Southeastern Minnesota; Report of Investigations 61; 2003; Minnesota geological Survey – University of Minnesota

Northwest Province Layers 1, 2, and 3 Model Version 1.00; July 2000; Douglas D. Hansen and John K Seaberg, Minnesota Pollution Control Agency.

Overview of the Twin Cities Metropolitan Groundwater Model Version 1.00; July 2000; John K. Seaberg; Minnesota Pollution Control Agency.

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City of Long Lake, Minnesota
Public Water Supplier 1270018

SEH No. A-LONGL9905.00

September 2004

Part II Wellhead Protection Plan
City of Long Lake, Minnesota

SEH No. A-LONGL9905.00

September 2004

Craig L. Kurtz
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Note: This report was printed on recycled paper.

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Public Water Supply Profile

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Documentation List

STEP	DATE PERFORMED
Part I Approval Notice Received from MDH	December 15, 2003
Scoping 2 Meeting Held (MN Rules Section 4720.5349, subp. 1)	January 22, 2004
Scoping Decision Notice Received (MN Rules Section 4720.5340, subp. 2)	January 28, 2004
Remaining Portion of Plan Submitted to Local Units of Government (LGUs) (MN Rules Section 4720.5350, subp. 1 & 2)	June 14, 2004
Review Received From Local Units of Government (MN Rules Section 4720.5350, subp. 2)	August 14, 2004
Review Considered (MN Rules Section 4720.5350, subp. 3)	August 2004
Public Hearing Conducted (MN Rules Section 4720.5350, subp. 4)	September 21, 2004
Remaining Portion Wellhead Protection Plan Submitted (MN Rules Section 4720.5360, subp. 1)	September 24, 2004
Approved Review Notice Received	

Executive Summary

This portion of the wellhead and source water protection (Wellhead Protection) plan for the City of Long Lake, Minnesota includes:

- the results of the Potential Contaminant Source Inventory,
- the Potential Contaminant Source Management Strategy,
- the Emergency/Alternative Water Supply Contingency Plan, and
- the Wellhead Protection Program Evaluation Plan.

Part I of the Wellhead Protection Plan presented the delineation of the wellhead protection areas (WHPAs) and the drinking water supply management areas (DWSMAs) and the vulnerability assessments for the City's wells and the source water aquifer within the DWSMAs. Part I of the Wellhead Protection Plan was submitted to the Minnesota Department of Health (MDH) and approved on December 15, 2003. The boundaries of the WHPAs/DWSMAs are shown in Figure 1. A copy of Part I of the Long Lake Wellhead Protection Plan is included as Appendix A.

The vulnerability assessment for the source water aquifer within the DWSMAs was performed using available information and indicates that the aquifer used by the system is not considered to be vulnerable to contamination because it is covered by fine-grained geologic materials that hydraulically separate it from surface waters. Consequently, the principal potential sources of contamination to the source water aquifer are other wells that reach or penetrate it. This information was presented to the wellhead protection team during the Second Scoping Meeting held with MDH, January 22, 2004, when the necessary requirements for the content of Part II were outlined and discussed in detail.

The vulnerability assessment for the Long Lake public water supply system wells indicates that the wells are not vulnerable to contamination based on the information that documents the construction of each well.

The information and data contained in Sections 1.0 – 4.0 of this portion of the Wellhead Protection Plan (hereafter referred to as Plan) support the approaches taken to address potential contamination sources that have been identified as potentially affecting the aquifer used by the public water supply. The reader is encouraged to concentrate attention on Sections 1.0 – 4.0 in order to better understand why a particular management strategy is included in Section 5.0.

In Section 1.0, the required data elements indicated by MDH in the *Scoping 2 Decision Notice* are addressed, as well as the data's degree of reliability. Pertinent data elements include information about the geology, water quality and water quantity. The data elements and information supplied in Part I of the Plan are the basis of the assessment that the aquifer providing drinking water for this system has the potential to become vulnerable due to other wells that penetrate the same aquifer.

Section 2.0 addresses the possible impacts that changes in the physical environment, land use, and water resources have on the public water supply. No significant changes are anticipated within the next ten-year period, and City of Long Lake has evaluated the support necessary to implement its Plan.

The problems and opportunities concerning land use issues relating to the aquifer, well water and the DWSMAs, and those issues identified at public meetings, are addressed in Section 3.0. The non-vulnerable status of the aquifer and wells, and the good quality of water currently produced by the system's wells leaves only two major concerns: 1) other wells located within the DWSMAs that could become pathways for contamination to enter the aquifer; and 2) the pumping effects of high-capacity wells that may alter the boundaries of the delineated WHPAs, reduce the hydraulic head in the aquifer, or cause the movement of contamination toward public water supply wells.

The drinking water protection goals that the public water supplier (PWS) would like to achieve with this Plan are listed in Section 4.0. In essence, the PWS would like to 1) maintain or improve the current drinking water quality, 2) increase public awareness of groundwater protection issues, 3) protect the aquifer, and 4) collect data to support future efforts in Wellhead Protection Planning.

The objectives and action plans for managing the potential sources of contamination (wells that penetrate the aquifer utilized by the water system for their drinking water source) are contained in Section 5.0. Actions aimed toward educating the general public about groundwater issues, gathering information about other wells, and collecting data relevant to Wellhead Protection Planning are the general focus.

Section 6.0 contains a guide to evaluate the implementation of the identified management strategies of Section 5.0. The wellhead protection program for City of Long Lake will be evaluated on an annual basis prior to its budgeting process.

An emergency/contingency plan is included to address the possibility that the water supply system is interrupted due to either emergency situations or drought. Section 7.0 references the *Water Conservation Plan* approved by the Department of Natural Resources.

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Part II Wellhead Protection Plan

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1.0 Data Elements, Assessment

1.1 Required Data Elements

1.1.1 Physical Environment Data Elements

1.1.1.1 Precipitation

This data element does not apply because there is not a direct hydraulic connection between surface waters and the aquifer serving this water supply system.

1.1.1.2 Geology

This data element is required for and is presented in the first part of the Wellhead Protection Plan. The following recommendations are presented regarding the collection of geologic information over the time this Plan remains in effect:

- Coordinate with MDH staff to have groundwater samples collected from both municipal wells to be analyzed for tritium. This updated data can be used to confirm that the source water aquifer at both wells is non-vulnerable to contaminant sources at the land surface.
- Routinely record the static and pumping groundwater levels in both municipal wells. This data can be used in the future to better define the local groundwater flow field of the aquifer, and determine whether the supply of groundwater in the aquifer is diminishing over time.
- Work with county and/or state government agencies in future and ongoing efforts to compile regional geologic and hydrogeologic information through investigations and studies.

1.1.1.3 Soils

This data element does not apply because there is not a direct hydraulic connection between surface waters and the aquifer serving this water supply system.

1.1.1.4 Water Resources

This data element applies as it relates to future groundwater uses that may influence the ability of the aquifer to yield water to the public water supply. Increased water use may result in a reduction in aquifer yield or increase the likelihood that contaminants of human or natural origin may affect the quality of drinking water.

1.1.2 Land Use Data Elements

1.1.2.1 Land Use

A map showing the boundaries of land parcels within the WHPAs/DWSMAs, and a listing of property owners and property identification numbers used in developing Part I of this Plan. Due to the information contained in Part I, which indicates that the public water supply is not vulnerable to most land-use activities, only an inventory of other wells located within the DWSMAs is required. A listing of wells inventoried within the DWSMAs is provided in Table 1 and Figure 2 is a map showing their locations. Other information relating to land use, such as political boundary maps, comprehensive land-use maps and zoning maps for the area located within the DWSMAs, were not specifically required to be included with this Plan due to the low vulnerability of the aquifer within the DWSMAs. This information, however, can be helpful to decision-makers during future planning efforts by keeping awareness of wellhead and source water protection and groundwater quality issues in consideration.

Table 1
Wells in the DWSMAs Identified from County Well Index

Unique Well No.	Depth	Aquifer	Use
100176	112	Water Table	Domestic Supply
127503	203	Buried Sand and Gravel	Domestic Supply
155164	202	Prairie du Chien Group	Domestic Supply
157810	104	Buried Sand and Gravel	Domestic Supply
164578	91	Water Table	Domestic Supply
190302	128	Buried Sand and Gravel	Domestic Supply
206926	419	Prairie du Chien-Jordan	Lake Level Augmentation
208849	340	Prairie du Chien-Jordan	Community Supply (Abandoned/Sealed 2004)
420462	203	Buried Sand and Gravel	Domestic Supply
424073	203	Buried Sand and Gravel	Domestic Supply
509074	475	Prairie du Chien-Jordan	Test Well
509097	500	Prairie du Chien-Jordan	Community Supply

The MDH requested that the City assess whether Class V disposal systems/wells, as now regulated by the EPA, are present within the DWSMAs. City staff are not aware of any Class V wells within the DWSMAs.

1.1.2.2 Public Utility Services

Records of well construction and maintenance apply to this portion of the plan due to the information provided about the wells and the quality and quantity of the water supplying this system. This information was used to support the development of Section 7.0 of this Plan, which details an emergency/conservation plan for this system.

1.1.3 Water Quantity Data Elements

1.1.3.1 Surface Water Quantity

This data element does not apply because there is not a direct hydraulic connection between surface waters and the aquifer serving this water supply system.

1.1.3.2 Groundwater Quantity

Groundwater levels are adequate for the amounts which the City of Long Lake is currently permitted for under the groundwater appropriations program that is administered by the Minnesota Department of Natural Resources (DNR). There are currently are no other high-capacity wells within the DWSMAs for which well interference complaints with the system's wells have been documented. At this time, there appears to be sufficient groundwater quantity, based upon existing pumping capacity of the wells completed in the aquifer used by the system.

1.1.4 Water Quality Data Elements

1.1.4.1 Surface Water Quality

This data element does not apply because there is not a direct hydraulic connection between surface waters and the aquifer serving this water supply system.

1.1.4.2 Groundwater Quality

This data element applies to this portion of the Plan for the City of Long Lake. Existing information consists of isotopic and chemical analyses and indicates that the aquifer used by the public water supply is recharged very slowly by surface water. As such, there is a low probability that current land use has a direct impact on the quality of drinking water. Additional groundwater quality information should be collected over the ten-year life of the Plan. Groundwater quality information was used to determine that other wells are the primary potential source(s) that need to be inventoried and managed. Changes in the general chemistry of the well water may indicate that the aquifer is receiving recharge from different pathways, such as improperly constructed or improperly sealed wells or through different geological materials.

1.2 Assessment of Data Elements

1.2.1 Use of the Well

General information describing this public water supply system is presented in the Source Water Assessment (SWA) found in Appendix B of this Plan.

1.2.2 Wellhead Protection Area Delineation Criteria

See Part I of this Plan (Appendix A) for documentation regarding how the following delineation criteria were applied to determine the boundaries of the WHPAs:

Time of Travel - 10 years

Flow Boundaries - based on geologic information

Daily Volume - provided by the system

Groundwater Flow Field - delineation method was computer modeling

Aquifer Transmissivity - determined from aquifer pumping test

1.2.3 Quality and Quantity of Water Supplying the Public Water Supply Well

Water quality monitoring results indicate no evidence of contamination from 1) human origin, such as fuel and fuel break-down products, pesticides, or commercial fertilizer, or 2) naturally occurring contaminants such as arsenic, boron or radium. At this time problems with water quality are not an issue, as the system has enjoyed water quality that meets or exceeds standards in the Federal Safe Drinking Water Act.

1.2.4 Groundwater Uses in the Drinking Water Supply Management Area

The management strategies selected and documented in Section 5.0 of this Plan will focus on activities that have the most potential to impact the aquifer this system is using for its drinking water supply. For a non-vulnerable system, other wells are the most likely potential impacts to the aquifer.

Table 2
Types of Wells Inventoried in the DWSMAs

Type Of Well	Number of Wells	DNR Permit No.
Other Public Water Supply	1	701351
Ag. Irrigation	0	NA
Non-Ag. Irrigation	0	NA
Industrial	0	NA
Commercial	0	NA
Dewatering	0	NA
Domestic	8	NA
Observation	0	NA
Unused/Unsealed	0	NA
Sealed/Reported to MDH	0	NA
Class 5 Automotive	0	NA

2.0 Impact of Changes on Public Water Supply Wells

2.1 Changes Identified in:

2.1.1 Physical Environment

Large-scale changes in the physical environment within the DWSMAs are not anticipated during the 10-year period that this Plan is in effect. The geologic conditions that protect the water supply are such that changes in physical environment should have little to no effect on the aquifer within the DWSMAs.

2.1.2 Land Use

Land uses in the DWSMAs will likely have little impact on the aquifer unless additional wells are developed or water demand is increased to the point that additional loss in hydraulic head occurs within the aquifer used by the public water supply. Constructing additional wells into the aquifer may increase the points of entry, or draw naturally-occurring or human-caused contaminants towards the public water supply wells.

State Highway 12 is currently being realigned, redesigned and reconstructed in Long Lake by the Minnesota Department of Transportation (MnDOT). The City is aware that approximately 10,000 cubic yards of soil were excavated by MnDOT near Daniels Street and Brown Bay Road to create an unlined stormwater retention pond. A significant amount of this excavated soil was contaminated with petroleum products related to a Minnesota Pollution Control Agency (MPCA) LUST site identified as the Burlington Northern site (MPCA Leaksite #3686). To determine whether this contamination is a legitimate threat to the Long Lake municipal wells or source water aquifer, SEH contacted MnDOT and MPCA staff. The following information was obtained:

- Leaksite #3686 was investigated and closed by the MPCA in 1997.
- The MPCA is aware of the current remedial work being conducted at the site as part of the reconstruction of State Highway 12.
- Significant soil contamination was encountered at this site by MnDOT in 2003 and 2004 during the reconstruction of State Highway 12.
- During excavation for a stormwater retention pond, MnDOT removed and had soils contaminated with greater than 1,000 parts per million (ppm) of petroleum products thermally treated offsite. Soils contaminated between 10 and 1,000 ppm were removed from the site and used as controlled fill in other areas of the highway reconstruction project.
- The soil onsite consisted of clayey loam that likely minimized the migration of the contamination. Residual soil contamination may still be present in the walls of the stormwater retention pond, but there appeared to be a sharp cutoff between contaminated soils and noncontaminated soils.
- Perched groundwater seeped into the excavation during the removal of the soils. Significant groundwater contamination is unlikely. Any groundwater contamination would likely be within the uppermost water table aquifer, which flows toward Long Lake away from the municipal well.
- MnDOT believes the source area of the soil contamination has been thoroughly removed.

Although the site is geographically close to Long Lake municipal wells, the soil and groundwater contamination discovered and investigated at this property does not appear to be a significant threat to the City's public water supply (wells or source water aquifers) due to the thick layers of clay and shale between the land surface and the bedrock aquifers used by the City.

2.1.3 Surface Water

There appears to be no direct hydraulic connection between surface water and the aquifer used by the public water supply (PWS) system as a drinking water source. Therefore, any changes to the conditions of surface waters will have little or no impact on the quality or quantity of the PWS.

2.1.4 Groundwater

The public water supply wells has historically provided groundwater of excellent quality and quantity. As of the date of Plan approval, the PWS system does not anticipate a large increase in water use or is not aware of any such water use expansions in the DWSMAs or immediately adjacent area.

2.2 Impact of Changes

2.2.1 Expected Changes in Water Use

The PWS does not anticipate that its water use will increase by more than one-percent during the first five years that this Plan is in effect. The PWS will re-evaluate its water-use patterns for the second five-year interval as part of its normal planning activities and incorporate these results into future revision of this Plan.

2.2.2 Influence of Existing Water and Land Government Programs and Regulations

Recognizing that the State Well Code has sole authority in permitting wells, there may be existing land use ordinances by local governments that could be revised in the future to address new private wells within the DWSMAs. However, there is no discussion or intention at this time of requiring additional regulation related to managing wells within the system's DWSMAs. Hennepin County Environmental Services will assist with addressing additional unused/unsealed wells as they are identified. The city also has an ordinance prohibiting the connection of new wells to a plumbing system so that it interconnects with the public water supply distribution system. A copy of this portion of the City Ordinance is included in Appendix C.

2.2.3 Administrative, Technical, and Financial Considerations

For this Plan to be effective:

1. The PWS will need to raise public awareness of the issues affecting its drinking water supply through public educational programs.
2. Administrative duties will remain with the Wellhead Protection Manager, who will report to the governing authority, coordinate implementation of wellhead protection management action plans, and conduct regular meetings.
3. Support of wellhead and source water protection activities will be provided by funds from the City's utility water operating fund as well as a Wellhead Protection budget line item to be created during the next budgeting process. Other sources of funding or in-kind services to help achieve the goals set forth in this Plan's Section 4.0 include: 1) Hennepin

County Environmental Services and their well sealing cost-share program; 2) the Minnesota Department of Health assisting with determining the correct measures for sealing unused wells, constructing new wells, and requiring the sealing of unused wells if this becomes necessary; and 3) the Minnesota Rural Water Association providing technical assistance during the wellhead protection implementation phase.

4. The costs of implementing wellhead and source water protection activities will be evaluated on an annual basis to determine whether the original cost estimates match 1) the scope of the management practices identified in this part of the Plan, 2) changes in the status of the wells listed in Tables 1 and 2, actual costs related to proper sealing of unused/unsealed wells. The system will discuss changes in Plan implementation costs with MDH to determine the availability of state or federal funding for offsetting increased costs to plan implementation.

3.0 Issues, Problems, and Opportunities

3.1 Land Use Issues, Problems, and Opportunities Related to:

3.1.1 The Aquifer

The non-vulnerable aquifer, identified as the source of the system's water supply, should be relatively unaffected by land use activities, with the exception of other wells that penetrate the same aquifer.

3.1.2 The Well Water

The wellhead protection plan is primarily concerned with other water supply wells located within the DWSMAs. The potential contaminant source inventory performed by SEH and the wellhead protection team indicated the types of wells listed in Table 2. Some of these wells may extend into the aquifer that supplies the system with its water. These wells, if maintained improperly, could convey pollutants to the aquifer.

The placement of additional high-capacity wells, increased pumping from existing wells, or significant changes in current groundwater appropriations within the DWSMAs may have an impact on groundwater availability to all users, or increased risk that contamination may enter the part of the aquifer used by the public water supply wells.

3.1.3 The Drinking Water Supply Management Area

The principal concern expressed by the system is to ensure consistent and long-term management of water wells, environmental boreholes, and observation wells within the DWSMAs. The public water supply has limited legal capabilities to regulate well construction and sealing in the areas of the DWSMAs beyond its legal authority. At least half of the DWSMAs are outside the city limits of Long Lake, in the City of Orono. City staff will cooperate and collaborate with Orono city staff in wellhead and source water protection efforts. Changes in land use that increase pumping of the aquifer used by the City's wells need to be assessed for possible impacts on water availability and quality. Finally, the system has no regulatory authority over water appropriations and must rely on the Minnesota Department of Natural Resources (DNR) to address issues and concerns related to pumping.

3.2 Identification of:

3.2.1 Problems and Opportunities Disclosed at Public Meetings and in Written Comment

At the beginning of the planning process other local government units (LGUs) were identified and informed that the system was beginning the wellhead protection planning process. (See Appendix D for a list of LGUs.) Each unit of government was also sent a copy of the City's delineated WHPAs and DWSMAs and vulnerability assessment for the wells and DWSMAs. To date, no comments from the LGUs have been received. The general public was also given opportunities to participate in the planning process and to comment at the public informational meeting and public hearing. No concerns from the general public have been expressed at this time.

3.2.2 Data Elements

The state's Wellhead Protection Rule requires that existing information be utilized in developing Part I of the Wellhead Protection Plan. Much of the data collected and utilized to delineate the system's WHPAs and DWSMAs, and to determine the vulnerability of the aquifer to possible contamination, comes from small-scale or regional studies. There is a limited amount of subsurface information available to define local groundwater flow conditions and the groundwater chemistry of the aquifer within the DWSMAs. The direction of groundwater flow was evaluated to address concerns that the current amount of subsurface information does not permit an unquestioned determination of local groundwater flow conditions toward the system's water supply wells. As a result, delineation of the WHPAs represents a composite of capture zones generated by varying aquifer properties.

The City plans to utilize public education opportunities, both existing and proposed, to address potential contamination of the aquifer by other wells. Additionally, the system will work in cooperation with Hennepin County Environmental Services to utilize the well sealing cost-share program currently available. The City currently has an ordinance in place that prohibits the cross connection between privately owned wells and the community water supply distribution system. The City will set a high priority on well sealing for existing wells that are unused or not properly maintained.

The City will work with MDH to 1) identify proposed wells that may present these additional concerns, 2) ensure these wells are properly constructed, 3) determine whether an alternative aquifer could be used, and 4) identify water-use and conservation requirements that the DNR may specify with the groundwater appropriations permit.

Long Lake plans to continue to focus its data collection efforts on the following activities throughout the ten-year life of this Plan:

1. The City will work with MDH to identify new wells that are constructed within the DWSMAs and to verify their locations;
2. The City will inform MDH when any system well is repaired so that information regarding well construction, static water level, and pumping capacity can be verified or updated;

3. The City will collect water samples on a biennial basis from each well and analyze the well water for total anions and cations. The results of this monitoring will be used to determine trends in natural water quality;

4. The MDH will collect a water sample from at least one well after the first five years of plan implementation and have the water analyzed for tritium content using an enriched analytical technique. Testing results will be used to document that the rate of recharge to the aquifer is not increasing and that it is still hydraulically isolated from surface water.

5. The system and MDH will inform each other of additional high-capacity wells that are to be constructed within the DWSMAs or within a mile of its boundary. MDH will determine with the DNR whether the applicant for a water appropriations permit needs to conduct an aquifer test to evaluate the long-term pumping impacts on the City's water supply wells;

6. The City will inform MDH of any wells that are to be properly sealed within the DWSMAs so that the Minnesota Geological Survey can be notified and determine whether it can run a borehole geophysical survey of the wells; and

7. The City will inform MDH if the City is considering the construction of a new water supply well so that MDH can determine whether any potential sites for the new well present concerns over well interference or the movement of existing contamination plumes toward existing system or private water supply wells.

3.2.3 Status and Adequacy of Official Controls, Plans, and Other Local, State, and Federal Programs on Water Use and Land Use

There are many tools available to the regulating agencies that may be used to achieve the wellhead and source water protection planning goals identified by the wellhead planning team. State and local governmental units, such as MDH, Hennepin County, and the DNR, regulate:

- well construction (MDH),
- well sealing (MDH),
- state groundwater appropriation permits (DNR),
- public water supply quality (MDH),
- setbacks for specific contaminant sources from a well (MDH and local governments through conditional use permitting), and
- land use controls - local governments.

The wellhead protection planning team recommends that no additional regulations be imposed at this time and are confident that local issues may be adequately addressed through existing processes. Processes include public education, adoption of best management practices for well maintenance and water conservation, and good communication with other landowners within the DWSMAs.

Hennepin County Environmental Services has been contacted to determine the availability of cost-share funds to assist with the sealing of identified unused/unsealed wells within the DWSMAs.

4.0 Wellhead Protection Goals

The Long Lake public water supply is located deep underground and is classified as non-vulnerable based on the geologic characteristics in the area that tend to confine the aquifer and protect it from contamination resulting from land use activities. Consequently, this Plan will focus on addressing the placement and usage of other wells that may be used for domestic, public or commercial purposes. The overall goals are to 1) prevent contamination of the aquifer and, 2) manage the source water aquifer cooperatively to assure sustainable water supplies for all users.

The Long Lake public water supply system has enjoyed a sufficient and safe water supply in the past, and proposes through the implementation of this Plan to continue supplying safe, potable water for its customers into the future.

The wellhead protection team identified the following goals to be achieved with the action items contained in this Plan:

- Maintain the current level of water quality, which meets or exceeds all state and federal standards.
- Educate public officials, landowners and the general public about the importance of wellhead protection to protect the public drinking water supply.
- Provide ongoing collection of data to support future wellhead protection efforts.
- Increase general public awareness of groundwater problems.
- Implement active, community-wide, water conservation program.
- Assess the impact on the source water aquifer from existing and planned wells within the DWSMAs.
- Maintain water quality and integrity of the Long Lake public water supply wells.
- Address priority actions regarding identification and inventory of wells within the DWSMAs.

5.0 Objectives and Plans of Action

5.1 Establishing Priorities

The aquifer supplying the system's drinking water supply has been identified as non-vulnerable to contamination from typical land use activities, with the exception of other wells that penetrate the confining layer to reach into the aquifer. Therefore, the Long Lake wellhead protection team would like to concentrate management efforts on the following factors to create awareness of groundwater protection and help prevent future contamination of the aquifer:

- Manage other wells (Well Management)
- Inform the public about groundwater issues (Public Education)
- Collect additional data relating to local groundwater issues (Data Collection)

5.2 Well Management

5.2.1 Promoting the Sealing of Unused, Poorly-Maintained, Damaged, or Abandoned Wells

The City will promote any well sealing or cost-sharing programs available through Hennepin County Environmental Services that assist with or reimburse the costs and administration of sealing unused, poorly-maintained, damaged or abandoned private wells located within the DWSMAs.

5.2.1.1 Source of Action

Long Lake Public Works Department

5.2.1.2 Cooperators

Hennepin County Environmental Services

5.2.1.3 Time Frame

Beginning in 2005 and ongoing thereafter

5.2.1.4 Estimated Costs

This task is expected to require approximately 10 hours of city staff time per year. The City may consider participating in available, existing cost-sharing programs, and/or reimbursing a portion of the well sealing costs to local residents.

5.2.1.5 Goal(s) Achieved

This action will assist with the City's goal of eliminating potential pollutant sources to the aquifer used for public water supplies. The number of wells in the DWSMAs will be reduced.

5.2.2 Identifying New High-Capacity Wells and Changes to Appropriations of Existing High-Capacity Wells

City staff and the MDH Source Water Protection Unit staff will coordinate efforts with the MN DNR Appropriations Program Permit to identify proposed new, high-capacity wells in the DWSMAs, and/or significant changes to existing groundwater appropriation permits for existing wells. Proposed new high-capacity wells or changes to current Appropriation Permits will be evaluated by MDH staff to determine whether the proposed pumping will change the boundaries of the delineated WHPAs and corresponding DWSMAs for the City's municipal wells. If identified, the City and the MDH and MN DNR staff will meet with the well owner(s) to inform them of the potential impacts the new or existing wells may have on the City's wellhead and source water protection efforts, and discuss responsibility for any changes that may be necessary.

5.2.2.1 Source of Action

Long Lake Public Works Department; MDH; MN DNR

5.2.2.2 Cooperators

Well owners, property/business owners, and local residents

5.2.2.3 Time Frame

Beginning at the time the Wellhead Protection Plan is approved and ongoing thereafter

5.2.2.4 Estimated Cost

No new or additional costs are anticipated. The city staff time and costs associated with this task are already allocated through existing City programs, projects, and budgets.

5.2.2.5 Goal(s) Achieved

This action will assist the City in identifying new wells proposed to be constructed in the DWSMAs, and determine whether the pumping of new or existing wells will affect the City's Wellhead Protection Plan. This action will also provide opportunities to bring well owners into wellhead and source water protection educational programs.

5.2.3 Public Education

The City will mail MDH pamphlets and Hennepin County brochures related to operating and maintaining drinking water wells to all identified well owners located in the DWSMAs. The pamphlets and brochures may include *The Well Owner's Handbook, Finding Lost Wells – Searching for Wells on a Property, Protecting Your Well, Sealing Unused Wells,* and *Safe Clean Drinking Water - Available Across Minnesota*. The documents will also be made available at City Hall. The MDH will be responsible for providing new well owners all applicable information and documents.

5.2.3.1 Source of Action

Long Lake Wellhead Protection Manager

5.2.3.2 Cooperators

MDH; well owners within the DWSMAs

5.2.3.3 Time Frame

To begin in 2005 and ongoing thereafter

5.2.3.4 Estimated Costs

The documents and materials will be provided, free of charge, from the MDH. Costs may include postage and city staff time. The city staff time required for this task will be incorporated through other existing city programs, projects, and budgets.

5.2.3.5 Goal(s) Achieved

This action will assist the City in identifying and educating well owners in the DWSMAs about proper use and maintenance of wells. Proper operation and maintenance of wells will reduce the potential risk that these wells will become direct pathways for contamination of the source water aquifer(s).

5.2.4 Well Verification

Several possibly active wells were identified within the DWSMAs, but beyond the Long Lake city limits. These wells (summarized in Table 1 of this Plan) will be specifically located and their status will be determined.

5.2.4.1 Source of Action

Long Lake and Orono city staff.

5.2.4.2 Cooperators

Well owners within the DWSMAs and the MDH.

5.2.4.3 Time Frame

The locations and status of the wells within the DWSMAs will be determined within 6 months of the formal MDH approval of this Plan.

5.2.4.4 Estimated Cost

No new or additional costs are expected to be incurred. The staff time required for this task are already allocated through existing city programs and budgets.

5.2.4.5 Goal(s) Achieved

Wells within the DWSMAs are the primary threat to the Long Lake source water aquifer. Knowing the wells locations and status will allow the city to evaluate and manage this threat.

5.2.5 Class V Well Regulation

The city will evaluate the feasibility of imposing a ban through a new zoning ordinance on the construction of new Class V disposal wells (as defined by EPA) not connected to the city's sewer system.

5.2.5.1 Source of Action

Long Lake city staff and Wellhead Protection Manager.

5.2.5.2 Cooperators

Long Lake City Council.

5.2.5.3 Time Frame

The possibility of new regulations will be evaluated by 2007.

5.2.5.4 Estimated Cost

This action is not expected to result in costs to the city. Staff time and attorney fees will be allocated through other existing city programs and budgets.

5.2.5.5 Goal(s) Achieved

Preventing the construction of new Class V disposal systems will reduce the likelihood of groundwater contamination that could potentially impact the Long Lake source water aquifer. All new Class V wells will be required to be connected to the City's sewer system and liquid wastes will not be discharged into the subsurface.

5.3 Public Education

5.3.1 Publishing the *Drinking Water Consumer Confidence Report*

The City will continue distributing the *Drinking Water Consumer Confidence Report* to all users of the Long Lake public water supply. The report provides information regarding the city's public water supply system and its water quality.

5.3.1.1 Source of Action

Long Lake Public Works Department

5.3.1.2 Cooperators

None

5.3.1.3 Time Frame

Ongoing, annually distributed as required by federal regulations

5.3.1.4 Estimated Costs

No new of additional costs are expected for this activity. The city staff time and costs associated with this task are already allocated through existing city programs, projects, and budgets.

5.3.1.5 Goal(s) Achieved

The general public will be more aware of the federal water quality requirements for public water supply systems, and the overall water quality of the city's public water supply.

5.3.2 Incorporating Wellhead and Source Water Protection into the City's Planning Process

The City will include a review of this Wellhead and Source Water Protection Plan as part of its normal zoning and land use planning processes. Copies of the Plan will be distributed to the City's Planner(s) and Planning Commission, and Hennepin County.

5.3.2.1 Source of Action

Long Lake Planning Department

5.3.2.2 Cooperators

Long Lake Planning Commission; Long Lake City Council

5.3.2.3 Time Frame

This will be an ongoing activity beginning in 2004.

5.3.2.4 Estimated Costs

No new or additional costs are anticipated. The city staff time and costs associated with this task are already allocated through existing city programs, projects, and budgets.

5.3.2.5 Goal(s) Achieved

Wellhead and source water protection efforts will be extended and incorporated into future planning for the city. Potential pollution risks to the public water supply system will be reduced.

5.3.3 Informational New Releases

The City will publish articles in the city newsletter and local newspaper pertaining to and providing information related to wellhead and source water protection wells. Templates for the new releases will be provided by the MDH.

5.3.3.1 Source of Action

Long Lake Public Works Department

5.3.3.2 Cooperators

City staff; Local newspaper; MDH

5.3.3.3 Time Frame

To begin in 2005 and as appropriate thereafter

5.3.3.4 Estimate Costs

No new or additional costs are anticipated for this task. The city staff time and costs associated with completing this action are already allocated through other city programs, projects, and budgets.

5.3.3.5 Goal(s) Achieved

The general public and property owners in the DWSMAs and citywide will become more aware of the City's wellhead and source water protection program, groundwater protection principles, and steps that everyone can take to protect the City's public water supply.

5.4 Additional Data Collection

5.4.1 Monitoring Static and Pumping Levels in Municipal Wells

The City will continue to routinely monitor and record the static and pumping levels of the groundwater in the municipal wells. Water levels in all the municipal wells will be recorded monthly.

5.4.1.1 Source of Action

Long Lake Public Works Department

5.4.1.2 Cooperators

None

5.4.1.3 Time Frame

Ongoing

5.4.1.4 Estimated Costs

No new or additional costs are anticipated for this task. The city staff time and costs associated with this activity are already allocated through existing city programs, projects, and budgets.

5.4.1.5 Goal(s) Achieved

By routinely recording the groundwater levels in the municipal wells, the city can monitor groundwater elevation trends over time. If the static water levels in the wells show a consistent decreasing trend, the city may pursue more restricted water use measures and/or more effective methods to control

public water supply use. This data can also be useful to verify the groundwater flow fields in the source water aquifer(s).

5.4.2 Geologic and Hydrogeologic Studies and Data Gathering

The City intends to obtain additional geologic and hydrogeologic information and data regarding the Long Lake area, as it becomes available.

5.4.2.1 Source of Action

Long Lake Wellhead Protection Manager

5.4.2.2 Cooperators

Agencies or groups conducting geologic or hydrogeologic studies, well drilling companies, and others

5.4.2.3 Time Frame

Beginning in 2006 and ongoing thereafter

5.4.2.4 Estimated Costs

No new or additional costs are anticipated for this task. The city staff time and costs associated with this activity are already allocated through existing city programs, projects, and budgets.

5.4.2.5 Goal(s) Achieved

By obtaining additional geologic and hydrogeologic information specifically focused on the Long Lake area, more accurate data will be available to delineate future, revised WHPAs and DWSMAs(s) for the existing and proposed municipal wells. This information will be valuable for future, required updates to this Plan. Updated and more accurate vulnerability assessments will also result.

5.4.3 Monitoring the Quality of the Public Water Supplies

The City intends to compile and track the levels of compounds and contaminants detected in the Long Lake public water supply and wells. This data will be obtained from the MDH as it is collected as part of the required, routine sampling of the public water supply system.

5.4.3.1 Source of Action

Long Lake Public Works Department

5.4.3.2 Cooperators

MDH

5.4.3.3 Time Frame

Beginning in 2004 and ongoing thereafter

5.4.3.4 Estimated Costs

No new or additional costs are anticipated for this task. The city staff time and costs associated with this activity are already allocated through existing city programs, projects, and budgets.

5.4.3.5 Goal(s) Achieved

Through compiling and assessing the quality of the groundwater used for public water supplies, the City will have a good understanding of whether the levels of identified contaminants are increasing or decreasing over time. This information will also allow the City to determine whether new impacts have occurred to the source water aquifer(s), and what remedial measures should be undertaken.

6.0 Evaluation Program

The success of the Long Lake wellhead protection management program must be evaluated in order to determine whether the Plan is actually accomplishing what the City set out to do. The following activities will be implemented to:

- Track the implementation of the objectives identified in Section 5.0 of this Plan;
- Determine the effectiveness of specific management strategies regarding the protection of the public water supply;
- Identify possible changes to these strategies which may improve their effectiveness; and
- Determine the adequacy of financial resources and staff availability to carry out the management strategies planned for the coming year.

1. The City will continue to cooperate with the MDH in the annual monitoring of the water supply system to determine whether the management strategies are having a positive effect and to identify water quality problems that may arise that must be addressed.
2. Members of the wellhead protection team, the governing authority, and the Wellhead Protection Manager will travel through the drinking water supply management area on a regular basis to identify any changes in land use or potential contaminant source management practices which may adversely impact the public water supply.
3. The wellhead protection team will meet on an as-needed basis, with a minimum of one annual meeting, to review the results of each strategy implemented during the previous plan year and identify and discuss whether modifications are needed for those strategies, and additional strategies for the coming year.
4. The Wellhead Protection Manager will make an annual written report to the governing authority regarding progress in implementing the wellhead protection management objectives of this Plan. The annual reports will be compiled and used to review the overall progress in implementing source management strategies when the Long Lake Wellhead Protection Plan is updated in 10 years. A copy of the report will be sent to the MDH Source Water Protection Unit in St. Paul and another copy will be placed in the City's wellhead and source water protection file.

7.0 Alternative Water Supply; Contingency Strategy

The City of Long Lake has a *Water Supply Conservation Plan* that has been submitted and approved by the DNR, Division of Waters, Appropriation Permit Program. This approved Plan contains the required elements of the Minnesota Wellhead Protection Rule and is accepted as an equivalent to an Alternative Water Supply/Contingency Plan as defined in 4720.5280. Implementation of the Plan has begun with the aid and assistance of local emergency management agencies. A copy of the Plan is available for review at the City's Public Works Facility or by contacting Marv Wurzer at 952.473.6961.